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PHASE 3 – ENGINEERING DATA COLLECTION FOR THE

CORRECTIVE MEASURES STUDY BADIN WORKS FACILITY BADIN, NORTH CAROLINA

October 31, 2012

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1.0 INTRODUCTION

This report is the next step in advancing the Corrective Measures Study outlined in the Corrective Measures Study ("*CMS*") Work Plan approved March 25, 2009, by the North Carolina Department of Environment and Natural Resources ("*NCDENR*"), Division of Waste Management. This report describes the field activities and results outlined in the Phase 3 Engineering Data Collection Work Plan submitted on April 15, 2011, for collecting information to support or reject potentially identified technical alternatives to be applied to the Alcoa Badin Landfill, Old Brick Landfill, and the Alcoa Badin Works Main Plant ("*Sites*").

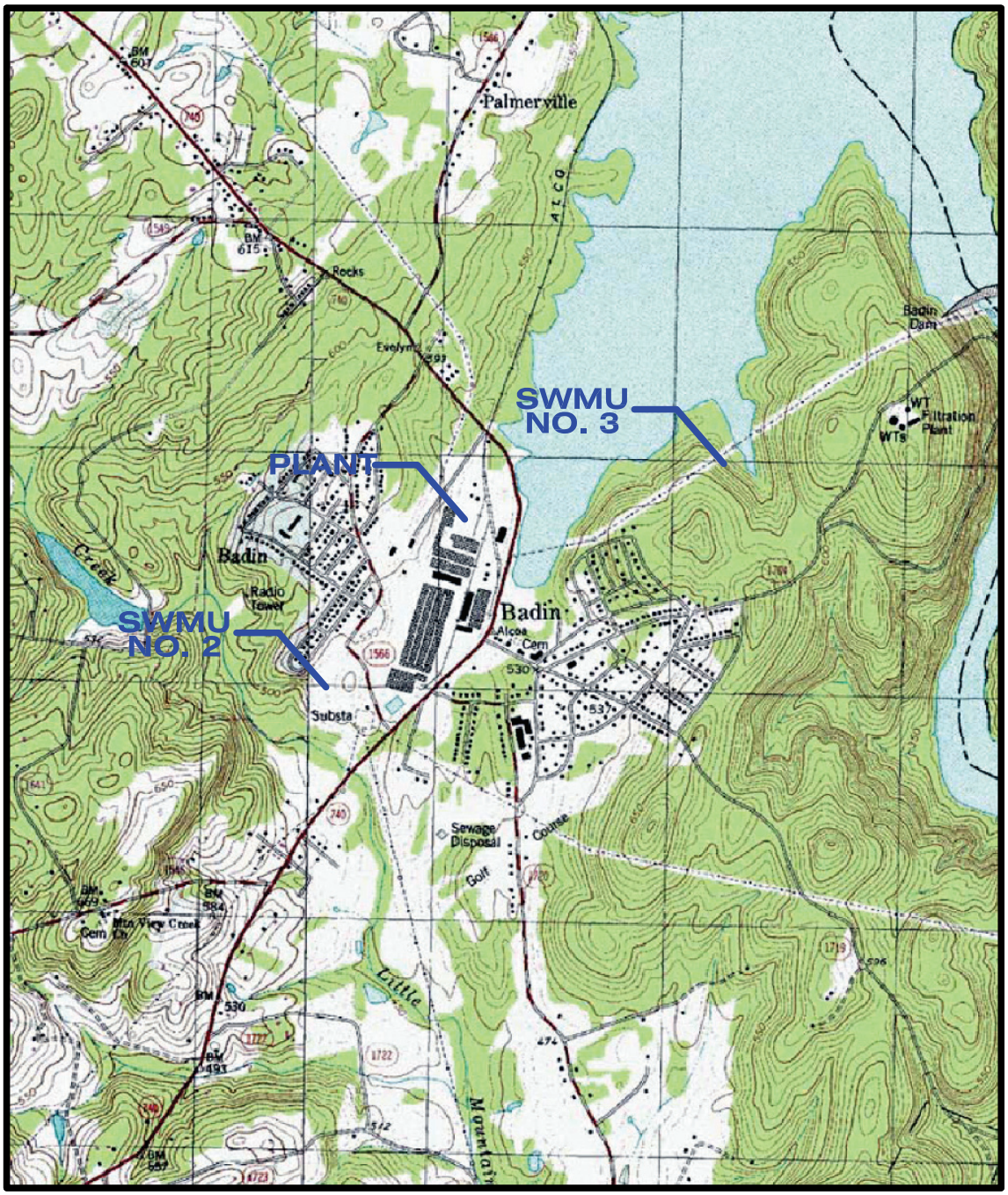
The Alcoa Badin Landfill, Old Brick Landfill, and the Alcoa Badin Works Main Plant are located in the town of Badin, Stanly County, North Carolina. **Figure 1-1** is an excerpt from a United States Geological Survey ("*USGS*") 7.5-minute topographical quadrangle map showing the locations of the Sites as well as topographic features.

1.1 Background

In March 1990, Alcoa filed a RCRA Part B permit application with USEPA for the on-site storage of hazardous wastes for greater than 90 days. In response to the permit application, USEPA Region IV performed a RCRA Facility Assessment ("*RFA*") of the Alcoa Badin Works and associated off-site locations. The RFA identified at total of 34 SWMUs and 2 Areas of Concern ("*AOCs*"). Alcoa added an additional twelve SWMUs after the initial RFA was completed. The North Carolina Department of Environment, Health, and Natural Resources Division of Solid Waste Management (now the NCDENR Division of Waste Management), in cooperation with USEPA Region IV, issued the final RCRA Part-B Permit to Alcoa on March 30, 1992. Part VII of Alcoa's RCRA permit outlined the Corrective Action activities to be conducted at Alcoa Badin Works.

The initial step in the Corrective Action process was confirmatory sampling at seven SWMUs to verify if a release had occurred. Based on the results of the RFA and the confirmatory sampling, a RCRA Facility Investigation ("*RFI*") was conducted at 16 SWMUs and AOCs. Alcoa completed the RFI and a report was issued to the NCDENR in March 2001.

Alcoa conducted Interim Measures activities at a number of the Badin Works SWMUs prior to the RCRA Facility Investigation. The results of these Interim Measures activities were incorporated into the final RFI Report. The RCRA Investigation work findings supported a "No Further Actions" status by the NCDENR for 22 of the facility's SWMUs. The RCRA Facility Investigation report identified groundwater in three areas of the facility as needing further actions. These areas were: the Alcoa/Badin Landfill ("*SWMU No. 2*"); Old Brick Landfill ("*SWMU No. 3*"); and the groundwater northern portion of the Main Plant. NCDENR approved the RCRA Corrective Action Investigation Report in their letter of December 19, 2007.



TOPOGRAPHIC EXCERPT FROM 7.5 MINUTE QUADRANGLE

SOURCE: UNITED STATES GEOLOGICAL SURVEY

BADIN AND NEW LONDON, NORTH CAROLINA QUADRANGLES (1994)

NORTH CAROLINA QUADRANGLE LOCATION

SCALE: 1:24,000

CONTOUR INTERVAL: 2 FEET

TRUE NORTH APPROXIMATE

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FIGURE 1–1

EXCERPT FROM USGS TOPOGRAPHIC MAP

ALCOA – BADIN WORKS FACILITY

BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

Alcoa/Badin Landfill ("ABL") (SWMU No. 2)

The RFI results showed no Constituents of Interest ("COIs") present in soil adjacent to the Alcoa/Badin landfill at concentrations exceeding the conservative risk-based screening values. As a result, soils surrounding SWMU No. 2 do not pose unacceptable risk to potential current or reasonably anticipated future receptors. However, the RFI did show one constituent in groundwater exceeding the screening value in a single well down gradient of the landfill. This constituent was total cyanide. A screening level risk assessment was conducted on the first receptor for groundwater down gradient of the landfill. This receptor is Little Mountain Creek and it showed that no COIs are present at concentrations exceeding applicable human health screening values. The unit was retained in the Corrective Action process because of the detection of total cyanide in one groundwater well above the regulatory standard.

Old Brick Landfill ("OBL") ("SWMU No. 3")

The 2001 RFI report demonstrated that there were no COIs present in soils adjacent to the Old Brick Landfill at concentrations exceeding the conservative risk-based screening values. As a result, soils do not present a risk. The RFI results did show groundwater in a few wells contained total cyanide that exceeded the screening values. The unit was retained in the Corrective Action process because of the detection of total cyanide in selected groundwater wells above the regulatory standard. Alcoa upgraded the OBL cover system in 2006 to eliminate point source discharges to surface water under facility's NPDES Permit. This upgrade consisted of cover system reconfiguration to mitigate surface water infiltration, control storm water flow, and manage storm water run-off through infiltration or controlled discharge under the NPDES permit.

Alcoa Badin Works Main Plant

Alcoa conducted interim measures activities at a number of SWMUs within the main plant to address residual surface soil impacts prior to the RFI. The subsequent RFI demonstrated that COI impacted soils were addressed by the interim measures work and soil removal activities. No further action was required to address direct contact pathways for soils at the SWMUs and AOCs in the plant area. However, the RFI did identify cyanide, fluoride, arsenic, trichloroethene and trichloromethane (chloroform) as the only constituents of concern in groundwater along the northeast side of the main plant.

Alcoa conducted further site wide investigation of groundwater to characterize fluoride and total cyanide impacts in 2005 and 2006. During this investigation several new groundwater wells were installed at the facility. In February 2005 and February 2006, groundwater samples were collected from new and a number of existing monitoring wells at the facility. Results of this investigation indicated groundwater flow occurs in the Northwest Valley along two axes to the northeast and the east. Primary direction of groundwater flow is to the east and the lesser flow is to the northeast. Fluoride and cyanide distribution in groundwater shows flow is preferential in those directions.

Groundwater within the northern Main Plant area was retained in the Corrective Action process as a result of the RFI and subsequent groundwater investigation. The primary COIs for groundwater are free cyanide and fluoride.

2.0 SCOPE OF WORK

The tasks that were performed as part of this study included the following:

1. Fill Assessment – Delineate the lateral and vertical extent of fill through soil borings, soil sample collection, and laboratory analysis. A fill assessment was conducted on the following units:
   a. Alcoa Badin Landfill (SWMU No.2)
   b. Alcoa Badin Works Plant - Waste Oil Storage Area (SWMU No. 35)
   c. Alcoa Badin Works Plant - Pine Tree Grove Area (SWMU No.44)
   d. Alcoa Badin Works Plant - West SPL Area (SWMU No.46)

2. Hydrogeological Assessment – Characterize the correlation of groundwater surface within filled areas through potentiometric monitoring. A hydrogeological assessment was conducted on the following units:
   a. Alcoa Badin Landfill (SWMU No.2)
   b. Alcoa Badin Works Plant - Northwest Valley

3. Water Quality Assessment - Evaluate the water quality through groundwater sampling, surface water sampling, and analysis. A water quality assessment was performed at the following units or area;
   a. Alcoa Badin Landfill (SWMU No.2) Groundwater
   b. Little Mountain Creek Surface Water
   c. Old Brick Landfill (SWMU No.3) Groundwater
   d. Old Brick Landfill Surface Water
   e. Alcoa Badin Works Plant Area Groundwater
   f. Badin Lake Surface Water

A more detailed description of the tasks performed is provided below.

2.1 Task 1 – Fill Assessment

A fill assessment was conducted on the Alcoa Badin Landfill, Waste Oil Storage Area, Pine Tree Grove Area, and West SPL Area. The activities conducted to complete this assessment are discussed below.

2.1.1 Alcoa Badin Landfill (SWMU No.2)

The ABL fill assessment was undertaken to better understand the fill distribution within the landfill footprint. The investigation strategy for the assessment consisted of the following:

1) A geophysical survey was conducted to determine the location of fill material using an electromagnetic survey ("*EM*"). An EM survey measures the contrasts in subsurface electrical conductivity. The contrasts in subsurface electrical conductivity are indicatory of dissimilar materials such as highly conductive fill against less conductive fill and native soils; and

2) Historical topographic maps were located and geo-referenced to current topographic maps of the area for the purpose of assessing sequential filling activities. In addition, existing boring logs were reviewed to verify the native ground surface profile prior to filling activities. New soil boring/groundwater wells were installed to verify fill-native soil interface as indicated by historical topographic maps.

2.1.2 Alcoa Badin Works Plant - Old Waste Oil Storage Area (SWMU No. 35)

A fill assessment was conducted on the Old Waste Oil Storage Area to identify the extent of fill and further refine characterization of PCB soil impacts within this unit. The results of the assessment were previously submitted to the NCDENR in the SWMU 35 CMS Engineering Investigation Summary Report dated August 31, 2011. Results of the assessment indicated that PCB soil impact was limited in depth and did not impact groundwater beneath the SWMU.

2.1.3 Alcoa Badin Works Plant - Pine Tree Grove Area (SWMU No.44)

A fill assessment at the Pine Tree Grove Area was conducted to determine the nature and extent of the fill and to further understand if fill materials within these areas are impacting groundwater. The investigation strategy for the assessment consisted of the following:

1) A geophysical survey was conducted to determine the location of fill material using multiple geophysical technologies. The technologies applied at this location consisted of EM, ground penetrating radar ("*GPR*"), and seismic refraction ("*seismic*") survey methods. The EM survey method was utilized to identify areas of elevated conductivity that are indicative of dissimilar materials such as highly conductive fill against less conductive fill and native soils. The GPR and seismic methods were deployed to distinguish the structure of fill material areas versus native material areas; and

2) A drilling and sampling investigation was conducted at the Pine Tree Grove Area to verify or "truth" the results of the geophysical survey. Six locations within the Pine Tree Grove were drilled to the fill-native soil interface, and soil cores collected and logged. Discrete soil samples were collected from selected intervals in each soil core for laboratory analysis for fill material characterization. The soil samples were delivered to TestAmerica Laboratories, Inc. in Savannah, Georgia for analysis for the presence of Total Cyanide and Total Fluoride.

2.1.4 Alcoa Badin Works Plant - West SPL Area (SWMU No.46)

A fill assessment at the West SPL Area was conducted to determine the nature and extent of the fill and to further understand if fill materials within these areas are impacting groundwater. The investigation strategy for the assessment consisted of the following:

1) A geophysical survey was conducted to determine the location of fill material using multiple geophysical technologies. The technologies applied at this location consisted of EM, GPR, and seismic survey methods. These technologies were selected based on the rationale discussed in Section 2.1.3; and

2) A drilling and sampling investigation was conducted at the West SPL Area to verify or "truth" the results of the geophysical survey. Eleven locations within the West SPL Area were drilled to the fill-native soil interface, and soil cores collected and logged. Discrete soil samples were collected from selected intervals in each soil core for laboratory analysis for fill material characterization. The soil samples were delivered to TestAmerica Laboratories, Inc. in Savannah, Georgia for analysis for the presence of Total Cyanide and Total Fluoride.

2.2 Task 2 – Hydrogeological Assessment

2.2.1 Alcoa Badin Landfill (SWMU No.2) Groundwater

The ABL hydrogeological assessment was undertaken to better understand the groundwater within the landfill footprint. The investigation strategy for the assessment consisted of the following:

1) A routine groundwater elevation monitoring program was implemented to collect potentiometric head data from groundwater well network installed within and down gradient of the unit. The purpose of the data collection effort was to evaluate groundwater surface within the fill; and

2) A precipitation monitoring program was implemented to collect rain data at the landfill. The purpose of the precipitation monitoring program was to evaluate inclement weather and seasonal effects on the groundwater surface.

2.2.2 Alcoa Badin Works Plant Area Groundwater

The Plant Area hydrogeological assessment was undertaken to better understand facility wide groundwater. The investigation strategy for the assessment consisted of the following:

1) A routine groundwater elevation monitoring program was implemented to collect potentiometric head data from groundwater well network. The purpose of the data collection effort was to determine the groundwater gradient and flow direction at the plant and needed to provide a better understanding of the interaction of the groundwater with Badin Lake.

2.3 Task 3 – Water Quality Assessment

2.3.1 Alcoa Badin Landfill (SWMU No.2) Groundwater

The Alcoa Badin Landfill underwent significant cover system improvements as an Interim Measures since the commencement of the RFI process. The beneficial effects of this Interim Measures have not been

fully evaluated. To gain an understanding of "Post" Interim Measures groundwater conditions, the investigation strategy for the assessment consisted of the following:

1) A routine groundwater monitoring program was implemented to collect water quality data from selected wells in the existing groundwater well network. The purpose of the data collection effort was to evaluate the potential effects of interim measures and cover system improvements on the groundwater water quality.

2.3.2 Little Mountain Creek Water

Results from the RFI showed one constituent in ABL groundwater exceeding the screening value in a single well down gradient of the landfill. As part of the RFI, a screening level risk assessment was conducted on the first down gradient groundwater receptor, Little Mountain Creek. The screening level risk assessment showed that no COIs were present at concentrations exceeding applicable human health screening values. To confirm this current understanding, the investigation strategy for the assessment consisted of the following:

1) A surface water sampling event was performed to collect water quality data from Little Mountain Creek at a downstream location. The purpose of this sampling effort was to determine if the creek has been impacted by the Alcoa Badin Landfill.

2.3.3 Old Brick Landfill (SWMU No. 3) Groundwater

Significant cover system upgrades were performed at the Old Brick Landfill since the commencement of the RFI process. This cover system upgrade was conducted in support of NPDES permit to eliminate a point source discharge. The beneficial effect of the cover system upgrade has not been fully evaluated. Results from the RFI demonstrated that groundwater contained total cyanide that exceeded the screening values. The unit was retained in the Corrective Action process because of the detection of total cyanide in groundwater wells above the regulator standard. To gain an understanding of cover system upgrades on groundwater conditions, the investigation strategy for the assessment consisted of the following:

1) A routine groundwater monitoring program was implemented to collect water quality data from selected wells in the existing groundwater well network. The purpose of the data collection effort was to evaluate the potential effects of cover system upgrades on the groundwater water quality.

2.3.4 Old Brick Landfill Surface Water

Results from the RFI showed constituents in OBL groundwater exceeding the screening value. A screening level risk assessment was conducted on the first down gradient groundwater receptor, Badin Lake. The screening level risk assessment showed that no COIs were present at concentrations exceeding applicable human health screening values. To confirm this current understanding, the investigation strategy for the assessment consisted of the following:

1) A surface water sampling event was performed to collect water quality data from Badin Lake. The purpose of this sampling effort was to determine if the lake has been impacted by the Old Brick Landfill.

2.3.5 Alcoa Badin Works Plant Area Groundwater

The RFI identified multiple constituents of concern in groundwater along the northeast side of the main plant primarily within the Northwest Valley. To gain an understanding of the current groundwater conditions for the evaluation of potential alternative treatment technologies, the investigation strategy for the assessment consisted of the following:

1) A groundwater sampling program was implemented to collect water quality data from selected wells in the existing groundwater well network. The purpose of the data collection effort was to evaluate the effects of interim measures, assess current conditions, and provide data to evaluate the potential applicability of monitored natural attenuation, permeable reactive barriers, and other technologies.

2.3.6 Badin Lake Surface Water

Results from the RFI showed constituents in Northwest Valley groundwater exceeding the screening values. A screening level risk assessment was conducted on the first down gradient groundwater receptor, Badin Lake. The screening level risk assessment showed that no COIs were present at concentrations exceeding applicable human health screening values. To confirm this current understanding, the investigation strategy for the assessment consisted of the following:

1) A surface water sampling event was performed to collect water quality data from Badin Lake. The purpose of this sampling effort was to determine if the lake has been impacted by the groundwater concentrations present in the Northwest Valley area.

3.0 RESULTS

The results of the fill assessment, hydrogeological assessment and water quality assessment are presented below.

3.1 Task 1 – Fill Assessment

A fill assessment was conducted on the Alcoa Badin Landfill, Waste Oil Storage Area, Pine Tree Grove Area, and West SPL Area. The results from this assessment are discussed below.

3.1.1 Alcoa Badin Landfill (SWMU No.2)

The Alcoa Badin Landfill was utilized Alcoa and the community in Stanly County as a local "dump" for general municipal refuse and industrial debris. The ABL was created by filling in a natural ravine, which extends from south of Wood Street towards Little Mountain Creek. The unlined landfill is located approximately 500 ft south of the fenced plant area and occupies approximately 14 acres. Alcoa ceased operations of the landfill in the mid-1970's. The landfill was graded, covered with native soils, and seeded with grass.

The fill assessment at the ABL was conducted by evaluating the 2007 geophysical survey, installing soil borings and monitoring wells in and around the landfill, and comparing early 20th century topographic maps with current topographic maps of the area.

Geophysical Survey

The original boundary of SWMU No. 2 was determined based upon physical features and investigation data. A portion of the eastern edge of the landfill is bordered by the Alcoa Power and Generating Inc. ("APGI") high voltage electrical substation and switchyard. In 2007, landfill waste material was encountered found in a civil engineering boring advanced within the APGI switchyard. Material encountered in the boring was consistent with the known material managed at the landfill. Geo Solutions, Inc. ("*Geo Solutions*"), an independent geophysical firm, was contracted to conduct a survey to estimate the horizontal footprint of the ABL.

The geophysical surveys incorporated both EM and GPR techniques to determine the horizontal extent of this unit. Details of the 2007 geophysical survey of the ABL area have been previously submitted to the NCDENR in a report entitled "*Investigation Summary Report, Alcoa, Inc. Old Badin Landfill and APGI Switchyard, Badin, North Carolina*" dated February 22, 2008. A copy of the geophysical survey is included in **Appendix A**.

Soil Boring Installation

The geophysical survey results were verified by soil "truthing" borings. A total of 13 soil borings were installed. Municipal/industrial waste-based fill material was observed at approximately 7 to 8 feet below

land surface ("bls") in three soil borings (SB-10, SB-11, and SB-12). No municipal/industrial waste-based fill material was observed in the other ten soil borings.

When the geophysical data was correlated with soil boring information, a determination of the horizontal extent of buried fill material within the landfill footprint was made. An updated landfill boundary map based upon this new information showed a slight shift of eastern border into the APGI substation area. Alcoa provided a revised SWMU No. 2 inferred boundary map to NCDENR in the report titled "Investigation Summary Report – Old Badin Municipal Landfill & APGI Switchyard" dated February 22, 2008.

Well Installation

During the course of the investigation, Alcoa elected to install seven new monitor wells at the ABL (PZ-13 through PZ-19) to further assess the hydrogeologic conditions within the landfill. The monitoring wells and soil borings were installed using a track mounted Geoprobe Systems® rig operated by American Environmental Drilling, Inc. of Aberdeen, North Carolina. Soil cores were collected continuously from each soil boring using a Dual Tube or Macro-Core® sampling system. The soil cores were examined and logged by a qualified geologist in the field by describing lithology, mineralization, color, texture, and other relevant features.

After completion of the soil borings, monitoring wells were installed to the fill-native soil interface. Screening intervals were selected based on soil boring lithology to evaluate the presence of groundwater within the fill material. These wells were constructed of 1-inch diameter flush-threaded Schedule 40 PVC screen and casing with the screen machine slotted to 0.010 inch. A sand pack was placed from the bottom of the well to at least 1 foot above the top of the screen. A bentonite plug was installed on top of the sand pack. The remaining annulus was grouted to land surface using cement and bentonite slurry. Boring logs and well construction details are provided in **Appendix B**.

The monitoring wells were completed up-right, locking aluminum protective covers, concrete pads and steel protective bollards. The location of the monitoring wells and soil borings are shown on **Figure 3-1**.

The wells were developed by alternately surging and pumping the wells until the wells produced clear water that was relatively free of suspended solids. The location and elevation of the wells were surveyed by Bateman Civil Survey Company, P.C. ("*BCSC*"), a State of North Carolina licensed surveyor, in March 2010.

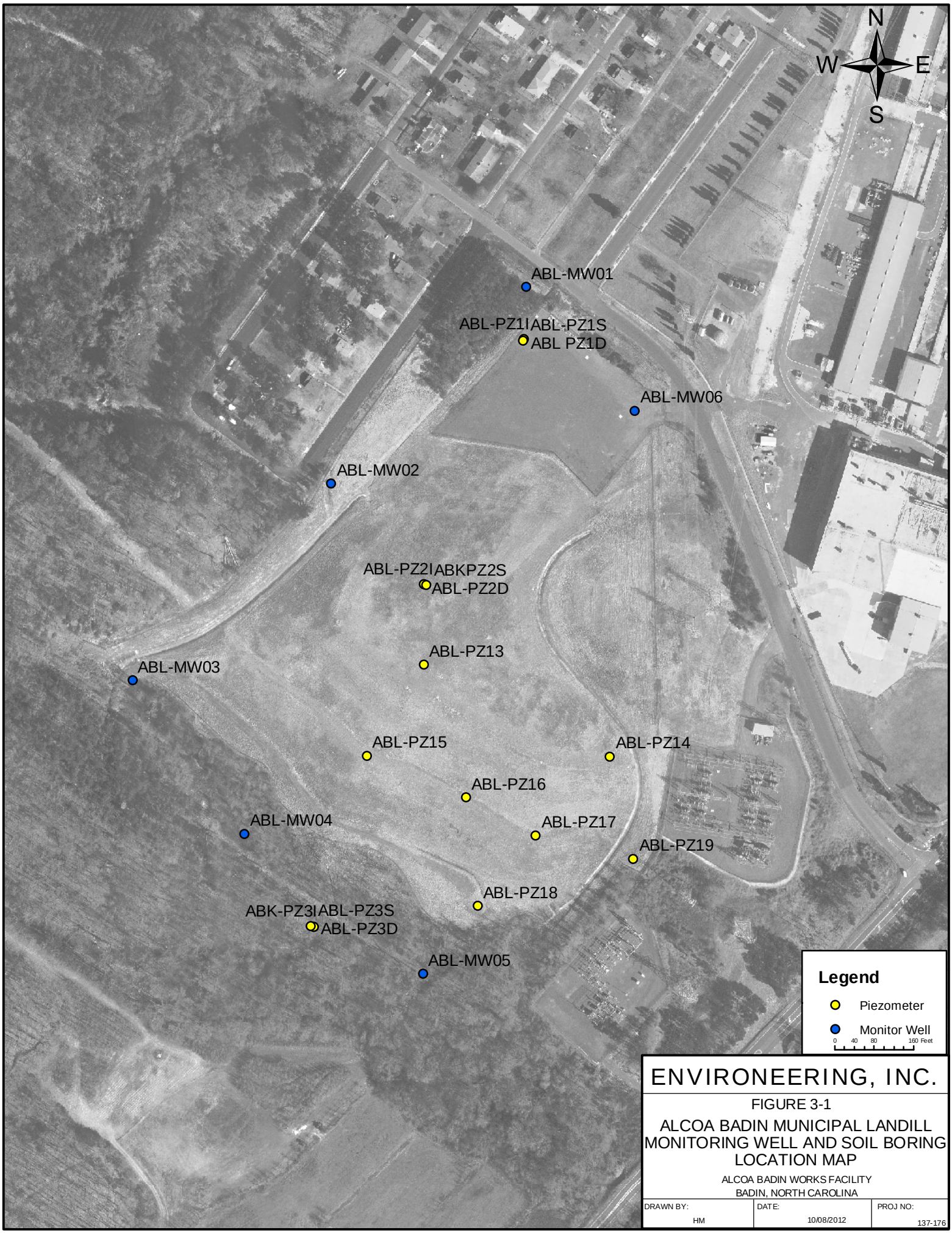

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FIGURE 3-1

ALCOA BADIN MUNICIPAL LANDILL MONITORING WELL AND SOIL BORING LOCATION MAP

ALCOA BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ NO:
HM	10/08/2012	137-176

Topographic Comparison

The ABL is situated in generally rolling terrain near the topographic midpoint, with decreases in elevation towards the southwest, south, and southeast and increases in elevation towards the northwest, north, and northeast. Based upon the USGS topographic and surveyed elevations at SWMU No. 2, elevations at the Site area range from approximately 540 feet above mean sea level ("ft msl") at the crest of the landfill to 470 ft msl near Little Mountain Creek. Badin Lake is located approximately 2,500 feet to the northeast. The Yadkin River is located approximately 7,900 feet to the east at an elevation of approximately 330 ft msl. Regional elevations range from approximately 730 ft msl to 330 ft msl.

Based on available data, a comparative study of historical and current topographic maps was performed. The following topographic maps were used in the comparative study:

Topographic Map of Plant Site at Ebenezer; prepared for Southern Aluminum Company, Whitney, North Carolina; Drawing 3D64 dated September 8, 1913; Scale, 1 inch equals 100 feet.

Topographical Map of Pot Room Site; prepared for Aluminum Company of America, Badin Works; Drawing A214 dated February 23, 1916; Scale, 1 inch equals 100 feet.

Plan of Lots for Laborers' Houses; prepared for Tallahassee Power Company, Badin Works; Drawing A5321 dated January 17, 1917; Scale, 1 inch equals 40 feet.

Alcoa-Badin Landfill Regrading and Cover System Installation Original Site Topography Confirmation Plan; prepared for Aluminum Company of America, Badin Works; Drawing A-052764-BN dated April 2, 1997; Scale, 1 inch equals 50 feet.

Alcoa-Badin Landfill Regrading and Cover System Installation Geotechnical Investigation Program Site Plan (Rev 1); prepared for Aluminum Company of America, Badin Works; Drawing A-052770-BN dated January 17, 1997, updated April 2, 1997; Scale, 1 inch equals 50 feet.

Drainage Basin Topographic Survey; prepared for ENVIRONEERING, Inc. and Alcoa Inc.; Drawing 080231 dated July 28, 2009; Scale, 1 inch equals 100 feet.

When digital maps or data were not available, prints were digitized for use in AutoCAD. As necessary, the topographic datum was adjusted to align with US Government datum. Raw XYZ coordinates were extracted from the AutoCAD DXF file containing contours and other elevation entities using a utility conversion program (DXF2XYZ 2.0 by Guthrie CAD/GIS Software Pty Ltd.). The most current modern elevation information was used by retrieving raw data from a 2009 topographic survey performed by BCSC.

A pre-fill 3-dimensional (3D) construction of area based on the 1916 topographic map is provided as **Figure 3-2**. A 3D construction of the current topographic surface is provided as **Figure 3-3**. Using a geologic computational program (Surfer Version 11 by Golden Software Inc.), the digitized data sets compared the two databases and extracted the difference. The difference was contoured to produce the

thickness data. An interpolated map showing the thickness of the fill material is presented as **Figure 3-4**. The evaluation of the data suggests that capping and fill materials were used to raise a natural ravine to its existing grade, or approximately 13 to 42 feet, depending on location.

Note: Topographic surface generated from Topographical Map of Pot Room Site; prepared for Aluminum Company of America, Badin Works; Drawing A214 dated February 23, 1916; Scale, 1 inch equals 100 feet.

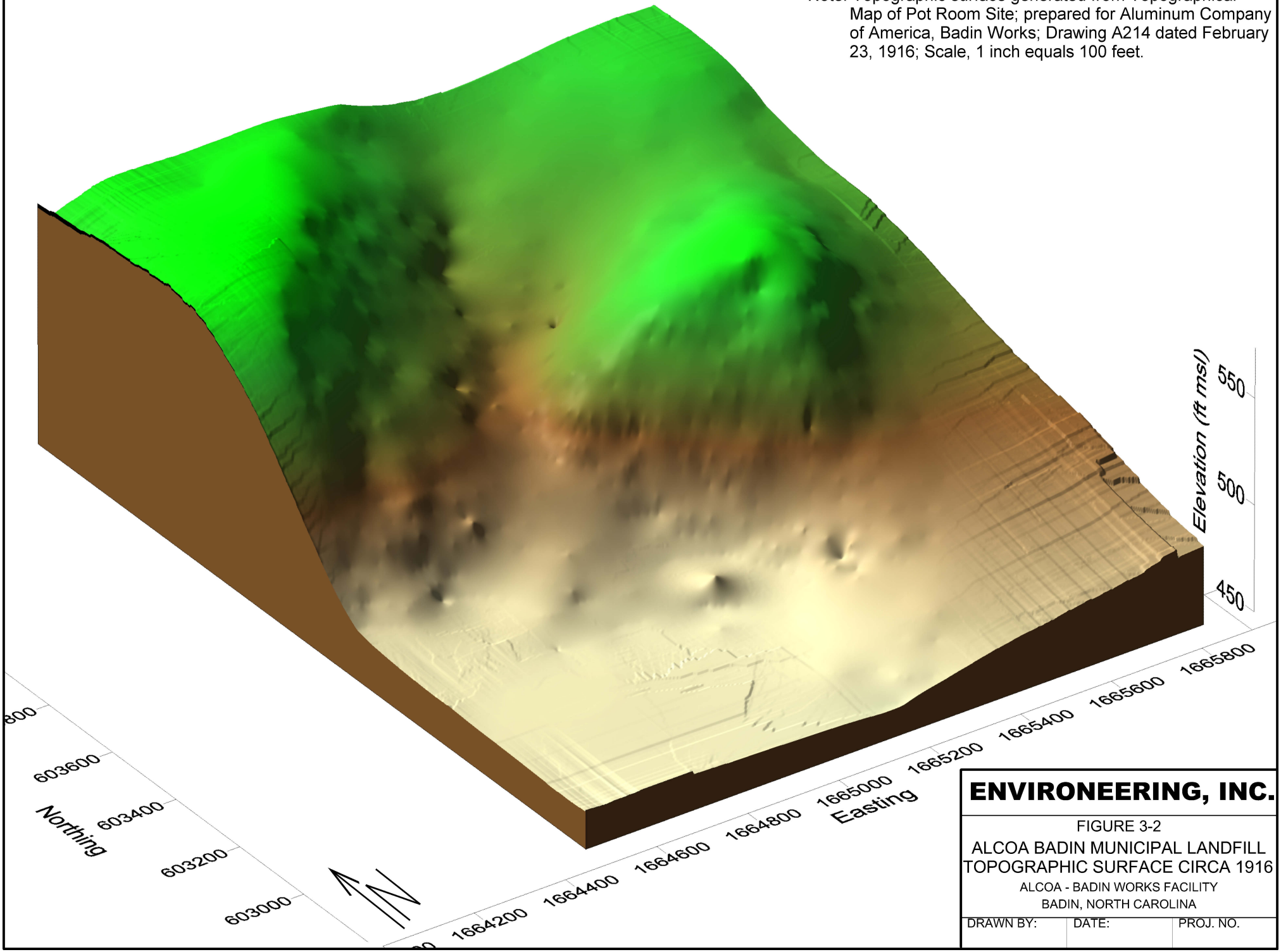

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FIGURE 3-2

ALCOA BADIN MUNICIPAL LANDFILL
TOPOGRAPHIC SURFACE CIRCA 1916

ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

Note: Drainage Basin Topographic Survey; prepared for ENVIRONEERING, Inc. and Alcoa Inc.; Drawing 080231 dated July 28, 2009; Scale, 1 inch equals 100 feet.

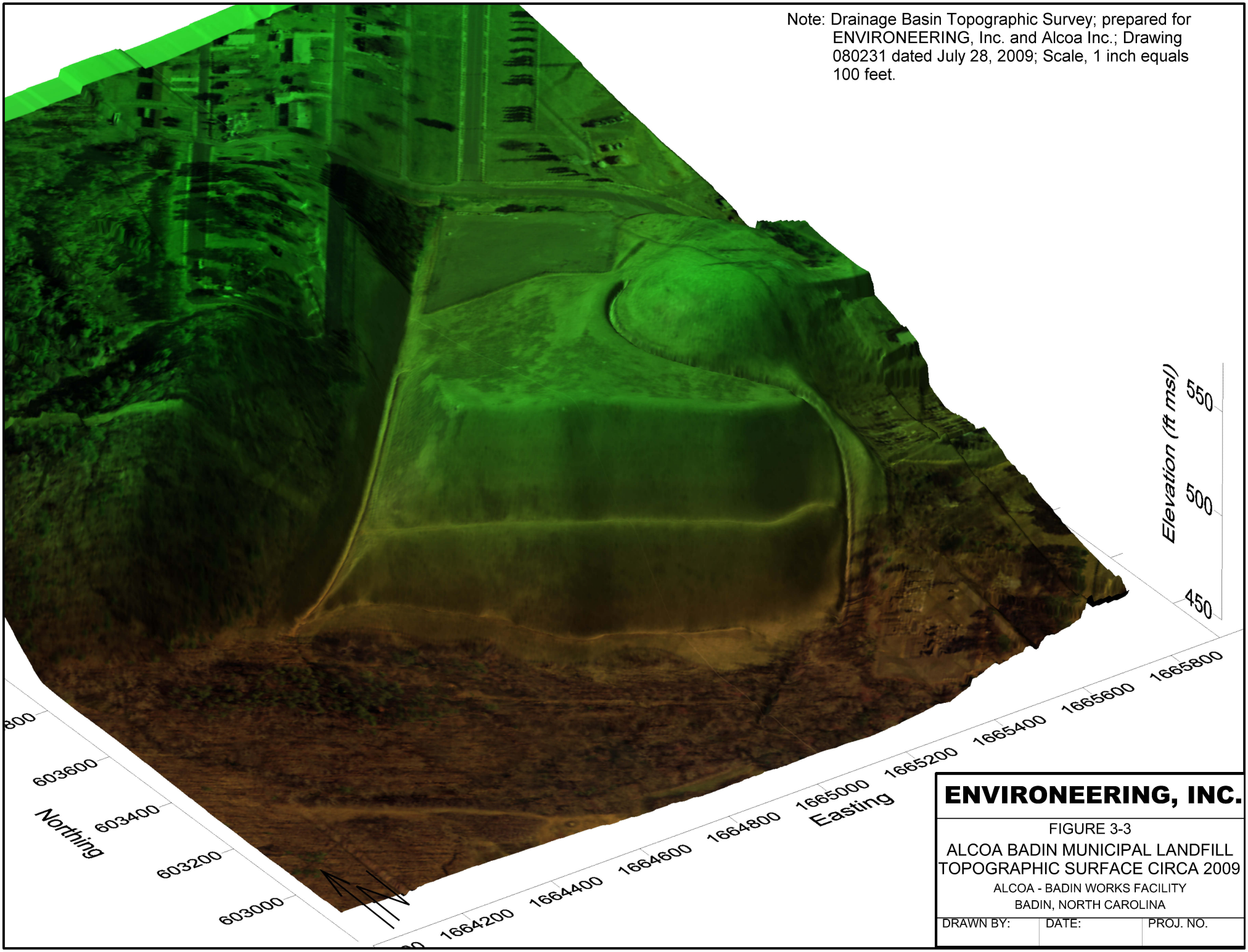

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FIGURE 3-3

ALCOA BADIN MUNICIPAL LANDFILL
TOPOGRAPHIC SURFACE CIRCA 2009

ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

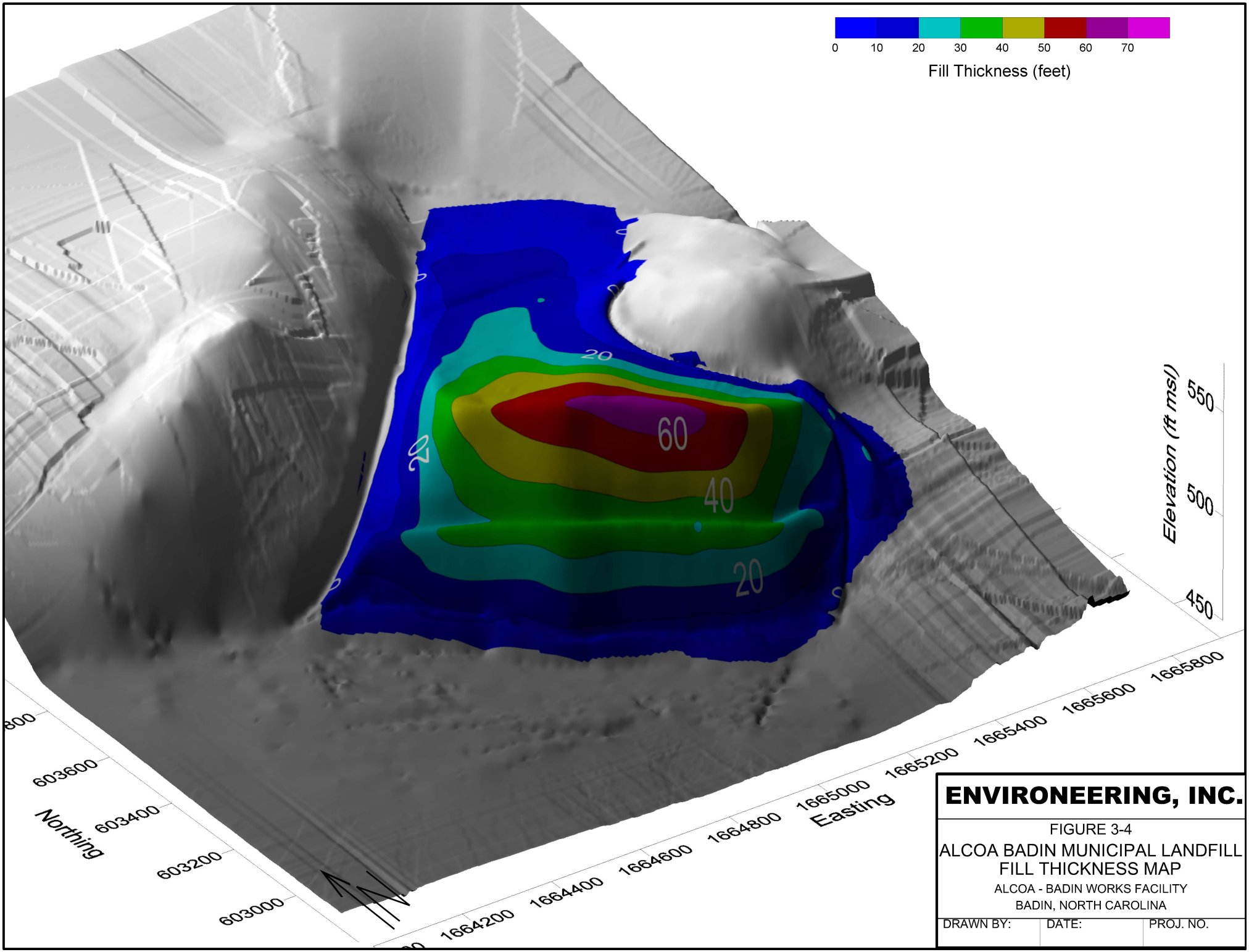

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FIGURE 3-4

ALCOA BADIN MUNICIPAL LANDFILL
FILL THICKNESS MAP

ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

3.1.2 Alcoa Badin Works Plant - Old Waste Oil Storage Area (SWMU No. 35)

A fill assessment was conducted at SWMU 35 in support of an interim measure remedial effort for PCB impacted soils within this unit. The investigation results for this assessment was presented in the SWMU 35 CMS Engineering Investigation Summary Report dated August 31, 2011. Results of the fill assessment were used in the development of the SWMU 35 PCB Removal Interim Measures Work Plan approved by NCDENR and USEPA on May 7, 2012. Alcoa implemented the Work Plan in August 2012.

3.1.3 Alcoa Badin Works Plant - Pine Tree Grove Area (SWMU No. 44)

The fill assessment at the Pine Tree Grove Area was conducted by evaluating the recent geophysical survey, installing soil borings in and around the unit, and comparing early 20th century topographic maps and photographs with current topographic maps of the area.

Geophysical Survey

Geo Solutions was contracted to conduct a survey to refine the boundary and evaluate the extent and nature of fill material within the Pine Grove area during the week of July 11, 2011. Geophysical activities at the site consisted of an EM profile mapping of the site and immediate surrounding area. Following the completion of the EM survey, Geo Solutions completed a GPR survey over multiple profile lines (approximately north south through the property). Finally, Geo Solutions completed multiple seismic profiles using standard seismic refraction methods to evaluate the depth to bedrock, the depth to the former natural west-east trending valley, and the vertical distribution of fill material.

The following summarizes the results from the geophysical survey:

EM Survey - EM is used for the measurement of the electrical conductivity of subsurface soil, rock and groundwater. The electrical conductivity is a function of the porosity, permeability and the fluids in the soil pore space. EM surveys are used to identify fill area boundaries. In a typically fill area setting, the pore fluids dominate the measurements and thus the EM is used to delineate areas that have been backfilled or potentially contain buried fill materials and metallic objects. EM surveys are typically limited in measurable depth to 20 to 30 feet below grade, but generally can cover a greater surface area in a short amount of time. This survey technique is highly influence by metal surface features, such as fences, buildings, and tanks, or highly conductive features.

EM results indicated three distinct zones of anomalously elevated in-phase and apparent conductivity values. Geo Solutions has interpreted the presence of low and probably background EM values for the remainder of the survey area which indicates a boundary between highly conductive fill against less conductive fill and native soils.

GPR Survey - GPR utilizes radio frequency EM energy to detect various layers in the earth's shallow subsurface. GPR typically has higher resolutions for imaging the subsurface as compared to other geophysical methods; however GPR is limited in its depth of detection. Two major

factors limit depth of detection, soil composition and the presence of highly conductive material. For soil composition, increases in clay content decreases the depth of penetration of the radar signal and thus the decreases the depth of detection. Highly conductive material enhances the attenuation of the radar signal, thus reducing the depth of penetration. Due to Site conditions, GPR depth of detection was limited and was not capable of determining the fill-native interface.

Seismic Refraction Survey - Seismic refraction is a widely used technique to determine physical properties of soil and rock. In this method, seismic waves travel outward from a source and reach a series of detectors at known distances. Each detector first senses the waves that went directly to it along the ground surface, and then it senses waves that went downward, were bent (refracted) at deeper layers, then returned to back to the surface. Because the waves move at different velocities in the different layers, an evaluation can be made of the strength of soils and rock.

The seismic refraction survey consisted of three profiles across the field area. Survey results indicated the depth to unweathered rock was as shallow as 5 ft bls, as deep as 30 ft bls, and averages approximately 20 ft bls across the field area. The shallow fill material could not be differentiated by composition. This may be a result of a relative shallow burial of the fill that could not be picked-up by seismic methods, or the carbonaceous material has the same seismic properties as regular fill.

The Geophysical Evaluation of SWMU No. 44 as prepared by Geo Solutions is presented in **Appendix C**.

Soil Boring Installation

The geophysical survey results were verified by soil “truthing” borings. On September 1, 2011, ENVIRONEERING and Mad Dawg, Inc. personnel mobilized to the site to install soil borings (S44-B1 through S44-B6) in the three distinct zones of anomalously elevated in-phase and apparent conductivity values from the geophysical survey.

Each boring was installed using a Geoprobe®-like system utilizing direct push technology to bore into the subsurface to the fill-native soil interface. Each boring was logged describing lithology, mineralization, color, texture and other relevant features. Soil cores were collected continuously for logging purposes until native soil was encountered, or refusal. Soil boring locations are presented on **Figure 3-5**.

ENVIRONEERING, INC.

FIGURE 3-5

ALCOA BADIN WORKS PLANT
PINE TREE GROVE AREA
SOIL BORING LOCATION MAP

ALCOA BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ NO:
HM	10/08/2012	137-176

Fill materials were observed in all soil borings from near surface to approximately 20 feet bls. Fill material consisted of decaying organic material, mulch, and wood debris; sand, silt, and clay soils; construction debris including gravel, concrete, brick, and rock fragments; aluminum scrap; and granular carbonaceous material. Groundwater was encountered at approximately 7 to 9 feet bls. Soil boring logs are presented in **Appendix D**. Soil boring data was provided to Geo Solutions, who used the data in the calibration of the geophysical models. Soil boring data was also used to verify the results of the topographic comparison.

Laboratory Analytical Results

Boring logs and geophysical data suggests that a variety of materials from Badin Works were used as fill material at the Pine Grove Area. Soil samples were collected from fill material encountered in the borings to determine an accurate characterization of the area. Sixteen soil samples were collected from six soil borings and submitted under chain-of-custody procedures to TestAmerica, Inc. in Savannah, Georgia, for laboratory analysis. The soil samples were analyzed by Methods 335.4 for Total Cyanide and SM 4500FC for Total Fluoride.

Laboratory analytical results from soil samples collected from fill material encountered in the borings are summarized in **Table 3-1**. The analytical results showed total cyanide concentrations from non-detect to 80 milligrams per kilogram ("*mg/kg*"). Fluoride concentrations ranged from non-detect to 3,400 mg/kg. A copy of the laboratory report and completed chain-of-custody form is presented in **Appendix E**.

Analytical results were compared to the NCDENR Preliminary Soil Remediation Goals ("PSRG") Table dated July 2012. Only one soil sample located above the saturated zone (S44-B5(3.5'-4.5')) contained a concentration of total cyanide above the protection of groundwater PSRG (14 mg/kg). No soil samples contained concentrations of total cyanide above the health-based industrial PSRG (4,000 mg/kg). No soil samples contained concentrations of fluoride above the health-based industrial PSRG (8,200 mg/kg). At the time this report was prepared, a PRSG for protection of groundwater had not been established for fluoride.

Topographic Comparison

The Pine Tree Grove is situated in generally rolling terrain near the Plant topographic low point, with decreases in elevation to Badin Lake to the north, northeast, and east, and increases in elevation to undeveloped areas to the northwest and west. Plant areas to the south are at similar elevations. Based upon the USGS topographic and surveyed elevations, elevations at the SWMU No. 44 area range from approximately 512 feet above mean sea level ("ft msl") to 518 ft msl. Elevations in the Northwest Valley area range from approximately 512 ft msl near Badin Lake to 542 ft msl on the western side of the Plant. Badin Lake is located immediately east at an elevation of approximately 508 to 509 ft msl depending on the operating level of the lake. Regional elevations range from approximately 730 ft msl to 330 ft msl.

Table 3-1
Soil Sample Analytical Results - September 2011
SWMU No. 44 - Pine Tree Grove Area
Alcoa - Badin Works Facility
Badin, North Carolina

Sample ID	Units	S44-B1 (9-10)	S44-B1 (14-15)	S44-B1 (20-21)	S44-B2 (4-5)	S44-B2 (8.5-9.5)	S44-B2 (15-16)	S44-B3 (4-5)	S44-B3 (8.5-9.5)	NCDENR $PSRG_{GW}$	NCDENR $PSRG_{Ind\ Health}$
Date		**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	--	--
Time		**9:30**	**9:40**	**9:50**	**10:20**	**10:30**	**10:40**	**11:20**	**11:30**	--	--
Depth		**9-10**	**14-15**	**20-21**	**4-5**	**8.5-9.5**	**15-16**	**4-5**	**8.5-9.5**	--	--
Total Cyanide	*mg/kg*	ND $_{<0.66}$	80	39	ND $_{<0.57}$	1.5	14	ND $_{<0.58}$	18	**14**	**4000**
Total Fluoride	*mg/kg*	1400	290	190	ND $_{<4.7}$	360	280	ND $_{<4.7}$	350	**NE**	**8200**

Sample ID	Units	S44-B3 (14-15)	S44-B4 (4-4.7)	S44-B4 (9-10)	S44-B4 (15-15.5)	S44-B5 (3.5-4.5)	S44-B5 (6.5-7.5-1	S44-B6 (2-2.5)	S44-B6 (9-10)	NCDENR $PSRG_{GW}$	NCDENR $PSRG_{Ind\ Health}$
Date		**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	**9/1/2011**	--	--
Time		**11:40**	**13:00**	**13:20**	**13:30**	**14:00**	**14:10**	**14:50**	**15:00**	--	--
Depth		**14-15**	**4-4.7**	**9-10**	**15-15.5**	**3.5-4.5**	**6.5-7.5**	**2-2.5**	**9-10**	--	--
Total Cyanide	*mg/kg*	11	0.64	53	8.4	41	27	7.7	27	**14**	**4000**
Total Fluoride	*mg/kg*	230	98	150	62	260	440	3400	210	**NE**	**8200**

Notes:

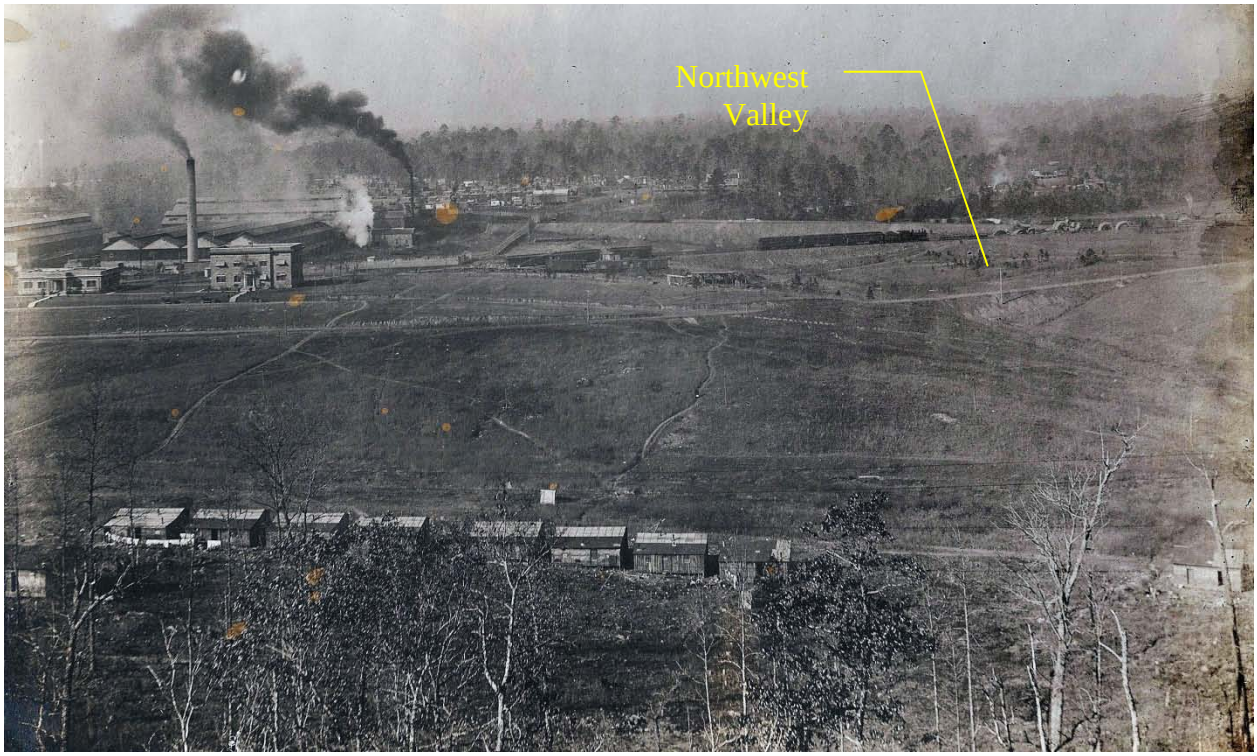
ND - The analyte was not detected above laboratory detection limits. Subscript indicates compound-specific MDL in mg/kg.
NE - Not established.
"J" - The associated method blank contained a constituent concentration at a reportable level.

To understand the recent morphology of the area, a comparison was conducted between of historical photographs, historical drawings, and recent collected data. The following historical photographs and drawings were used in the comparison:

> Topographic Map of Plant Site at Ebenezer; prepared for Southern Aluminum Company, Whitney, North Carolina; Drawing 3D64 dated September 8, 1913; Scale, 1 inch equals 100 feet.
>
> Detail Topography, Rear Plant Site; prepared for Tallahassee Power Company, Badin Works; Drawings A2214 and A2215 dated January 22, 1920; Scale, 1 inch equals 40 feet.
>
> P32 1916 Plant before lake filled [photograph]. December 1, 1916. from: Alcoa Inc.

One photograph of the plant, dated December 1, 1916, show the topographic surface prior to filling the lake. Approximate locations of current site features (Northwest Valley) are indicated on the photograph.

When digital maps or data was not available, prints were digitized for use in AutoCAD. As necessary, the topographic datum was adjusted to align with US Government datum. Raw XYZ coordinates were extracted from the AutoCAD DXF file containing contours and other elevation entities using a utility conversion program (DXF2XYZ 2.0 by Guthrie CAD/GIS Software Pty Ltd.).



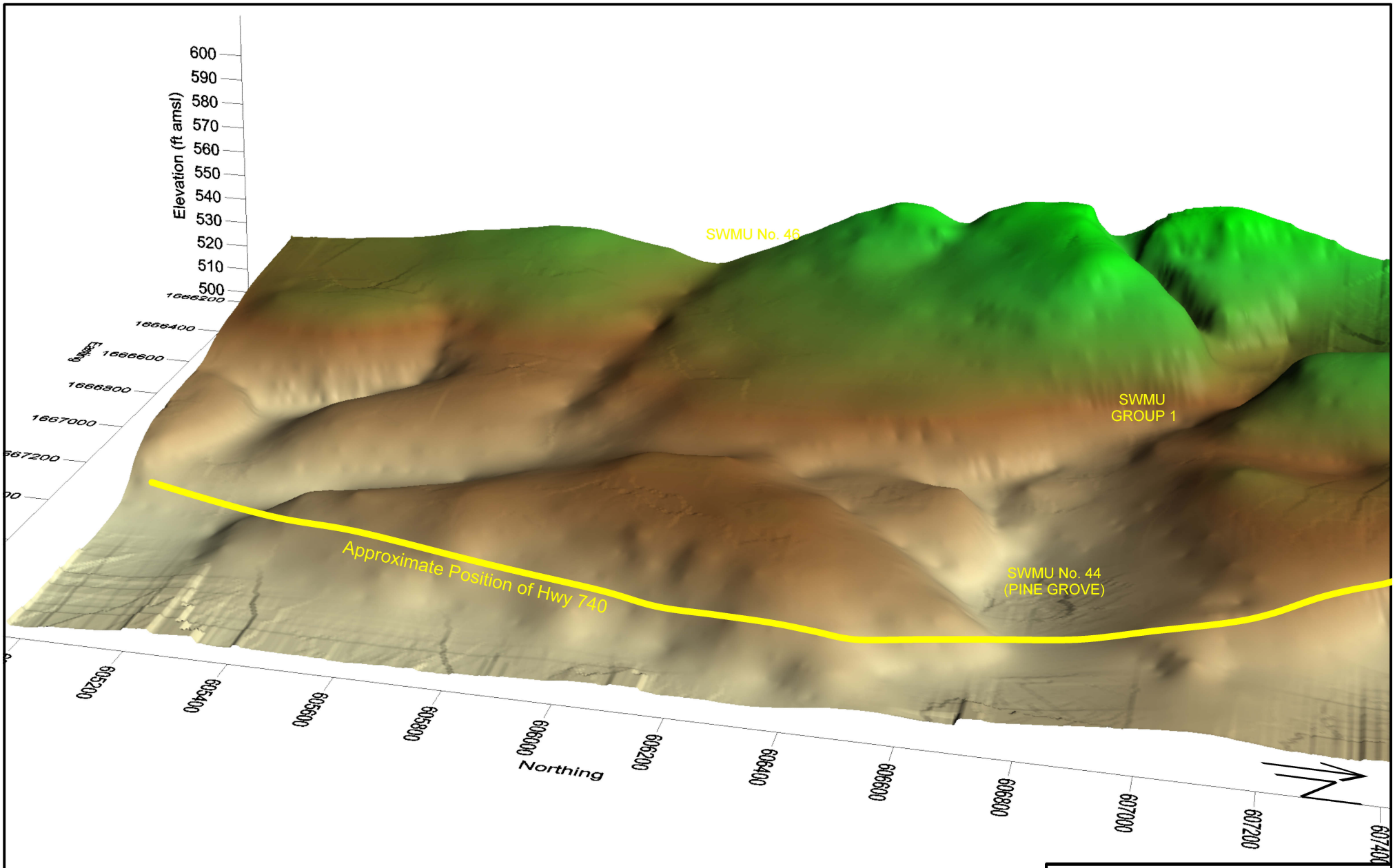
P32 1916 Plant before lake filled [photograph]
Photograph direction is approximately W

When digital maps or data was not available, prints were digitized for use in AutoCAD. As necessary, the topographic datum was adjusted to align with US Government datum. Raw XYZ coordinates were extracted from the AutoCAD DXF file containing contours and other elevation entities using a utility conversion program (DXF2XYZ 2.0 by Guthrie CAD/GIS Software Pty Ltd.).

The most current modern elevation information was used by extracting LIDAR data from the NC Floodplain Data, available via the internet from files maintained by the North Carolina DOT (http://www.ncdot.gov/it/gis/DataDistribution/ContourElevationData/).

A pre-fill 3-dimensional (3D) construction of area based on the 1913 topographic map is provided as **Figure 3-6**. A 3D construction of the current topographic surface is provided as **Figure 3-7**. Using a geologic computational program (Surfer Version 11 by Golden Software Inc.), the digitized data sets compared the two databases and extracted the difference. The difference was contoured to produce the thickness data. An interpolated map showing the thickness of the fill material is presented as **Figure 3-8**. The boundary of the fill material within the Northwest Valley is shown in Plan View on **Figure 3-9**.

As the attached figures demonstrate, fill materials are most prevalent in the north end of the plant, where they were used to infill an eastward trending natural ravine. The variety of materials used in the filling of the ravine resulted in a complex stratigraphic sequence of natural and anthropogenic origin. This fill material serves as a more permeable conduit for horizontal groundwater and constituent migration, and drives the groundwater plume geometry.



Note: Topographic surface generated from Alcoa drawing 3D64, *Topographical Map of Plant Site at Ebenezer,* Southern Aluminum Company, Whitney, North Carolina dated September 8, 1913

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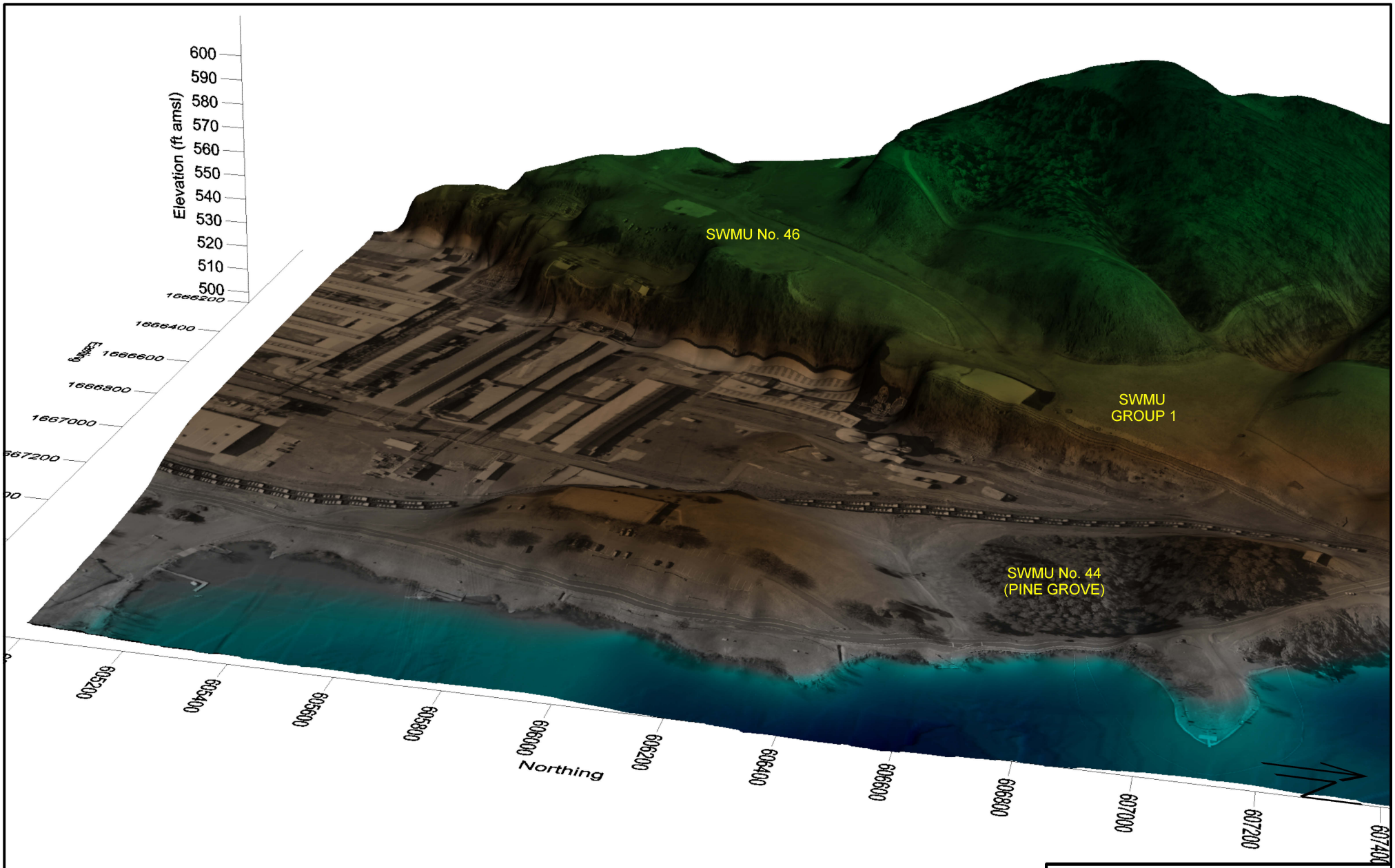
FIGURE 3-6

PLANT AREA TOPOGRAPHIC SURFACE MAP CIRCA 1913

ALCOA - BADIN WORKS FACILITY

BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



Note: Topographic surface generated from 2005 LIght Detection And Ranging (LIDAR) data obtained from the North Carolina Floodplain Mapping Program hosted by the NCDOT.

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FIGURE 3-7

PLANT AREA TOPOGRAPHIC SURFACE MAP CIRCA 2005

ALCOA - BADIN WORKS FACILITY

BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

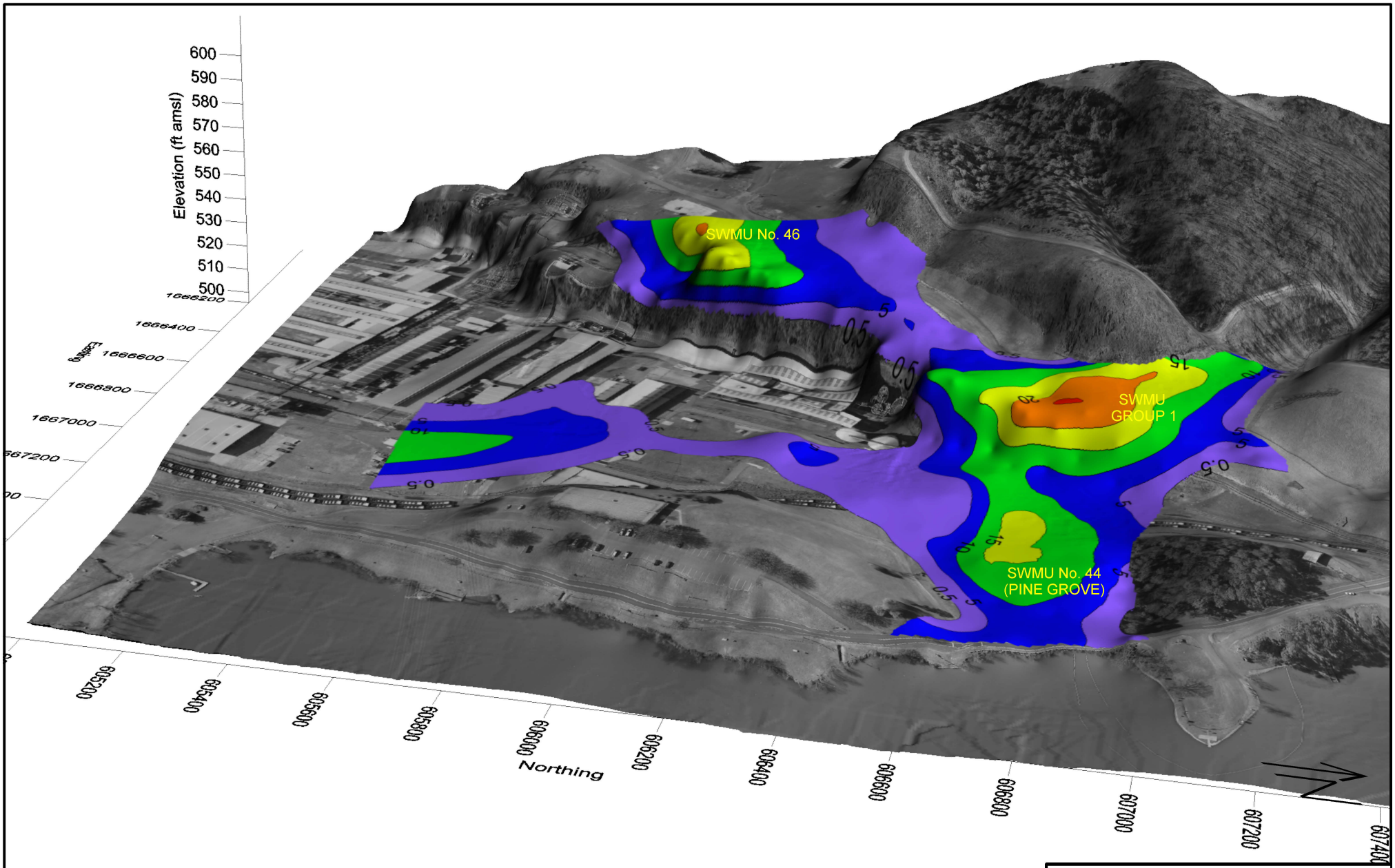

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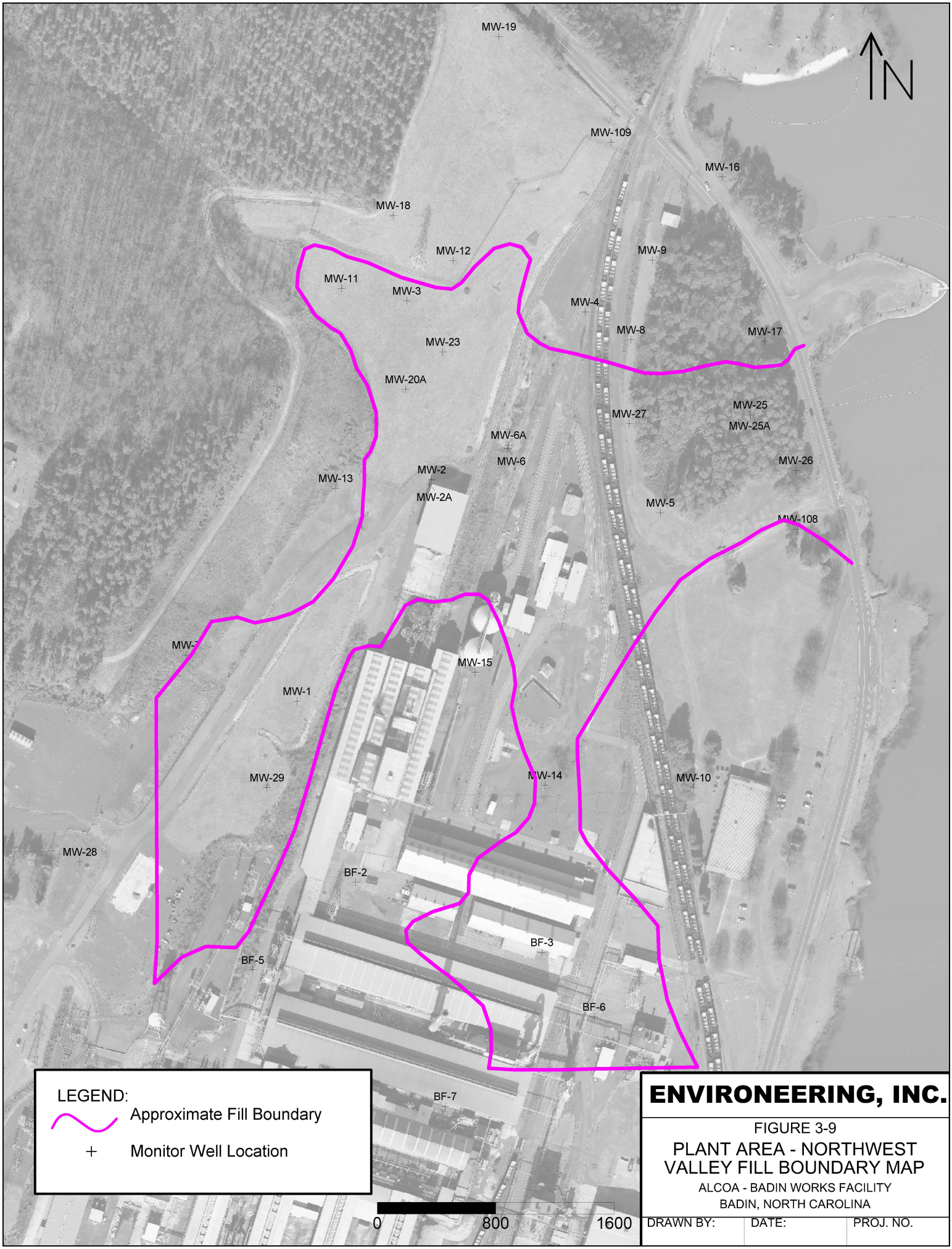
FIGURE 3-8

PLANT AREA FILL THICKNESS MAP

ALCOA - BADIN WORKS FACILITY

BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



ENVIRONEERING, INC.

FIGURE 3-9

PLANT AREA - NORTHWEST VALLEY FILL BOUNDARY MAP

ALCOA - BADIN WORKS FACILITY

BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

3.1.4 Alcoa Badin Works Plant - SWMU No. 46

The fill assessment at the SWMU No. 46 was conducted by evaluating the recent geophysical survey, installing soil borings in and around the unit, and comparing early 20th century topographic maps and photographs with current topographic maps of the area.

Geophysical Survey

Multiple geophysics technologies were applied at SWMU No. 46 to refine the boundary and evaluate the extent and nature of fill material within the area. Geophysical activities at the site consisted of an EM profile mapping of the site and immediate surrounding area. Following the completion of the EM survey, a GPR survey was completed over multiple profile lines (approximately north south through the property). Finally, multiple seismic profiles using standard seismic refraction methods was applied to evaluate the depth to bedrock, the depth to the former natural west-east trending valley, and the vertical distribution of fill material.

The following summarizes the results from the geophysical survey:

EM Survey - EM results indicated a large and strong rectangular shaped anomaly located in the center of the site with weaker anomaly that appears to be aligned along a central axis fanning out from the rectangular anomaly. The large rectangular anomaly is believed to be associated with a buried concrete pad. The weaker anomaly aligned along a central axis fanning from the rectangular anomaly is believed to be associated with historical filling activities in the area.

GPR Survey - Geo Solutions conducted multiple profiles across the field area. The quality of the GPR data was poor, with a high signal-to-noise ratio to a depth of 3 feet and poorer quality information in very few areas to a depth of 6 feet.

Seismic Refraction Survey - The seismic refraction survey consisted of three profiles across the field area. Conclusions from the geophysical survey indicate the depth to unweathered rock as shallow as 20 ft bls and averages approximately 40 feet bls. A shallow zone of soft to stiff soil is recognized from 15 to 30 feet bls, which is overlain by a more stiff soil. Geo Solutions did not discern a relationship between the seismic survey results and the results of the EM evaluation.

The Geophysical Evaluation of SWMU No. 46 as prepared by Geo Solutions is presented in **Appendix F**.

Soil Boring Installation

The geophysical survey results were verified by soil “truthing” borings. On August 18 and 19, 2011, ENVIRONEERING and Mad Dawg, Inc. personnel mobilized to the site to install soil borings in and surrounding the area containing anomalously readings and apparent elevated conductivity values from the geophysical survey. The purpose of these borings was to confirm the results of the geophysical survey.

Soil borings were installed in a similar manner as described in Section 3.1.3 for the Pine Grove area to the fill-native soil interface. Soil boring locations are presented on **Figure 3-10**. Fill materials were observed in all soil borings from surface to up to 16 feet bls. Fill material consisted of primarily of sand, silt, and clay soils with minor lenses of granular carbonaceous material. Groundwater was not encountered in any of the soil borings. Soil boring logs are presented in **Appendix G**.

Based on the methods used in the geophysical investigation, highly conductive fill material could be distinguished at SWMU No. 46. Higher conductivity areas generally corresponded to borings containing lenses of carbonaceous material with increased soil moisture content.

Laboratory Analytical Results

Boring logs and geophysical data suggests that soil was used as the primarily fill material at this location. Soil samples were collected to determine an accurate characterization of the area. Soil samples were collected from fill material encountered in the borings and analyzed to provide a representative characterization of the area. Thirty three soil samples were collected from eleven soil borings and submitted under chain-of-custody procedures to TestAmerica, Inc. in Savannah, Georgia, for laboratory analysis. The soil samples were analyzed by Methods 335.4 for Total Cyanide and SM 4500FC for Total Fluoride.

Laboratory analytical results from soil samples collected from fill material encountered in the borings are summarized in **Table 3-2**. The analytical results showed total cyanide concentrations from non-detect to 140 mg/kg. Fluoride concentrations ranged from non-detect to 1,700 mg/kg. A copy of the laboratory report and completed chain-of-custody form is presented in **Appendix H**.

Analytical results were compared to the NCDENR PSRG Table dated July 2012. Sixteen soil samples contained concentrations of total cyanide above the protection of groundwater PSRG (14 mg/kg), of which all were below four feet bls. No soil samples contained concentrations of total cyanide above the health-based industrial PSRG (4,000 mg/kg). No soil samples contained concentrations of fluoride above the health-based industrial PSRG (8,200 mg/kg). At the time this report was prepared, a PRSG for protection of groundwater had not been established for fluoride.

Topographic Comparison

To understand the physical conditions at SWMU No. 46, an understanding of the land use is needed. SWMU No. 46 is situated in generally rolling terrain near the Plant topographic highpoint, with decreases in elevation to the Plant and Badin Lake to the north, northeast, east, southeast, and south, and increases in elevation to residential areas to the northwest, west, and southwest. Based upon the USGS topographic and surveyed elevations, elevations at the Site area range from approximately 555 to 560 ft msl at the center of the SWMU.

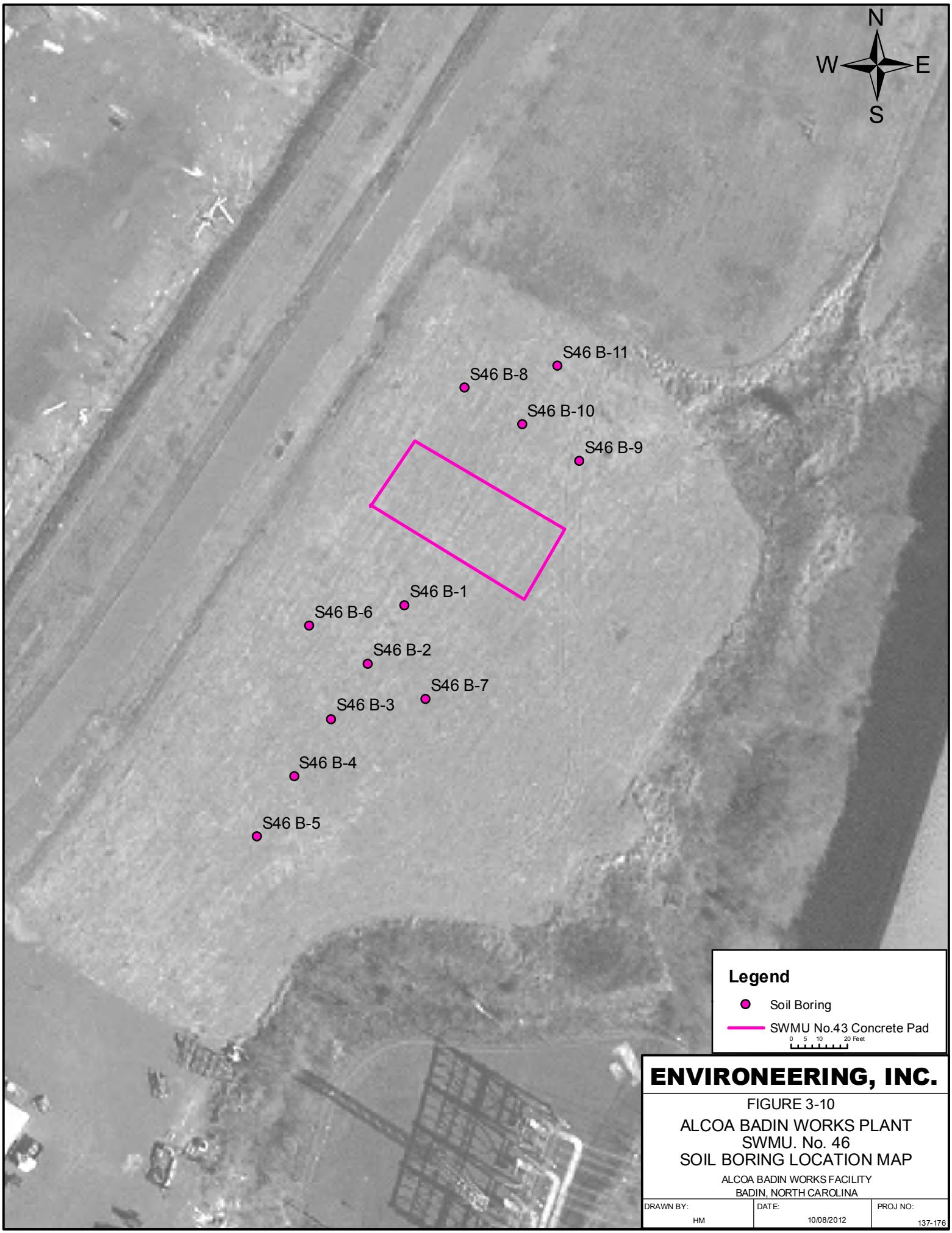


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FIGURE 3-10

ALCOA BADIN WORKS PLANT
SWMU. No. 46
SOIL BORING LOCATION MAP

ALCOA BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ NO:
HM	10/08/2012	137-176

Table 3-2
Soil Sample Analytical Results - August 2011
SWMU No. 46
Alcoa - Badin Works Facility
Badin, North Carolina

Sample ID	Units	S46-B1 (2-3)	S46-B1 (6-7)	S46-B1 (11-12)	S46-B2 (2-3)	S46-B2 (6-7)	S46-B2 (13-14)	S46-B3 (2-3)	S46-B3 (6-7)	S46-B3 (14-15)	S46-B4 (2-3)	S46-B4 (6-7)	NCDENR PSRG $_{GW}$	NCDENR PSRG $_{Ind\ Health}$
Date		**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	--	--
Time		**12:20**	**13:00**	**13:30**	**15:00**	**15:03**	**15:05**	**15:10**	**15:12**	**15:25**	**15:35**	**15:37**	--	--
Depth		**2-3**	**6-7**	**11-12**	**2-3**	**6-7**	**13-14**	**2-3**	**6-7**	**14-15**	**2-3**	**6-7**	--	--
Total Cyanide	*mg/kg*	ND $_{<0.28}$	70	53	ND $_{<0.23}$	45	78	ND $_{<0.25}$	6.1	100	ND $_{<0.21}$	4.1	**14**	**4000**
Total Fluoride	*mg/kg*	ND $_{<2.7}$	12	1000	9.1	450	660	5.5	55	1400	16	27	**NE**	**8200**

Sample ID	Units	S46-B4 (15-16)	S46-B5 (2-3)	S46-B5 (6-7)	S46-B5 (14-15)	S46-B6 (2-3)	S46-B6 (6-7)	S46-B6 (12.5-13.5	S46-B7 (2-3)	S46-B7 (6-7)	S46-B7 (13-14)	S46-B8 (2-3)	NCDENR PSRG $_{GW}$	NCDENR PSRG $_{Ind\ Health}$
Date		**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/19/2011**	**8/19/2011**	**8/19/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/19/2011**	--	--
Time		**15:45**	**15:55**	**16:00**	**16:05**	**8:10**	**8:15**	**8:20**	**16:10**	**16:15**	**16:20**	**7:40**	--	--
Depth		**15-16**	**2-3**	**6-7**	**14-15**	**2-3**	**6-7**	**12.5-13.5**	**2-3**	**6-7**	**13-14**	**2-3**	--	--
Total Cyanide	*mg/kg*	12	ND $_{<0.24}$	ND $_{<0.24}$	75	7	94	66	0.49 J	ND $_{<0.26}$	4.9	5.6	**14**	**4000**
Total Fluoride	*mg/kg*	390	3.0 J	ND $_{<2.4}$	110	43	180	69	100	ND $_{<2.5}$	180	100	**NE**	**8200**

Sample ID	Units	S46-B8 (5-6)	S46-B8 (7.5-8.5)	S46-B9 (2-3)	S46-B9 (5-6)	S46-B9 (9-10)	S46-B10 (2-3)	S46-B10 (6-7)	S46-B10 (11-12)	S46-B11 (1.5-2.5)	S46-B11 (4-5)	S46-B11 (8-9)	NCDENR PSRG $_{GW}$	NCDENR PSRG $_{Ind\ Health}$
Date		**8/19/2011**	**8/19/2011**	**8/19/2011**	**8/19/2011**	**8/19/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	**8/18/2011**	--	--
Time		**7:45**	**7:50**	**7:55**	**8:00**	**8:05**	**16:30**	**16:35**	**16:40**	**16:50**	**16:55**	**17:00**	--	--
Depth		**5-6**	**7.5-8.5**	**2-3**	**5-6**	**9-10**	**2-3**	**6-7**	**11-12**	**1.5-2.5**	**4-5**	**8-9**	--	--
Total Cyanide	*mg/kg*	140	32	5.2	45	24	2.9	74	95	1.8	15	85	**14**	**4000**
Total Fluoride	*mg/kg*	160	210	100	1700	370	120	190	290	250	860	100	**NE**	**8200**

Notes:

ND - The analyte was not detected above laboratory detection limits. Subscript indicates compound-specific MDL in mg/kg.
NE - Not established.
"J" - The associated method blank contained a constituent concentration at a reportable level.

As written in the RFI, in 1998 Alcoa identified this area as potentially receiving waste materials through a review of historical photographs. A recent review of historical plant drawings and photographs suggests that the morphology of this area may be more related to plant expansion and modernization and not related to deliberate waste disposal.

To understand the recent morphology of the area, a comparison was conducted between of historical photographs, historical drawings, and recent collected data. The following historical photographs and drawings were used in the comparison:

> Topographic Map of Plant Site at Ebenezer; prepared for Southern Aluminum Company, Whitney, North Carolina; Drawing 3D64 dated September 8, 1913; Scale, 1 inch equals 100 feet.
>
> Detail Topography, Rear Plant Site; prepared for Tallahassee Power Company, Badin Works; Drawings A2214 and A2215 dated January 22, 1920; Scale, 1 inch equals 40 feet.
>
> P55-57 1930 Plant site Buildings [photograph]. 1930. from: Alcoa Inc.
>
> P87 1958 Roof Pictures [photograph]. 1958. from: Alcoa Inc.
>
> P105-106 1974 Bldg 105 grading & 134 Equip Foundation [photograph]. October 25, 1974. from: Alcoa Inc.

The September 8, 1913, drawing shows the preconstruction topographic surface of the area. The original topographic surface shows a shallow drainage feature extending through the proposed trestle system increasing in elevation to the north, west, and south. Plans show an outline for a concrete slab with an elevated railroad trestle system to be installed within the near vicinity of the future SWMU No. 46 area. Plans require a fill area to create the elevated trestle system. The fill area is bound on the south by a retaining wall.

The January 22, 1920, drawing shows the topography of the western side of the plant. The drawing depicts the area under the trestle as a coke storage area and identifies a coke crusher and conveyor north of the trestle. In the Hall-Heroult process, alumina is reduced to aluminum metal in electrolytic cells. Electrolytic cells are composed of an anode (positive electrode) and a cathode (negative electrode). At the Badin facility, the anode production used solid raw materials (i.e., coke and pitch) which were delivered to the plant in bulk by railcar and stored. Raw materials are passed through a impact crusher, screened, and classified into grain sizes. The materials are then mixed and formed into new anodes for baking in anode bake furnaces at prebake plants.

Raw coke was transported to the plant via rail car and staged under the rail trestle on west of the anode paste plant ("green mill") and anode bake plant ("bake furnace"). Raw coke was fed via a conveyor system to the coke crusher prior to entering the anode paste plant via a second conveyor. SWMU No. 46 is located near the position of the original first conveyor.

Two photographs of the facility, dated 1930 and 1958, show the railroad trestle, coke storage, coke crushers, and coke conveyors, discussed above. The 1930 photograph shows piles of raw coke stored beneath the railroad trestle. The 1958 photograph shows an enlarged view of the coke crusher and conveyor system.

P55-57 1930 Plant site Buildings [photograph]
Photograph direction is approximately N

P87 1958 Roof Pictures [photograph]
Photograph direction is approximately N

In the mid-1970s, additional pot lines were constructed at the plant. The additional pot lines required a regrading of the SWMU No. 46 area. The elevated fill mound near the location of the former railroad trestle was reduced or "cut" by approximately 6 to 8 feet. A 1974 photograph showing the regrading of the area is presented below.

The Overhead Crane Rebuild Structure (SWMU No. 43) was built in April 1992 as a temporary facility and used until early 1994 for rebuilding, sandblasting and painting overhead cranes. SWMU No. 43 was located north of Building 061 and directly overlies SWMU No. 46. It was an open structure consisting of a concrete slab (approximately 65 feet x 30 feet x 5 inches) and a sloping metal roof supported by steel columns. The structure contained several girders for placing and positioning overhead cranes. The structure was dismantled in February 1994 leaving only the concrete slab.

In 2003, the SWMU No. 43 concrete pad and the SWMU No. 46 area was smoothed, covered with a 1/8 inch thick bentonite clay mat, and topped with approximately 6 to 18 inches of topsoil. A vegetative cover is currently maintained over the area by Alcoa.

P105-106 1974 Bldg 105 grading & 134 Equip Foundation [photograph]
Photograph direction is approximately NNE

In 2011, the geophysical survey referenced in Section 3.1.4 was performed over the area identified in the RFI as SWMU No. 46. The geophysical survey confirmed the locations of SWMU No. 43's concrete pad and SWMU No. 46 as a highly conductive anomaly. Several borings were installed in the area, which confirmed the presence of carbonaceous material. This carbonaceous material is most likely associated with plant process operations including the storage and transport of coke material to the coke crusher.

A review of historical topographic maps, historical photographs, aerial imagery and recent Site investigative activities confirms that the SWMU No. 46 is a fill area. This data supports a morphology consisting of native fill soils and minor amounts of plant process remnants used to raise the area to its existing grade, or approximately 10 to 20 feet.

3.2 Task 2 – Hydrogeological Assessment

3.2.1 Alcoa Badin Landfill (SWMU No.2) Groundwater

The ABL hydrogeological assessment was undertaken to better understand the groundwater within the landfill footprint. The investigation strategy for the assessment consisted of a routine groundwater elevation monitoring program and a precipitation monitoring program.

Groundwater Elevation Monitoring

A routine groundwater elevation monitoring program was implemented to collect potentiometric head data from groundwater well network installed within and down gradient of the unit. The purpose of the data collection effort was to evaluate groundwater surface within the fill.

To accomplish this task, pressure transducers were installed in selected wells in March 2010. Each transducer was set up to collect pressure data on ten to fifteen minute intervals. The pressure data was then converted to head data, and adjusted, if necessary, to barometric pressure fluctuations. The head data was compiled and used to determine the maximum, minimum, and median potentiometric heads observed in each well. Potentiometric surface maps were generated using this data. Groundwater contour maps showing the maximum and minimum potentiometric heads at the ABL are provided in **Figures 3-11A and 3-11B**. Maximum and minimum potentiometric head data is presented in **Table 3-3**.

Maximum and minimum potentiometric surfaces were overlain on the pre-fill 3D construction of area originally presented as **Figure 3-2**. The overlay of the two 3D surfaces shows a potential limited area of intersection where groundwater may be on contact with fill materials.

Precipitation Monitoring

A precipitation monitoring program was implemented to collect rain data at the landfill. The purpose of the precipitation monitoring program was to evaluate inclement weather and seasonal effects on the groundwater surface within the landfill.

To accomplish this task, Alcoa purchased and installed a data logging rain gauge and associated equipment to collect rainfall measurements at the landfill. The data logging rain gauge records time and date data with each tip of the rain gauge bucket, or 0.01” rainfall.

Hydrographs displaying potentiometric data and rainfall as a function of time are presented in **Appendix I**. The hydrographs generally indicate that heads observed in upgradient and landfill wells fluctuate seasonally. Heads observed in the floodplain generally demonstrate lower seasonal fluctuations, if any. Heads in the wells located outside the cap area are generally quicker responding to precipitation events versus wells located within the footprint of the landfill cap. These hydrographs indicate that the landfill cap is effective in reducing infiltration through capped areas.

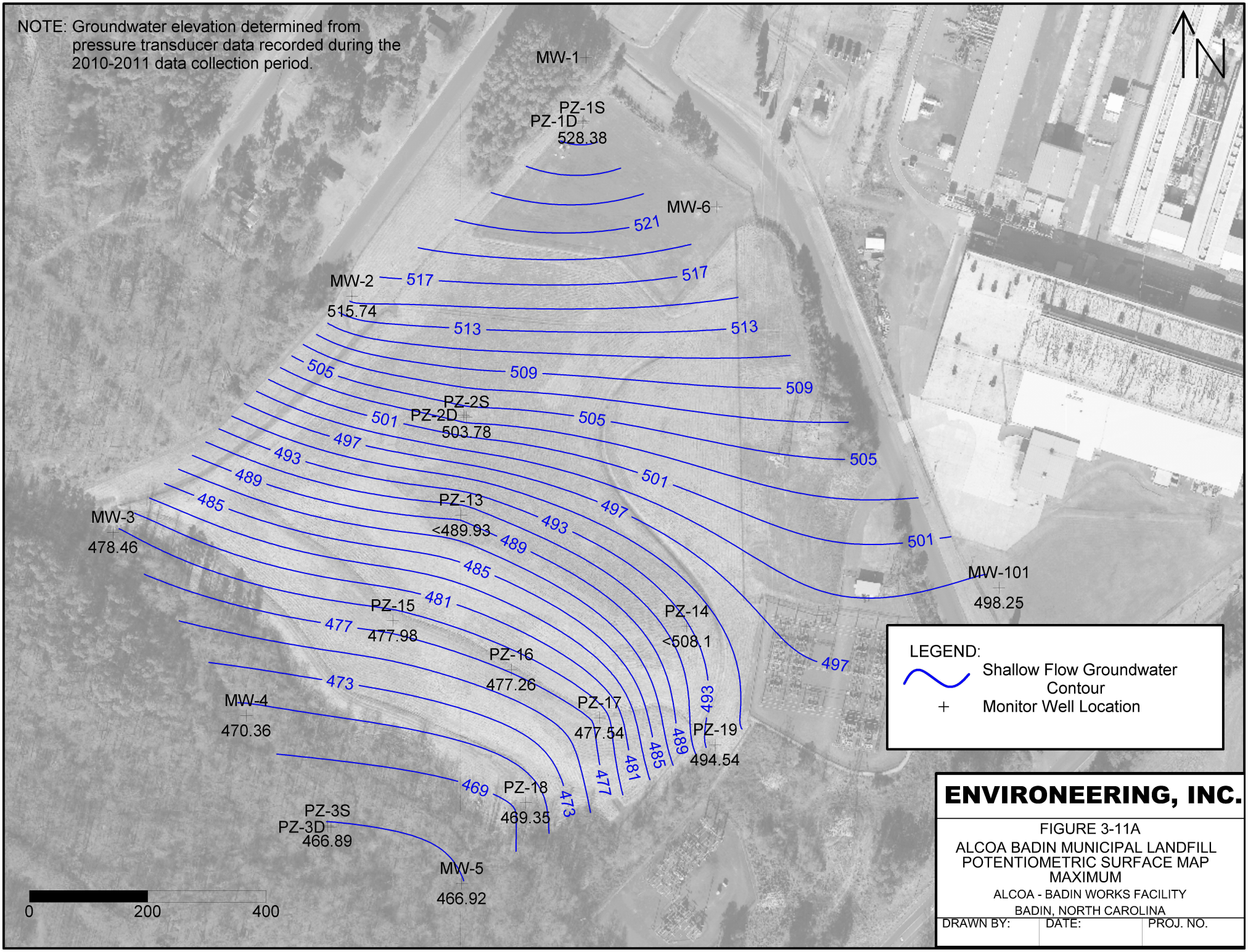
3.2.2 Alcoa Badin Works Plant Area Groundwater

The Plant Area hydrogeological assessment was undertaken to better understand the groundwater within the plant boundary with an emphasis on the Northwest Valley. The investigation strategy for the assessment consisted of a routine groundwater elevation monitoring program to collect potentiometric head data from groundwater well network. The purpose of the data collection effort was to determine the groundwater gradient and flow direction at the plant and needed to provide a better understanding of the interaction of the groundwater with Badin Lake.

A total of 36 pressure transducers were installed in groundwater wells distributed throughout the facility. Each transducer was set up to collect pressure data on fifteen minute intervals. The pressure data was then converted to head data, and adjusted, if necessary, to barometric pressure fluctuations. The head data was compiled and used to determine the maximum, minimum, and median potentiometric heads observed in each well. The transducers have been in place collecting data since March of 2011. Potentiometric surface maps were generated using this data.

For the purposes of assessing flow at the site, fill material and native soil/saprolite units were segregated. Details of the monitoring wells located in the Alcoa Badin Works Plant Area screened lithology and potentiometric surface construction are provided in **Table 3-4**.

Groundwater contour maps showing the maximum and minimum potentiometric surfaces within the fill materials and soil/saprolite/weathered rock units in the Northwest Valley are provided as **Figures 3-12A and 3-12B** and **Figures 3-13A and 3-13B**.


NOTE: Groundwater elevation determined from pressure transducer data recorded during the 2010-2011 data collection period.
N
MW-1
PZ-1S
PZ-1D
528.38
MW-6
521
MW-2
517
515.74
513
509
505
PZ-2S
PZ-2D
503.78
501
497
493
489
485
481
477
473
469
MW-3
478.46
PZ-13
<489.93
PZ-15
477.98
PZ-16
477.26
MW-4
470.36
PZ-17
477.54
PZ-14
<508.1
PZ-19
494.54
PZ-18
469.35
PZ-3S
PZ-3D
466.89
MW-5
466.92
MW-101
498.25
0
200
400
LEGEND:
Shallow Flow Groundwater Contour
Monitor Well Location
ENVIRONEERING, INC.
FIGURE 3-11A
ALCOA BADIN MUNICIPAL LANDFILL
POTENTIOMETRIC SURFACE MAP
MAXIMUM
ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA
DRAWN BY:
DATE:
PROJ. NO.

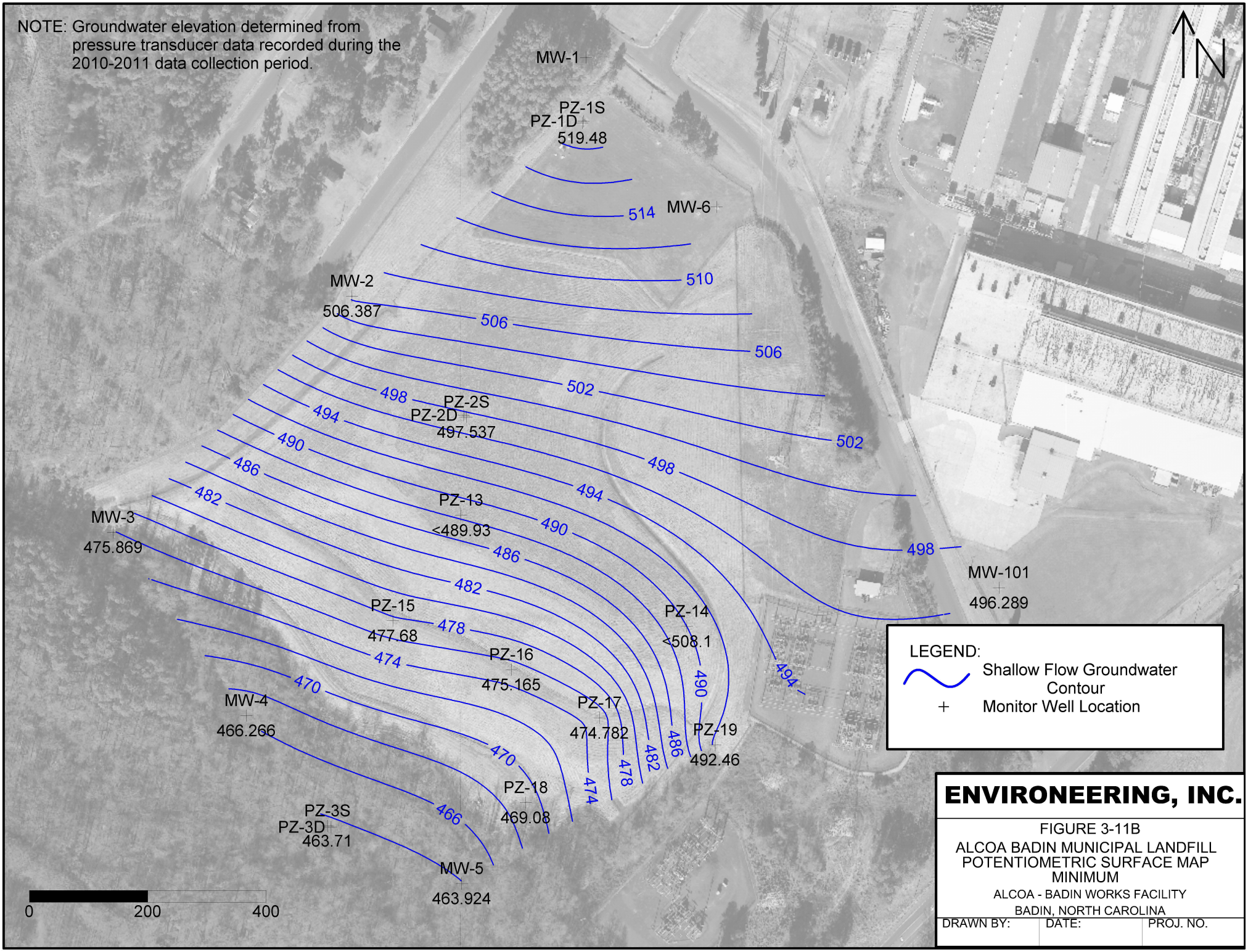

NOTE: Groundwater elevation determined from pressure transducer data recorded during the 2010-2011 data collection period.
N
MW-1
PZ-1S
PZ-1D
519.48
MW-6
514
510
MW-2
506.387
506
506
502
502
498
PZ-2S
PZ-2D
497.537
494
490
486
482
498
494
PZ-13
<489.93
MW-3
475.869
490
486
482
498
MW-101
496.289
PZ-15
477.68
478
PZ-14
<508.1
474
PZ-16
475.165
490
494
470
MW-4
466.266
PZ-17
474.782
PZ-19
492.46
486
482
478
474
470
PZ-18
469.08
PZ-3S
PZ-3D
463.71
466
MW-5
463.924
0
200
400
LEGEND:
Shallow Flow Groundwater Contour
Monitor Well Location
ENVIRONEERING, INC.
FIGURE 3-11B
ALCOA BADIN MUNICIPAL LANDFILL
POTENTIOMETRIC SURFACE MAP
MINIMUM
ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA
DRAWN BY:
DATE:
PROJ. NO.

Table 3-3
Compiled Groundwater Elevation Data
SWMU No. 2 - Alcoa Badin Municipal Landfill
Alcoa-Badin Works Facility
Badin, North Carolina

Well ID	LOCATION X	LOCATION Y	Screened Lithology [1]	Top of Casing Elevation [2]	Maximum Elevation [3]	Minimum Elevation [3]
MW-1	1665213	604448	HWR/Rock	541.35	524.46	513.37
MW-2	1664817	604045	Soil	540.85	515.74	506.39
MW-3	1664414	603645	Soil	478.22	478.46	475.87
MW-4	1664639	603336	Soil	472.02	470.36	466.27
MW-5	1665003	603052	Soil	468.58	466.92	463.92
MW-6	1665433	604195	HWR/Rock	538.16	517.91	509.18
PZ-1S	1665206	604337	Fill/Soil	538.82	528.39	519.48
PZ-1I	1665208	604340	HWR/Rock	538.84	524.31	513.24
PZ-1D	1665208	604340	HWR/Rock	538.96	520.06	509.54
PZ-2S	1665011	603840	Fill/Soil	542.61	503.78	497.54
PZ-2I	1665006	603843	HWR/Rock	542.87	PINCHED	PINCHED
PZ-2D	1665006	603843	HWR/Rock	542.88	498.90	489.27
PZ-3S	1664776	603149	Soil	470.37	466.89	463.71
PZ-3I	1664782	603147	HWR/Rock	469.81	468.47	464.07
PZ-3D	1664782	603147	HWR/Rock	469.82	467.93	464.60
PZ-13	1665002	603674	Fill	548.13	DRY	DRY
PZ-14	1665383	603486	Fill	537.6	DRY	DRY
PZ-15	1664886	603496	Fill	514.5	477.98	477.68
PZ-16	1665087	603413	Fill	509.97	477.26	475.17
PZ-17	1665236	603332	Fill	506.88	477.54	474.78
PZ-18	1665111	603189	Fill	475.28	469.35	469.08
PZ-19	1665431	603286	Fill	507.55	494.54	492.46
MW-101	1665910	603552	SWR	516.37	498.25	496.29

[1] Screened lithologies were determined from boring logs

[2] All elevations are above mean sea level and are based on top of casing data presented in the RFI.

[3] Groundwater data compiled from well logger data collected in 2010 and 2011

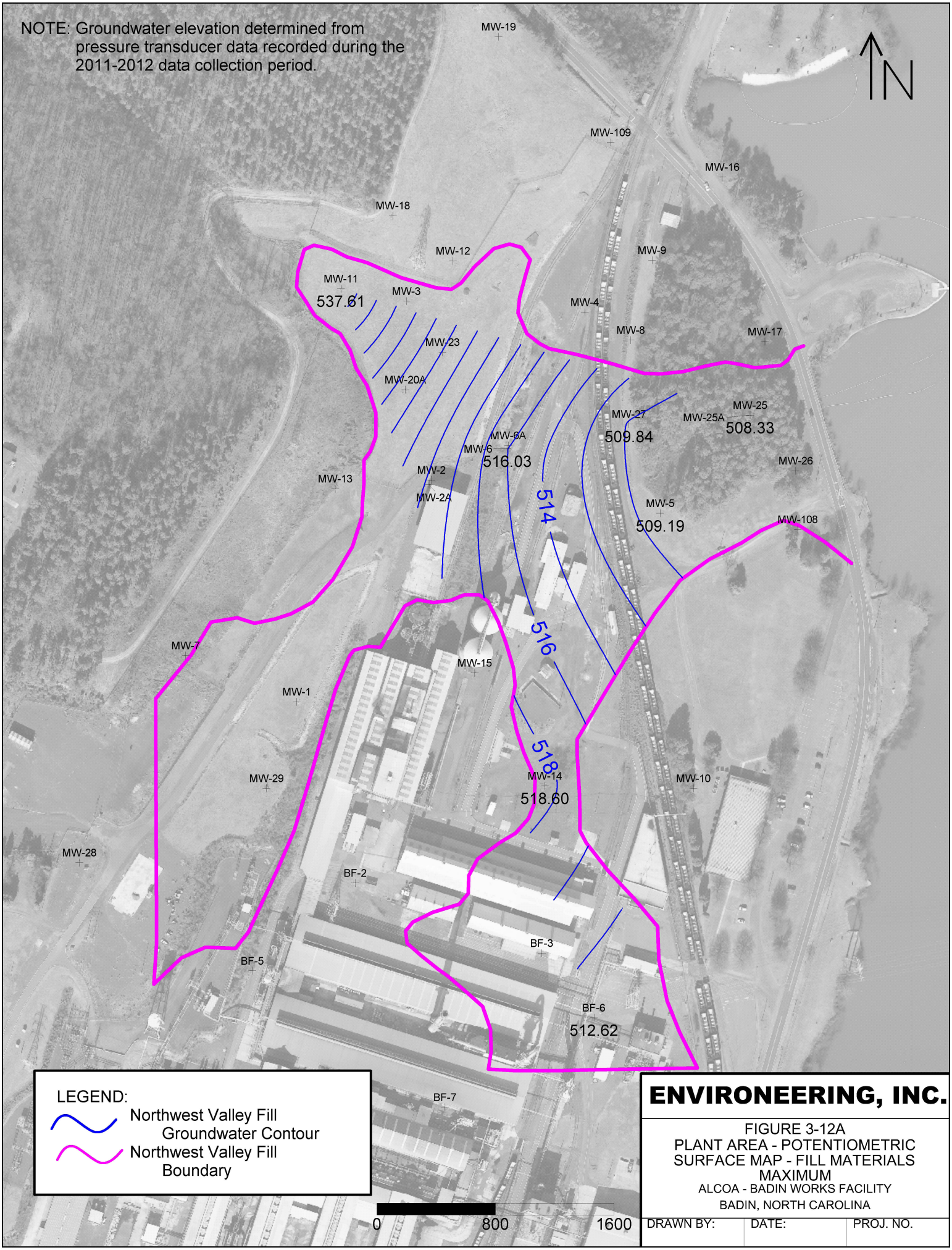
Table 3-4
Compiled Groundwater Elevation Data
Plant Area
Alcoa-Badin Works Facility
Badin, North Carolina

Well ID	LOCATION X	LOCATION Y	Screened Lithology [1]	Top of Casing Elevation [2]	Maximum Elevation [3]	Minimum Elevation [3]	Potentiometric Surface Construction
BF-2	1666762	605884	HWR/Rock	525.22	520.29	515.27	--
BF-5	1666547	605701	SWR	523.81	514.19	511.99	SOIL/SAPROLITE/SWR
BF-6	1667258	605604	Fill/Soil	521.51	512.62	508.74	FILL
BF-7	1666948	605418	HWR/Rock	523.12	523.03	511.11	--
MW-1	1666640	606261	SWR	555.59	523.48	538.11	SOIL/SAPROLITE/SWR
MW-2	1666920	606722	Soil/SWR	538.67	524.14	516.76	SOIL/SAPROLITE/SWR
MW-2A	1666915	606713	Rock	538.58	523.09	517.35	--
MW-3	1666868	607094	SWR	542.02	532.91	525.56	SOIL/SAPROLITE/SWR
MW-4	1667239	607071	Soil/SWR	524.71	518.40	510.10	SOIL/SAPROLITE/SWR
MW-5	1667396	606653	Fill/Soil/SWR	517.5	509.19	507.03	FILL
MW-6	1667078	606787	Fill	526.11	516.03	515.03	FILL
MW-6A	1667080	606794	HWR/Rock	525.05	521.16	516.87	--
MW-7	1666409	606357	SWR	565.71	551.08	538.13	SOIL/SAPROLITE/SWR
MW-8	1667335	607013	SWR	523.01	512.86	508.45	SOIL/SAPROLITE/SWR
MW-9	1667379	607179	SWR	529.3	513.63	509.11	SOIL/SAPROLITE/SWR
MW-10	1667465	606081	SWR	531.03	516.28	508.09	SOIL/SAPROLITE/SWR
MW-11	1666732	607120	Fill/SWR	545.15	537.61	528.56	FILL
MW-12	1666965	607178	SWR	535.66	521.69	505.91	SOIL/SAPROLITE/SWR
MW-13	1666720	606704	SWR	549.02	537.14	524.53	SOIL/SAPROLITE/SWR
MW-14	1667156	606086	Fill/SWR	527.07	518.60	513.49	FILL
MW-15	1667010	606321	SWR	526.15	516.75	512.92	SOIL/SAPROLITE/SWR
MW-16	1667525	607352	SWR	520.22	509.70	506.41	SOIL/SAPROLITE/SWR
MW-17	1667614	607010	SWR	515.1	511.01	505.97	SOIL/SAPROLITE/SWR
MW-18	1666840	607272	SWR	552.44	533.05	520.55	SOIL/SAPROLITE/SWR
MW-19	1667060	607644	HWR	547.3	520.17	514.23	--
MW-20A	1666866	606910	HWR	544.99	530.58	522.57	--
MW-25	1667583	606857	Fill	514.45	508.34	505.64	FILL
MW-25A	1667583	606857	Undetermined	515.02	509.71	505.82	--
MW-26	1667678	606741	Fill	510.92	NM	NM	--
MW-27	1667331	606838	Fill/Soil	522.19	509.84	505.18	FILL
MW-28	1666188	605926	SWR	562.9	544.69	531.19	SOIL/SAPROLITE/SWR
MW-101	1665910	603552	Soil/SWR	516.37	498.25	496.29	SOIL/SAPROLITE/SWR
MW-102	1666697	604115	Soil/SWR	520.37	514.34	504.73	SOIL/SAPROLITE/SWR
MW-103	1665803	604592	SWR	522.4	515.71	511.35	SOIL/SAPROLITE/SWR
MW-104	1666435	604474	SWR	521.51	515.08	508.17	SOIL/SAPROLITE/SWR
MW-105	1667455	605350	Soil/SWR	525.23	509.46	506.33	SOIL/SAPROLITE/SWR
MW-108	1667682	606620	SWR	517.38	509.20	505.39	SOIL/SAPROLITE/SWR
MW-109	1667293	607424	Soil/SWR	530.39	517.28	509.25	SOIL/SAPROLITE/SWR

[1] Screened lithologies were determined from boring logs

[2] All elevations are above mean sea level. Elevations are either based on top of casing data presented in the RFI or survey data collected in 2006.

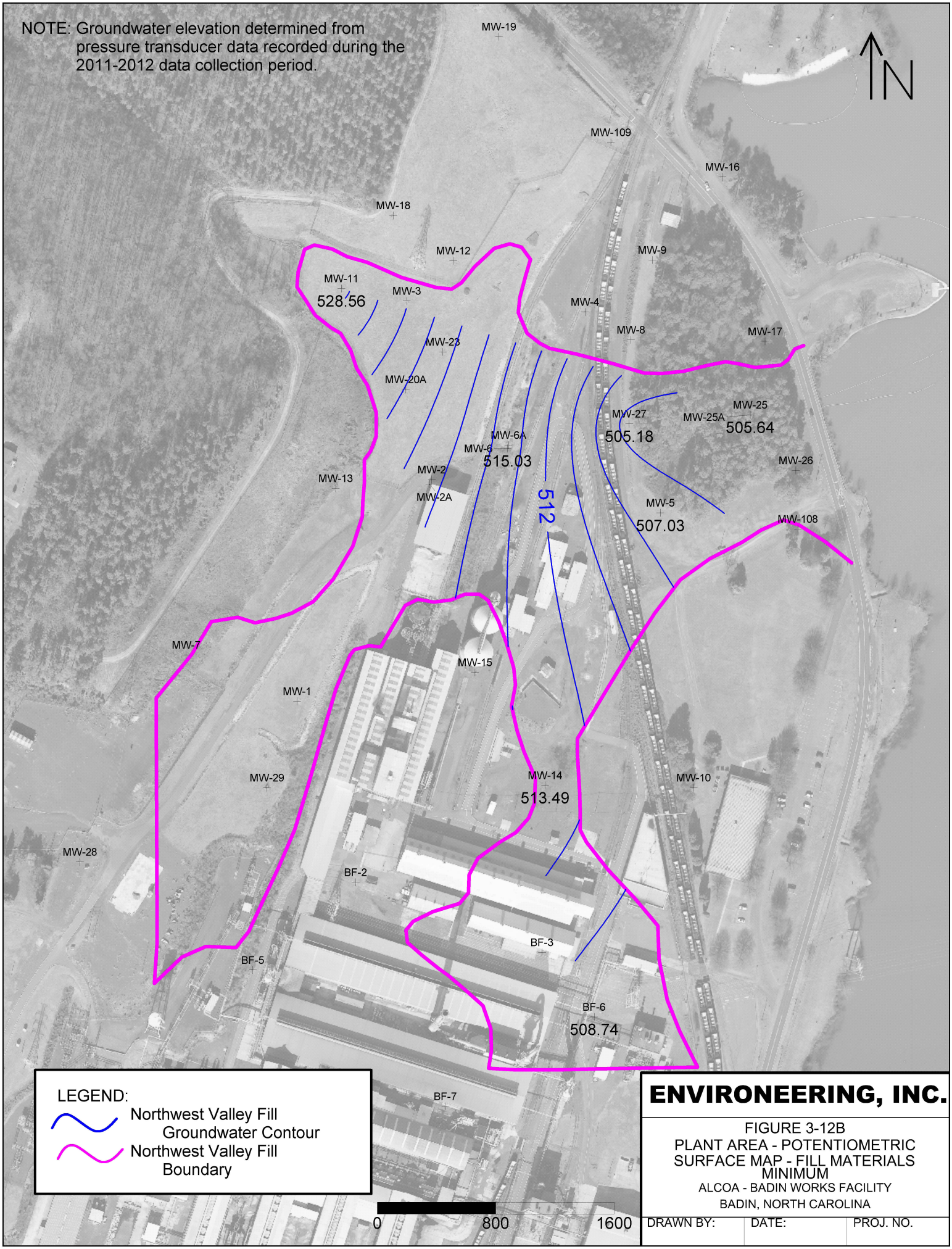
[3] Groundwater data compiled from well logger data collected in 2011 and 2012



ENVIRONEERING, INC.

FIGURE 3-12A
PLANT AREA - POTENTIOMETRIC SURFACE MAP - FILL MATERIALS MAXIMUM
ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

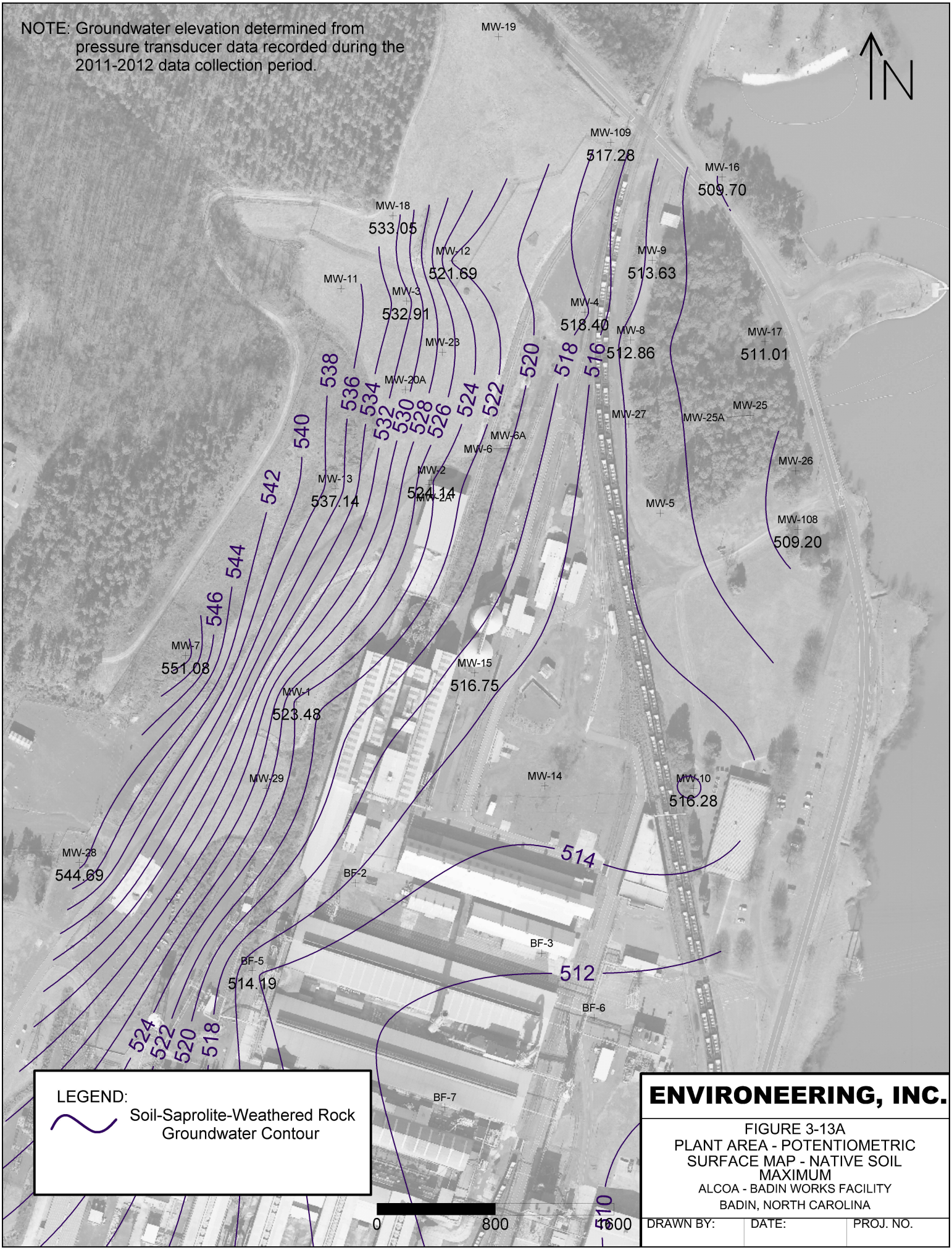
DRAWN BY:	DATE:	PROJ. NO.

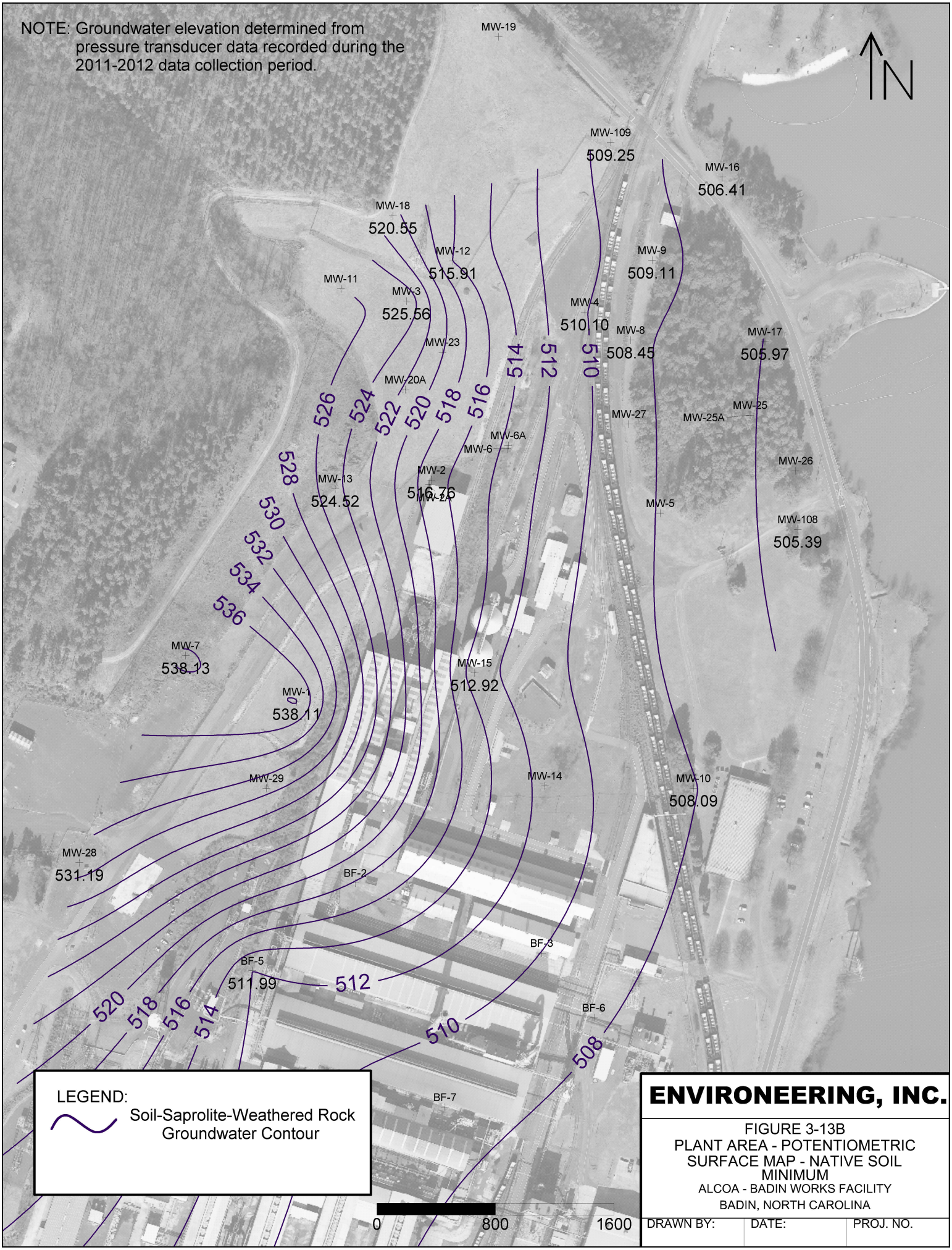


ENVIRONEERING, INC.

FIGURE 3-12B
PLANT AREA - POTENTIOMETRIC SURFACE MAP - FILL MATERIALS MINIMUM
ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.


NOTE: Groundwater elevation determined from pressure transducer data recorded during the 2011-2012 data collection period.
N
MW-19
MW-109
517.28
MW-16
509.70
MW-18
533.05
MW-12
521.69
MW-9
513.63
MW-11
MW-3
532.91
MW-4
518.40
MW-8
512.86
MW-17
511.01
MW-23
MW-20A
MW-27
MW-25A
MW-25
MW-6A
MW-6
MW-26
MW-13
537.14
MW-2
524.14
MW-2A
MW-5
MW-108
509.20
MW-7
551.08
MW-15
516.75
MW-1
523.48
MW-29
MW-14
MW-10
516.28
MW-28
544.69
BF-2
BF-3
BF-5
514.19
BF-6
BF-7
538
536
534
532
530
528
526
524
522
520
518
516
514
512
510
540
542
544
546
524
522
520
518
0
800
1600
LEGEND:
Soil-Saprolite-Weathered Rock Groundwater Contour
ENVIRONEERING, INC.
FIGURE 3-13A
PLANT AREA - POTENTIOMETRIC SURFACE MAP - NATIVE SOIL MAXIMUM
ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA
DRAWN BY:
DATE:
PROJ. NO.



ENVIRONEERING, INC.

FIGURE 3-13B
PLANT AREA - POTENTIOMETRIC SURFACE MAP - NATIVE SOIL MINIMUM
ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

3.3 Task 3 - Water Quality Assessment

To assess current conditions for the evaluation potential remedial alternatives, a water quality assessment was conducted by collecting groundwater samples from the Alcoa Badin Landfill, Old Brick Landfill, and Alcoa Badin Works Plant Area, and by collecting surface water samples from Little Mountain Creek, Badin Lake at the Old Brick Landfill, and Badin Lake at the Badin Works Plant Area.

3.3.1 Alcoa Badin Landfill (SWMU No.2) Groundwater

To gain an understanding of "Post" Interim Measures groundwater conditions, a routine groundwater monitoring program was implemented to collect water quality data from selected wells in the existing groundwater well network. The purpose of the data collection effort was to evaluate the potential effects of interim measures and cover system improvements on the groundwater water quality. Groundwater samples were collected in November 2011, May 2012, and August 2012 from monitoring wells ABL-MW-1 through ABL-MW-06 and ABL-PZ-15 through ABL-PZ-19, and analyzed for Available Cyanide, Total Fluoride, and waste indicator parameters (pH, Specific Conductivity, Dissolved Oxygen, Temperature, Turbidity, and TOC). Please note that ABL-PZ-13 and ABL-PZ-14 did not contain measurable groundwater and were not sampled. A summary of the groundwater sampling results are provided in **Tables 3-5A and 3-5B**. A copy of the laboratory reports and completed chain-of-custody forms are presented in **Appendix J**. Well Sampling Logs are included in **Appendix K**.

Available Cyanide was detected in the southwest corner of the ABL at ABL-MW-05, ABL-PZ-16 and ABL-PZ-18. The concentration ranged from 0.001 J mg/L at PZ-18 to 0.027 mg/L at MW-05. All the detected concentrations were below the 2L standard. The results are consistent with the historical sampling results documented in the RFI.

Total Fluoride was detected at concentrations in excess of the 2L standard at PZ-15, PZ-16, PZ-17, PZ-18, and PZ-19. All of these well are located within the waste area of the landfill near deposited waste material. Fluoride has not been previously or currently detected above the 2L standard in the perimeter wells surrounding the ABL (MW-1 through MW-6).

No significant concentrations of waste indicator parameters were noted in any of the wells sampled.

Table 3-5A
Groundwater Sample Analytical Results
SWMU No. 2 - Alcoa Badin Municipal Landfill
Alcoa - Badin Works Facility
Badin, North Carolina

Sample ID	Units	ABLMW01F001	ABLMW02F001	ABLMW03F001	ABLMW04F001	ABLMW05F001	ABLMW06F001	ABLPZ15F001	ABLPZ16F001	ABLPZ17F001	ABLPZ18F001	ABLPZ19F001	NCDENR 15A NCAC 2L
Well ID		**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**PZ-15**	**PZ-16**	**PZ-17**	**PZ-18**	**PZ-19**	--
Date		8/2/2011	8/1/2011	8/2/2011	8/1/2011	8/1/2011	8/1/2011	8/3/2011	8/2/2011	8/2/2011	8/2/2011	8/3/2011	--
Time		8:15	15:20	8:50	10:10	11:27	16:50	10:05	13:45	14:50	15:25	10:15	--
Total Fluoride	*mg/L*	0.17	0.05	0.1	0.19	0.26	0.07	53	8.9	77	31	27	**2**

Sample ID	Units	ABLMW1F001	ABLMW2F001	ABLMW3F001	ABLMW4F001 / ABLMW4D001	ABLMW5F001	ABLMW6F001	ABLPZ15F001	ABLPZ16F001	ABLPZ17F001 / ABLPZ17D001	ABLPZ18F001	ABLPZ19F001	NCDENR 15A NCAC 2L
Well ID		**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**PZ-15**	**PZ-16**	**PZ-17**	**PZ-18**	**PZ-19**	--
Date		**11/14/2011**	**11/15/2011**	**11/15/2011**	**11/15/2011**	**11/15/2011**	**11/14/2011**	**11/15/2011**	**11/15/2011**	**11/15/2011**	**11/16/2011**	**11/15/2012**	--
Time		**14:30**	**9:15**	**11:35**	**14:20**	**18:06**	**11:00**	**11:45**	**11:25**	**11:20 / 11:40**	**8:40**	**16:30**	--
Cyanide, Available	*mg/L*	ND $_{<0.002}$	ND $_{<0.002}$	ND $_{<0.002}$	ND $_{<0.002}$ / ND $_{<0.002}$	0.027	ND $_{<0.002}$	ND $_{<0.002}$	ND $_{<0.002}$	ND $_{<0.002}$ / ND $_{<0.002}$	ND $_{<0.002}$	ND $_{<0.002}$	**0.07**
Total Fluoride	*mg/L*	0.2	0.05 J	0.09 J	0.1 J / 0.1 J	0.18 J	0.09 J	35	9.5	57 / 57	27	41	**2**
Total Organic Carbon	*mg/L*	0.53 J	ND $_{<1.0}$	ND $_{<1.0}$	0.69 J / 0.62 J	1.1	ND $_{<1.0}$	6.1	34	77 / 52	7.8	8.3	**NE**
pH	--	5.56	5.34	5.55	6.57	6.27	5.82	7.5	7.24	7.3	7.33	7.48	--
Temperature	*°C*	20.61	17.93	16.9	17.41	16.02	20.83	19.52	19.2	19.85	17.71	20.3	--
Specific Conductance	*µS*	93	75	82	337	545	127	2172	1187	2802	1699	1704	--
Dissolved Oxygen	*mg/L*	3.37	0.4	1.51	0.87	0.98	1.31	0.6	0.28	0.1	0.64	0.18	--
Oxidation-Reduction Poter	*mV*	206.3	434.1	237.4	145.8	194	204.8	-38.7	-84	-99.8	-93.6	-145.2	--
Turbidity	*NTU*	2.39	1.17	18.8	12.2	19.2	3.09	>1000	20.9	24.9	19.1	28.1	--

Sample ID	Units	ABLMW1F002 / ABLMW1D002	ABLMW2F002	ABLMW3F002	ABLMW4F002	ABLMW5F002	ABLMW6F002	ABLPZ15F002	ABLPZ16F002 / ABLPZ16D002	ABLPZ17F002	ABLPZ18F002	ABLPZ19F002	NCDENR 15A NCAC 2L
Well ID		**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**PZ-15**	**PZ-16**	**PZ-17**	**PZ-18**	**PZ-19**	--
Date		**5/8/2012**	**5/8/2012**	**5/10/2012**	**5/10/2012**	**5/10/2012**	**5/8/2012**	**5/9/2012**	**5/10/2012**	**5/10/2012**	**5/9/2012**	**5/10/2012**	--
Time		**15:00 / 15:10**	**18:00**	**9:30**	**13:05**	**15:33**	**13:00**	**12:50**	**10:15 / 10:30**	**15:20**	**10:20**	**13:25**	--
Cyanide, Available	*mg/L*	ND $_{<0.002}$ / ND $_{<0.002}$	ND $_{<0.002}$	ND $_{<0.002}$	ND $_{<0.002}$	0.024	ND $_{<0.002}$	ND $_{<0.002}$	0.014 / 0.006	ND $_{<0.002}$	0.008	ND $_{<0.002}$	**0.07**
Total Fluoride	*mg/L*	ND $_{<1.0}$ / ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	66	9.7 / 9.6	56	27	37	**2**
Total Organic Carbon	*mg/L*	ND $_{<1.0}$ / ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	0.61 J	ND $_{<1.0}$	7.2	2.1 / 1.8	4.7	9.6	NA	**NE**
pH	--	5.31	5.2	5.27	6.38	6.25	5.71	7.29	7.4	7.23	7.11	7.14	--
Temperature	*°C*	18.56	19.08	15.55	15.87	16.38	20.56	24.11	18.11	20.99	20.23	22.63	--
Specific Conductance	*µS*	93	73	79	346	524	136	1913	1158	2509	1848	2081	--
Dissolved Oxygen	*mg/L*	2.18	0.7	2.02	0.53	0.86	2.7	1.1	0.82	0.35	0.54	0.68	--
Oxidation-Reduction Poter	*mV*	237.6	343.3	40	-144.1	-59.2	297.1	-38.9	-90.5	-68.9	-120	-95.7	--
Turbidity	*NTU*	4.26	3.62	2.11	0.69	3.64	4	23.2	9.3	7.73	177	8.05	--

Sample ID	Units	ABLMW1F003	ABLMW2F003	ABLMW3F003 / ABLMW3D003	ABLMW4F003	ABLMW5F003	ABLMW6F003	ABLPZ15F003	ABLPZ16F003 / ABLPZ16D003	ABLPZ17F003	ABLPZ18F003	ABLPZ19F003	NCDENR 15A NCAC 2L
Well ID		**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**PZ-15**	**PZ-16**	**PZ-17**	**PZ-18**	**PZ-19**	--
Date		**8/3/2012**	**7/30/2012**	**7/31/2012**	**7/31/2012**	**7/31/2012**	**7/30/2012**	**8/3/2012**	**8/3/2012**	**8/3/2012**	**8/3/2012**	**8/3/2012**	--
Time		**8:10**	**16:00**	**15:10 / 15:15**	**10:05**	**12:50**	**13:05**	**9:25**	**12:15 / 12:25**	**15:00**	**19:15**	--	--
Cyanide, Available	*mg/L*	0.001 J B	ND $_{<0.002}$	ND $_{<0.002}$ / ND $_{<0.002}$	ND $_{<0.002}$	0.016	ND $_{<0.002}$	ND $_{<0.002}$	0.004 / 0.001 J	ND $_{<0.002}$	0.001 J	NA	**0.07**
Total Fluoride	*mg/L*	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$ / ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	51	11 / 10	68	25	NA	**2**
Total Organic Carbon	*mg/L*	ND $_{<1.0}$	ND $_{<1.0}$	0.51 J / 0.50 J	0.59 J	0.89 J	ND $_{<1.0}$	11	2.6 / 2.4	5.3	11	NA	**NE**
pH	--	5.69	5.48	5.67	6.51	6.34	5.94	7.38	7.4	7.43	7.04	NM	--
Temperature	*°C*	19.2	19.7	19.8	17.6	18.9	28.3	22	21.1	25.9	27.4	NM	--
Specific Conductance	*µS*	95	72	74	345	479	128	351	121	301	179	NM	--
Dissolved Oxygen	*mg/L*	2.4	6.18	1.8	0.15	1.14	0.79	0.95	1.24	0.16	1.36	NM	--
Oxidation-Reduction Poter	*mV*	-208	-322	-170	-313	-192	-257	-220	-268	-364	-209	NM	--
Turbidity	*NTU*	1.51	2.16	3.62	4.61	3.88	0.16	NM	17.9	153	35.4	NM	--

Notes:

ND - The analyte was not detected above laboratory detection limits. Subscript indicates compound-specific MDL in mg/L.
NE - Not established.
"J" - The associated method blank contained a constituent concentration at a reportable level.
"B" - Compound was found in the blank and sample.
ABL-PZ-19 resampled on 11/21/11 for available cyanide due to poor recovery on 11/15/12.
NA - Not analyzed due to poor well recovery.
NM - Not Measured.
When a sample duplicate was collected, both results are shown.

Table 3-5B
Additional Groundwater Sample Analytical Results
SWMU No. 2 - Alcoa Badin Municipal Landfill
Alcoa - Badin Works Facility
Badin, North Carolina

Sample ID	Units	ABLMW5F001		Units	ABLMW5F001		Units	ABLMW5F001
Well ID		MW-5			MW-5			MW-5
Date		11/15/2011			11/15/2011			11/15/2011
Time		18:06			18:06			18:06
Appendix IX VOCs			**Appendix IX SVOCs**			**Appendix IX SVOCs (cont'd)**		
1,1,1,2-Tetrachloroethane	ug/L	ND $_{<1}$	1,2,4,5-Tetrachlorobenzene	ug/L	ND $_{<12}$	Bis(2-Ethylhexyl) Phthalate	ug/L	ND $_{<12}$
1,1,1-Trichloroethane	ug/L	ND $_{<1}$	1,2,4-Trichlorobenzene	ug/L	ND $_{<12}$	Butyl Benzyl Phthalate	ug/L	ND $_{<12}$
1,1,2,2-Tetrachloroethane	ug/L	ND $_{<1}$	1,2-Dichlorobenzene	ug/L	ND $_{<12}$	Chrysene	ug/L	ND $_{<12}$
1,1,2-Trichloroethane	ug/L	ND $_{<1}$	1,3,5-Trinitrobenzene	ug/L	ND $_{<12}$	Diallate	ug/L	ND $_{<12}$
1,1-Dichloroethane	ug/L	ND $_{<1}$	1,3-Dichlorobenzene	ug/L	ND $_{<12}$	Dibenz(A,H)Anthracene	ug/L	ND $_{<12}$
1,1-Dichloroethene	ug/L	ND $_{<1}$	1,3-Dinitrobenzene	ug/L	ND $_{<12}$	Dibenzofuran	ug/L	ND $_{<12}$
1,2-Dichloroethane	ug/L	ND $_{<1}$	1,4-Dichlorobenzene	ug/L	ND $_{<12}$	Diethyl Phthalate	ug/L	ND $_{<12}$
1,2-Dichloropropane	ug/L	ND $_{<1}$	1,4-Dioxane	ug/L	ND $_{<12}$	Dimethoate	ug/L	ND $_{<12}$
2-Butanone	ug/L	ND $_{<10}$	1,4-Naphthoquinone	ug/L	ND $_{<12}$	Dimethyl Phthalate	ug/L	ND $_{<12}$
2-Hexanone	ug/L	ND $_{<10}$	1-Naphthylamine	ug/L	ND $_{<12}$	Di-N-Butyl Phthalate	ug/L	ND $_{<12}$
4-Methyl-2-Pentanone	ug/L	ND $_{<10}$	*2,3,4,6-Tetrachlorophenol*	ug/L	ND $_{<12}$	Di-N-Octyl Phthalate	ug/L	ND $_{<12}$
Acetone	ug/L	ND $_{<25}$	*2,4,5-Trichlorophenol*	ug/L	ND $_{<12}$	Dinoseb	ug/L	ND $_{<12}$
Acetonitrile	ug/L	ND $_{<40}$	*2,4,6-Trichlorophenol*	ug/L	ND $_{<12}$	Disulfoton	ug/L	ND $_{<12}$
Acrolein	ug/L	ND $_{<20}$	*2,4-Dichlorophenol*	ug/L	ND $_{<12}$	Ethyl Methanesulfonate	ug/L	ND $_{<12}$
Acrylonitrile	ug/L	ND $_{<20}$	*2,4-Dimethylphenol*	ug/L	ND $_{<12}$	Ethyl Parathion	ug/L	ND $_{<12}$
Allyl Chloride	ug/L	ND $_{<1}$	*2,4-Dinitrophenol*	ug/L	ND $_{<59}$	Famphur	ug/L	ND $_{<12}$
Benzene	ug/L	ND $_{<1}$	2,4-Dinitrotoluene	ug/L	ND $_{<12}$	Fluoranthene	ug/L	ND $_{<12}$
Bromodichloromethane	ug/L	ND $_{<1}$	2,6-Dichlorophenol	ug/L	ND $_{<12}$	Fluorene	ug/L	ND $_{<12}$
Bromoform	ug/L	ND $_{<1}$	2,6-Dinitrotoluene	ug/L	ND $_{<12}$	Hexachlorobenzene	ug/L	ND $_{<12}$
Bromomethane	ug/L	ND $_{<1}$	2-Acetylaminofluorene	ug/L	ND $_{<12}$	Hexachlorobutadiene	ug/L	ND $_{<12}$
Carbon Disulfide	ug/L	ND $_{<2}$	2-Chloronaphthalene	ug/L	ND $_{<12}$	Hexachlorocyclopentadiene	ug/L	ND $_{<12}$
Carbon Tetrachloride	ug/L	ND $_{<1}$	2-Chlorophenol	ug/L	ND $_{<12}$	Hexachloroethane	ug/L	ND $_{<12}$
Chlorobenzene	ug/L	ND $_{<1}$	2-Methylnaphthalene	ug/L	ND $_{<12}$	Hexachlorophene	ug/L	ND $_{<5900}$
Chloroethane	ug/L	ND $_{<1}$	2-Methylphenol	ug/L	ND $_{<12}$	Hexachloropropene	ug/L	ND $_{<12}$
Chloroform	ug/L	0.18 J	2-Naphthylamine	ug/L	ND $_{<12}$	Indeno[1,2,3-Cd]Pyrene	ug/L	ND $_{<12}$
Chloromethane	ug/L	ND $_{<1}$	2-Nitroaniline	ug/L	ND $_{<59}$	Isophorone	ug/L	ND $_{<12}$
Chloroprene	ug/L	ND $_{<1}$	2-Nitrophenol	ug/L	ND $_{<12}$	Isosafrole	ug/L	ND $_{<12}$
Cis-1,3-Dichloropropene	ug/L	ND $_{<1}$	2-Picoline	ug/L	ND $_{<12}$	Methapyrilene	ug/L	ND $_{<2400}$
Dibromochloromethane	ug/L	ND $_{<1}$	3 & 4 Methylphenol	ug/L	ND $_{<12}$	Methyl Methanesulfonate	ug/L	ND $_{<12}$
Dibromomethane	ug/L	ND $_{<1}$	3,3'-Dichlorobenzidine	ug/L	ND $_{<71}$	Methyl Parathion	ug/L	ND $_{<12}$
Dichlorodifluoromethane	ug/L	ND $_{<1}$	3,3'-Dimethylbenzidine	ug/L	ND $_{<24}$	Naphthalene	ug/L	ND $_{<12}$
Ethyl Methacrylate	ug/L	ND $_{<1}$	3-Methylcholanthrene	ug/L	ND $_{<12}$	Nitrobenzene	ug/L	ND $_{<12}$
Ethylbenzene	ug/L	ND $_{<1}$	3-Nitroaniline	ug/L	ND $_{<59}$	N-Nitro-O-Toluidine	ug/L	ND $_{<12}$
Iodomethane	ug/L	ND $_{<5}$	4,6-Dinitro-2-Methylphenol	ug/L	ND $_{<59}$	N-Nitrosodiethylamine	ug/L	ND $_{<12}$
Isobutanol	ug/L	ND $_{<40}$	4-Aminobiphenyl	ug/L	ND $_{<12}$	N-Nitrosodimethylamine	ug/L	ND $_{<12}$
Methacrylonitrile	ug/L	ND $_{<20}$	4-Bromophenyl Phenyl Ether	ug/L	ND $_{<12}$	N-Nitrosodi-N-Butylamine	ug/L	ND $_{<12}$
Methyl Methacrylate	ug/L	ND $_{<1}$	4-Chloro-3-Methylphenol	ug/L	ND $_{<12}$	N-Nitrosodi-N-Propylamine	ug/L	ND $_{<12}$
Methylene Chloride	ug/L	ND $_{<5}$	4-Chloroaniline	ug/L	ND $_{<24}$	N-Nitrosodiphenylamine	ug/L	ND $_{<12}$
Pentachloroethane	ug/L	ND $_{<5}$	4-Chlorophenyl Phenyl Ether	ug/L	ND $_{<12}$	N-Nitrosomethylethylamine	ug/L	ND $_{<12}$
Propionitrile	ug/L	ND $_{<20}$	4-Nitroaniline	ug/L	ND $_{<59}$	N-Nitrosomorpholine	ug/L	ND $_{<12}$
Styrene	ug/L	ND $_{<1}$	4-Nitrophenol	ug/L	ND $_{<59}$	N-Nitrosopiperidine	ug/L	ND $_{<12}$
Tetrachloroethene	ug/L	ND $_{<1}$	4-Nitroquinoline-1-Oxide	ug/L	ND $_{<24}$	N-Nitrosopyrrolidine	ug/L	ND $_{<12}$
Toluene	ug/L	ND $_{<1}$	7,12-Dimethylbenz(A)Anthracene	ug/L	ND $_{<12}$	O,O',O''-Triethylphosphorothioate	ug/L	ND $_{<12}$
Trans-1,2-Dichloroethene	ug/L	ND $_{<1}$	Acenaphthene	ug/L	ND $_{<12}$	O-Toluidine	ug/L	ND $_{<12}$
Trans-1,3-Dichloropropene	ug/L	ND $_{<1}$	Acenaphthylene	ug/L	ND $_{<12}$	P-Dimethylamino Azobenzene	ug/L	ND $_{<12}$
Trans-1,4-Dichloro-2-Butene	ug/L	ND $_{<2}$	Acetophenone	ug/L	ND $_{<12}$	Pentachlorobenzene	ug/L	ND $_{<12}$
Trichloroethene	ug/L	ND $_{<1}$	Alpha,Alpha-Dimethyl Phenethylamine	ug/L	ND $_{<2400}$	Pentachloronitrobenzene	ug/L	ND $_{<12}$
Trichlorofluoromethane	ug/L	ND $_{<1}$	Aniline	ug/L	ND $_{<24}$	Pentachlorophenol	ug/L	ND $_{<59}$
Vinyl Acetate	ug/L	ND $_{<2}$	Anthracene	ug/L	ND $_{<12}$	Phenacetin	ug/L	ND $_{<12}$
Vinyl Chloride	ug/L	ND $_{<1}$	Aramite	ug/L	ND $_{<12}$	Phenanthrene	ug/L	ND $_{<12}$
Xylenes, Total	ug/L	ND $_{<2}$	Benzo[A]Anthracene	ug/L	ND $_{<12}$	Phenol	ug/L	ND $_{<12}$
			Benzo[A]Pyrene	ug/L	ND $_{<12}$	Phorate	ug/L	ND $_{<12}$
Appendix IX Metals			Benzo[B]Fluoranthene	ug/L	ND $_{<12}$	P-Phenylene Diamine	ug/L	ND $_{<2400}$
Antimony	ug/L	ND $_{<20}$	Benzo[G,H,I]Perylene	ug/L	ND $_{<12}$	Pronamide	ug/L	ND $_{<12}$
Arsenic	ug/L	ND $_{<20}$	Benzo[K]Fluoranthene	ug/L	ND $_{<12}$	Pyrene	ug/L	ND $_{<12}$
Barium	ug/L	10	Benzyl Alcohol	ug/L	ND $_{<12}$	Pyridine	ug/L	ND $_{<59}$
Beryllium	ug/L	ND $_{<4}$	Bis (2-Chloroisopropyl) Ether	ug/L	ND $_{<12}$	Safrole	ug/L	ND $_{<12}$
Cadmium	ug/L	ND $_{<5}$	Bis(2-Chloroethoxy)Methane	ug/L	ND $_{<12}$	Sulfotepp	ug/L	ND $_{<12}$
Chromium	ug/L	1.9 J B	Bis(2-Chloroethyl)Ether	ug/L	ND $_{<12}$	Thionazin	ug/L	ND $_{<12}$
Cobalt	ug/L	72						
Copper	ug/L	ND $_{<20}$						
Lead	ug/L	ND $_{<10}$						
Nickel	ug/L	ND $_{<40}$						
Selenium	ug/L	ND $_{<20}$						
Silver	ug/L	ND $_{<10}$						
Thallium	ug/L	ND $_{<25}$						
Tin	ug/L	ND $_{<50}$						
Vanadium	ug/L	ND $_{<10}$						
Zinc	ug/L	ND $_{<20}$						
Mercury	ug/L	ND $_{<0.2}$						

ND - The analyte was not detected above laboratory detection limits. Subscript indicates compound-specific MDL in mg/L.
"J" - Result is less than the Reporting Limit but greater than or equal to the MDL and the concentration is an approximate value
"B" - Compound was found in the blank and sample.

3.3.2 Little Mountain Creek Surface Water

The RFI screening level risk assessment showed that no COIs were present at concentrations exceeding applicable human health screening values in Little Mountain Creek. To confirm this current understanding, a surface water sample was collected in November 2011 from Little Mountain Creek adjacent to the Alcoa Badin Landfill, as shown on **Figure 3-14**. The surface water sample was analyzed for Available Cyanide, Total Fluoride, TCE, PAHs, and PCBs. Samples were collected in the same manner as described with the Badin Lake Surface Water Sampling.

The November 2011 results, reported fluoride in the laboratory Method Blank, and samples from this period were noted with a "B" qualifier by the lab. It is believed that the surface water sample from this period did not contain fluoride, and the reported value is the result of a laboratory artifact. Available Cyanide, TCE, PAHs, and PCBs were not detected in the November sampling event. The surface water analytical results are presented in **Table 3-6**. The results are consistent with the historical sampling results documented in the RFI.

3.3.3 Old Brick Landfill (SWMU No. 3) Groundwater

To gain an understanding of cover system upgrades on groundwater conditions, a routine groundwater monitoring program was implemented to collect water quality data from selected wells in the existing groundwater well network. The purpose of the data collection effort was to evaluate the potential effects of cover system upgrades on the groundwater water quality. Groundwater samples were collected in November 2011, May 2012, and August 2012 from monitoring wells (OBL-MW-1 through OBL-MW-06) located in and around the Old Brick Landfill. These samples were analyzed for Available Cyanide, Total Fluoride, and waste indicator parameters (pH, Specific Conductivity, Dissolved Oxygen, Temperature, Turbidity, and TOC). A summary of the groundwater sampling results are provided in **Table 3-7**. A copy of the laboratory reports and completed chain-of-custody forms are presented in **Appendix J**. Well Sampling Logs are included in **Appendix L**. A groundwater contour map showing the direction and gradient of groundwater flow at the OBL is provided in **Figure 3-15**.

Available Cyanide was detected at OBL-MW-02, OBL-MW-03, and OBL-MW-04 above the method detection limit. Only MW-02 in November 2011was reported above the NC 2L Standard. In the subsequent sampling events in May 2012 and August 2012, cyanide was detected at concentrations below the 2L standard. The results are generally less than or consistent with the historical sampling results documented in the RFI.

Total Fluoride was detected at OBL-MW-02, OBL-MW-03, OBL-MW-04, and OBL-MW-5. None of the fluoride groundwater concentrations were found in excess of the NC 2L Standard. The results are consistent with the historical sampling results documented in the RFI.

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FIGURE 3-14

LITTLE MOUNTAIN CREEK
SURFACE WATER SAMPLING
LOCATION MAP

ALCOA BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ NO:
HM	10/08/2012	137-176

Table 3-6
Surface Water Analytical Results
Plant Area, SWMU No. 2, and SWMU No. 3
Alcoa-Badin Works Facility
Badin, North Carolina

Sample ID	Units	ABKSWL01F001	ABKSWL02F001	ABKSWL03F001	ABKSWL04F001	ABKSWL05F001	ABKSWL06F001	ABKSWL07F001	OBLSWL01F001	ABLSWL01F001	NCDENR 15A NCAC 2B
Location		**Badin Lake 01**	**Badin Lake 02**	**Badin Lake 03**	**Badin Lake 04**	**Badin Lake 05**	**Badin Lake 06**	**Badin Lake 07**	**OBL**	**LMC**	--
Date		**11/16/2011**	**11/16/2011**	**11/16/2011**	**11/16/2011**	**11/16/2011**	**11/16/2011**	**11/16/2011**	**11/17/2011**	**11/18/2011**	--
Time		**16:35**	**16:14**	**15:50**	**15:00**	**14:40**	**14:10**	**15:55**	**9:30**	**8:30**	--
VOCs											
Trichloroethene	*ug/L*	ND <0.80	ND <0.80	ND <0.80	ND <0.80	ND <0.80	ND <0.80	ND <0.80	ND <0.80	ND <0.80	**2.5**
PAHs											
Acenaphthene	*ug/L*	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	**20**
Acenaphthylene	*ug/L*	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	**NE**
Anthracene	*ug/L*	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	**0.5**
Benzo(a)anthracene	*ug/L*	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	ND <0.15	**0.0028 [1]**
Benzo(a)pyrene	*ug/L*	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	**0.0028 [1]**
Benzo(b)fluoranthene	*ug/L*	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	**0.0028 [1]**
Benzo(k)fluoranthene	*ug/L*	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	**0.0028 [1]**
Benzo(g,h,i)perylene	*ug/L*	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	**0.0028 [1]**
Chrysene	*ug/L*	ND <0.55	ND <0.55	ND <0.55	ND <0.55	ND <0.55	ND <0.55	ND <0.55	ND <0.55	ND <0.55	**0.0028 [1]**
Dibenz(a,h)anthracene	*ug/L*	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	**0.0028 [1]**
Fluoranthene	*ug/L*	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	**0.11**
Fluorene	*ug/L*	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	**30**
Indeno(1,2,3-cd)pyrene)	*ug/L*	ND <0.20	ND <0.20	ND <0.20	ND <0.20	ND <0.20	ND <0.20	ND <0.20	ND <0.20	ND <0.20	**0.0028 [1]**
Naphthalene	*ug/L*	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	ND <0.14	**50**
Phenanthrene	*ug/L*	ND <0.43	ND <0.43	ND <0.43	ND <0.43	ND <0.43	ND <0.43	ND <0.43	ND <0.43	ND <0.43	**0.3**
Pyrene	*ug/L*	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	ND <0.16	**830**
PCBs											
PCB-1016	*ug/L*	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	**0.001 [2]**
PCB-1221	*ug/L*	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	ND <0.10	**0.001 [2]**
PCB-1232	*ug/L*	ND <0.12	ND <0.12	ND <0.12	ND <0.12	ND <0.12	ND <0.12	ND <0.12	ND <0.12	ND <0.12	**0.001 [2]**
PCB-1242	*ug/L*	ND <0.077	ND <0.077	ND <0.077	ND <0.077	ND <0.077	ND <0.077	ND <0.077	ND <0.077	ND <0.077	**0.001 [2]**
PCB-1248	*ug/L*	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	**0.001 [2]**
PCB-1254	*ug/L*	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	ND <0.095	**0.001 [2]**
PCB-1260	*ug/L*	ND <0.056	ND <0.056	ND <0.056	ND <0.056	ND <0.056	ND <0.056	ND <0.056	ND <0.056	ND <0.056	**0.001 [2]**
General Chemistry											
Available Cyanide	*mg/L*	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	**0.0005**
Total Fluoride	*mg/L*	0.13 B	0.11 B	0.11 B	0.12 B	0.11 B	0.12 B	0.12 B	0.11 B	0.090 B	**1.8**
pH	--	NM	NM	NM	NM	NM	NM	NM	NM	NM	--
Temperature	*°C*	16.15	18.3	16.04	16.68	15.76	16.72	17.22	14.63	7.35	--
Specific Conductance	*µS*	99	90	92	93	93	94	93	86	74	--
Dissolved Oxygen	*mg/L*	NM	NM	NM	NM	NM	NM	NM	NM	13.44	--
Oxidation-Reduction Potential	*mV*	NM	NM	NM	NM	NM	NM	NM	NM	NM	--
Turbidity	*NTU*	2.83	6.51	6.19	4.45	5.31	10.1	10.6	NM	NM	--

Sample ID	Units	ABKSWL01F002	ABKSWL02F002	ABKSWL03F002	ABKSWL04F002	ABKSWL05F002	ABKSWL06F002	ABKSWL07F002	ABKSWL07D002	NCDENR 15A NCAC 2B
Location		**Badin Lake 01**	**Badin Lake 02**	**Badin Lake 03**	**Badin Lake 04**	**Badin Lake 05**	**Badin Lake 06**	**Badin Lake 07**	**Badin Lake 07**	--
Date		**5/11/2012**	**5/11/2012**	**5/11/2012**	**5/11/2012**	**5/11/2012**	**5/11/2012**	**5/11/2012**	**5/11/2012**	--
Time		**10:10**	**10:25**	**10:45**	**11:00**	**11:30**	**11:45**	**12:00**	**12:15**	--
VOCs										
Trichloroethene	*ug/L*	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	ND <0.13	**2.5**
PAHs										
Acenaphthene	*ug/L*	ND <0.72	ND <0.72	ND <0.72	ND <0.72	ND <0.72	ND <0.72	ND <0.72	ND <0.72	**20**
Acenaphthylene	*ug/L*	ND <0.81	ND <0.81	ND <0.81	ND <0.81	ND <0.81	ND <0.81	ND <0.81	ND <0.81	**NE**
Anthracene	*ug/L*	ND <0.66	ND <0.66	ND <0.66	ND <0.66	ND <0.66	ND <0.66	ND <0.66	ND <0.66	**0.5**
Benzo(a)anthracene	*ug/L*	ND <0.52	ND <0.52	ND <0.52	ND <0.52	ND <0.52	ND <0.52	ND <0.52	ND <0.52	**0.0028 [1]**
Benzo(k)fluoranthene	*ug/L*	ND <1.1	ND <1.1	ND <1.1	ND <1.1	ND <1.1	ND <1.1	ND <1.1	ND <1.1	**0.0028 [1]**
Benzo(g,h,i)perylene	*ug/L*	ND <0.83	ND <0.83	ND <0.83	ND <0.83	ND <0.83	ND <0.83	ND <0.83	ND <0.83	**0.0028 [1]**
Benzo(a)pyrene	*ug/L*	ND <0.68	ND <0.68	ND <0.68	ND <0.68	ND <0.68	ND <0.68	ND <0.68	ND <0.68	**0.0028 [1]**
Benzo(b)fluoranthene	*ug/L*	ND <2.5	ND <2.5	ND <2.5	ND <2.5	ND <2.5	ND <2.5	ND <2.5	ND <2.5	**0.0028 [1]**
Chrysene	*ug/L*	ND <0.49	ND <0.49	ND <0.49	ND <0.49	ND <0.49	ND <0.49	ND <0.49	ND <0.49	**0.0028 [1]**
Dibenz(a,h)anthracene	*ug/L*	ND <0.95	ND <0.95	ND <0.95	ND <0.95	ND <0.95	ND <0.95	ND <0.95	ND <0.95	**0.0028 [1]**
Fluoranthene	*ug/L*	ND <0.70	ND <0.70	ND <0.70	ND <0.70	ND <0.70	ND <0.70	ND <0.70	ND <0.70	**0.11**
Fluorene	*ug/L*	ND <0.91	ND <0.91	ND <0.91	ND <0.91	ND <0.91	ND <0.91	ND <0.91	ND <0.91	**30**
Indeno(1,2,3-cd)pyrene)	*ug/L*	ND <0.95	ND <0.95	ND <0.95	ND <0.95	ND <0.95	ND <0.95	ND <0.95	ND <0.95	**0.0028 [1]**
Naphthalene	*ug/L*	ND <0.67	ND <0.67	ND <0.67	ND <0.67	ND <0.67	ND <0.67	ND <0.67	ND <0.67	**50**
1-MethylNaphthalene	*ug/L*	ND <0.64	ND <0.64	ND <0.64	ND <0.64	ND <0.64	ND <0.64	ND <0.64	ND <0.64	**NE**
Phenanthrene	*ug/L*	ND <0.73	ND <0.73	ND <0.73	ND <0.73	ND <0.73	ND <0.73	ND <0.73	ND <0.73	**0.3**
Pyrene	*ug/L*	ND <0.60	ND <0.60	ND <0.60	ND <0.60	ND <0.60	ND <0.60	ND <0.60	ND <0.60	**830**
PCBs										
PCB-1016	*ug/L*	ND <0.068	ND <0.068	ND <0.068	ND <0.068	ND <0.068	ND <0.068	ND <0.068	ND <0.068	**0.001 [2]**
PCB-1221	*ug/L*	ND <0.27	ND <0.27	ND <0.27	ND <0.27	ND <0.27	ND <0.27	ND <0.27	ND <0.27	**0.001 [2]**
PCB-1232	*ug/L*	ND <0.11	ND <0.11	ND <0.11	ND <0.11	ND <0.11	ND <0.11	ND <0.11	ND <0.11	**0.001 [2]**
PCB-1242	*ug/L*	ND <0.17	ND <0.17	ND <0.17	ND <0.17	ND <0.17	ND <0.17	ND <0.17	ND <0.17	**0.001 [2]**
PCB-1248	*ug/L*	ND <0.35	ND <0.35	ND <0.35	ND <0.35	ND <0.35	ND <0.35	ND <0.35	ND <0.35	**0.001 [2]**
PCB-1254	*ug/L*	ND <0.25	ND <0.25	ND <0.25	ND <0.25	ND <0.25	ND <0.25	ND <0.25	ND <0.25	**0.001 [2]**
PCB-1260	*ug/L*	ND <0.19	ND <0.19	ND <0.19	ND <0.19	ND <0.19	ND <0.19	ND <0.19	ND <0.19	**0.001 [2]**
General Chemistry										
Available Cyanide	*mg/L*	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	ND <0.00030	**0.0005**
Total Fluoride	*mg/L*	ND <0.20	ND <0.20	ND <0.20	ND <0.20	ND <0.20	ND <0.20	ND <0.20	ND <0.20	**1.8**
Total Organic Carbon	*mg/L*	2.6	7.7	3.2	2.6	2.6	3	3.1	3.2	**NE**
pH	--	8.23	9.3	9.25	8.82	8.94	9.25	9.3	9.32	--
Temperature	*°C*	20.43	20.93	19.91	22.03	22.41	21.88	21.47	22.12	--
Specific Conductance	*µS*	277	83	75	80	81	78	80	80	--
Dissolved Oxygen	*mg/L*	9.27	10.85	10.68	10.54	8.88	9.6	9.39	9.4	--
Oxidation-Reduction Potential	*mV*	196.3	62.9	74.3	40.7	-7.4	-44.4	-37.6	-34.7	--
Turbidity	*NTU*	4.5	43.8	48.2	16.2	12.6	19.3	17.8	10.4	--

ND - The analyte was not detected above laboratory detection limits. Subscript indicates compound-specific MDL in mg/L.
NM - Not measured.
NE - Not established.
[1] - Regulatory limit is for a combined total of all PAHs
[2] - Regulatory limit is for a combined total of all PCBs
"B" - Compound was found in the blank and sample
When a sample duplicate was collected, both results are shown.

Table 3-7
Groundwater Sample Analytical Results
SWMU No. 3 - Old Brick Landfill
Alcoa - Badin Works Facility
Badin, North Carolina

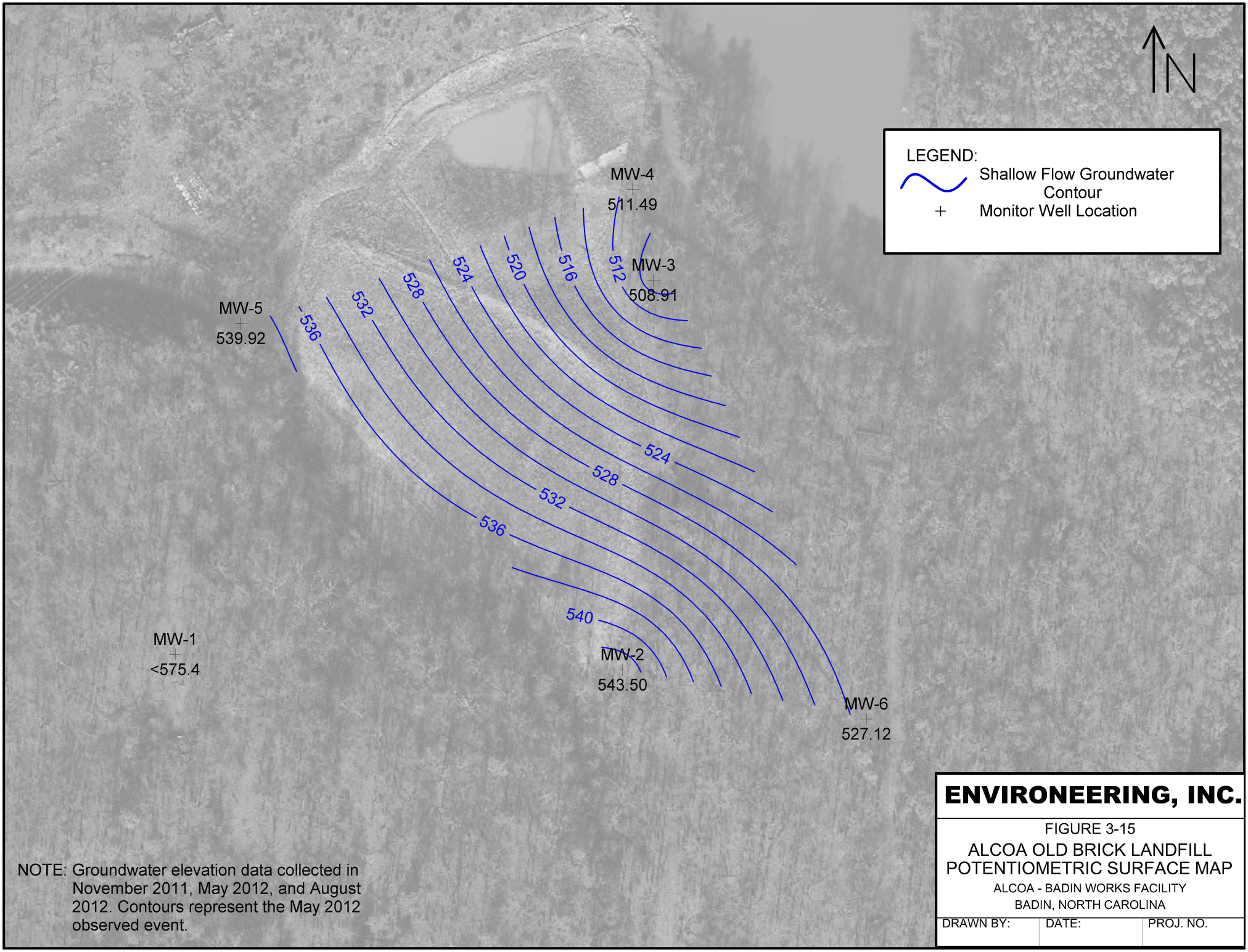
Sample ID	Units	OBLMW1F001	OBLMW2F001	OBLMW3F001	OBLMW4F001 OBLMW4D001	OBLMW5F001	OBLMW6F001	NCDENR 15A NCAC 2L
Well ID		**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	--
Date		**11/17/2011**	**11/18/2012**	**11/22/2011**	**11/17/2011**	**11/21/2011**	**11/17/2011**	--
Time		--	**12:00**	**10:55**	**11:40 / 12:50**	**15:25**	**16:14**	--
Cyanide, Available	*mg/L*	DRY	0.078	0.018	0.016 / 0.016	ND $_{<0.002}$	ND $_{<0.002}$	**0.07**
Fluoride	*mg/L*	DRY	0.06 J	0.05 J	1.2 / 1.1	0.09 J	ND $_{<0.2}$	**2**
Total Organic Carbon	*mg/L*	DRY	2.8	1.4	0.93 J /0.88 J	0.84 J	ND $_{<1.0}$	**NE**
pH	--	--	7.74	6.3	6.83	6.18	6.25	--
Temperature	*°C*	--	14.11	18.47	14.65	18.34	14.29	--
Specific Conductance	*µS*	--	398	223	666	78	102	--
Dissolved Oxygen	*mg/L*	--	1.61	5.23	3.11	3.82	5.41	--
Oxidation-Reduction Poten	*mV*	--	148.2	232.2	240.1	147.9	230.1	--
Turbidity	*NTU*	--	16.9	13.4	7.18	15.9	5.66	--

Sample ID	Units	OBLMW1F002	OBLMW2F002 OBLMW2D002	OBLMW3F002	OBLMW4F002	OBLMW5F002	OBLMW6F002	NCDENR 15A NCAC 2L
Well ID		**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	--
Date		**5/7/2012**	**5/7/2012**	**5/7/2012**	**5/9/2012**	**5/7/2012**	**5/7/2012**	--
Time		--	**11:00 / 11:10**	**16:50**	**17:20**	**19:27**	**14:15**	--
Cyanide, Available	*mg/L*	DRY	0.055 / 0.060	0.016	0.018	ND $_{<0.002}$	ND $_{<0.002}$	**0.07**
Fluoride	*mg/L*	DRY	ND $_{<1.0}$ / ND $_{<1.0}$	ND $_{<1.0}$	0.8 J	ND $_{<1.0}$	ND $_{<1.0}$	**2**
Total Organic Carbon	*mg/L*	DRY	3.1 / 2.6	ND $_{<1.0}$	0.68 J	1.1	ND $_{<1.0}$	**NE**
pH	--	--	6.78	6.08	6.15	5.88	6.06	--
Temperature	*°C*	--	16.6	17.29	16.63	17.24	16.95	--
Specific Conductance	*µS*	--	524	249	678	93	109	--
Dissolved Oxygen	*mg/L*	--	0.74	4.03	2.62	6.37	4.19	--
Oxidation-Reduction Poten	*mV*	--	232.5	166.1	290.3	252.3	198.1	--
Turbidity	*NTU*	--	2.99	8.24	6.8	5.84	2	--

Sample ID	Units	OBLMW1F003	OBLMW2F003	OBLMW3F003	OBLMW4F003 OBLMW4D003	OBLMW5F003	OBLMW6F003	NCDENR 15A NCAC 2L
Well ID		**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	--
Date		**8/3/2012**	**8/3/2012**	**8/3/2012**	**8/3/2012**	**8/3/2012**	**8/3/2012**	--
Time		--	**9:25**	**12:00**	**12:50 / 13:00**	**14:30**	**14:35**	--
Cyanide, Available	*mg/L*	DRY	0.031	0.014	0.022 / 0.017 B	0.001 J	0.001 J B	**0.07**
Fluoride	*mg/L*	DRY	ND $_{<1.0}$	ND $_{<1.0}$	0.56 J / 0.56 J	ND $_{<1.0}$	ND $_{<1.0}$	**2**
Total Organic Carbon	*mg/L*	DRY	3.8	0.57 J	1.3 / 1.1	0.71 J	ND $_{<1.0}$	**NE**
pH	--	--	6.95	6.35	6.84	6.36	6.14	--
Temperature	*°C*	--	19.9	16.8	19.5	17.2	19.6	--
Specific Conductance	*µS*	--	60	264	84	98	115	--
Dissolved Oxygen	*mg/L*	--	1.56	3.48	1.92	6.01	3.96	--
Oxidation-Reduction Poten	*mV*	--	197	-186	-194	-213	-250	--
Turbidity	*NTU*	--	22.7	44.7	1.68	10.02	1.22	--

Notes:

ND - The analyte was not detected above laboratory detection limits. Subscript indicates compound-specific MDL in mg/L.
NE - Not established.
"J" - The associated method blank contained a constituent concentration at a reportable level.
"B" - Compound was found in the blank and sample.
When a sample duplicate was collected, both results are shown.



NOTE: Groundwater elevation data collected in November 2011, May 2012, and August 2012. Contours represent the May 2012 observed event.

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FIGURE 3-15

ALCOA OLD BRICK LANDFILL POTENTIOMETRIC SURFACE MAP

ALCOA - BADIN WORKS FACILITY

BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

3.3.4 Badin Lake at Old Brick Landfill Surface Water

The RFI screening level risk assessment showed that no COIs were present at concentrations exceeding applicable human health screening values in Badin Lake at the Old Brick Landfill. To confirm this current understanding, a surface water sample was collected in November 2011 from one location along the shoreline adjacent to the Old Brick Landfill, at the locations illustrated on **Figure 3-16**. To determine the most suitable locations to collect the sample, temperature and conductivity reading were taken along the shoreline to best determine where groundwater may be entering the lake. The result of the field readings did not show significant contrast between shoreline location points, and were deemed inconclusive. A grab sample was collected from a central location along the shoreline and analyzed for free cyanide, fluoride, PCBs, PAHs, and standard field parameters (pH, Specific Conductivity, Dissolved Oxygen, Temperature, Turbidity, and Oxidation-Reduction Potential). The sample was collected in the same manner as described with the Badin Lake Surface Water Sampling.

The surface water sample was analyzed for Available Cyanide, Total Fluoride, TCE, PAHs, and PCBs. The November 2011 results reported fluoride in the laboratory Method Blank, and samples from this period were noted with a “B” qualifier by the lab. It is believed that the surface water sample from this period did not contain fluoride, and the reported value is the result of a laboratory artifact. Available Cyanide, TCE, PAHs, and PCBs were not detected in the November sampling event. The OBL Badin Lake surface water analytical results are presented in **Table 3-6**. The results are consistent with the historical sampling results documented in the RFI.

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FIGURE 3-16

BADIN LAKE AT OLD BRICK LANDILL SURFACE WATER SAMPLING LOCATION MAP

ALCOA BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ NO:
HM	10/08/2012	137-176

3.3.5 Alcoa Badin Works Plant Area Groundwater

The RFI identified multiple constituents of concern in groundwater along the northeast side of the main plant. To gain an understanding of the current groundwater conditions for the evaluation of potential alternative treatment technologies, a groundwater sampling program was implemented to collect water quality data from selected wells in the existing groundwater well network. Groundwater samples were collected in June, November/December 2011 and August 2012 from selected wells in the Alcoa-Badin Works Plant Area and analyzed for geochemical parameters and COIs. Locations of wells are shown on **Figure 3-17**. A summary of the groundwater sampling results are provided in **Tables 3-8A, 3-8B, and 3-8C**. A copy of the laboratory reports and completed chain-of-custody forms are presented in **Appendix J**. Well Sampling Logs are included in **Appendix M**.

The data showed that Available Cyanide was present at five locations (MW-4, MW-6, MW-23, MW-27, and MW-29) above the NC 2L Standard of 0.07 mg/L. Three of the wells (MW-6, MW-23 and MW-27) are screened within fill material in the Northwest Valley. The other two wells are located at the West SPL area (MW-29) and soil/saprolite material in the Northwest Valley (MW-4).

Fluoride was detected at fourteen locations above the NC 2L Standard of 2 mg/L. Several of the exceedances are located within fill areas in the Northwest Valley (MW-6, MW-23, and MW-27) and SWMU 11 (MW-14). The other areas of exceedance were at the West SPL area (MW-29), soil/saprolite material in the Northwest Valley (MW-4, MW-5, MW-8, MW-9, and MW-16) and at the southern end of the plant at the production area (MW-102, MW-103, and MW-104).

The RFI reported that Methylene Chloride and Bis(2-ethylhexyl)phthalate, were present in B016-MW-2 and MW-FO-2 at concentrations in excess of the NCDENR 2L groundwater standard. Di-n-octyl phthalate was also present above the 2L standard at B016-MW-2. In 2011, Methylene Chloride, Bis(2-ethylhexyl)phthalate, and Di-n-octyl phthalate were not detected in B016-MW-2 or MW-FO-2 above the reporting limit of 1.0 µg/L.

The RFI reported that Trichloromethane (Chloroform) was detected in MW-10. In 2011, Trichloromethane was detected at a concentration of 0.57 J µg/L in MW-10, well below the 2L standard of 70 µg/L.

The RFI reported that Trichloroethene (TCE) has been detected in MW-4, MW-9, and MW-16 at concentrations in excess of the NCDENR 2L groundwater standard. In 2011, TCE was present in MW-4, MW-9 and MW-16 at concentrations of 40 µg/L, 86 µg/L, and 19 µg/L. All three concentrations are above the 2L standard of 3 µg/L.

Arsenic was detected at an estimated concentration of 10 J µg/L, in MW-16. It should be noted that arsenic is known to occur naturally in groundwater in Stanly County and other areas within the Carolina Slate Belt. The RFI concluded, and the NCDENR agreed, that because of this fact arsenic was eliminated as a COI from the Alcoa Badin site. Several metals were detected in MW-16 as well, including Barium, Chromium, Cobalt, and Copper. None of the metals were detected above the 2L groundwater standard.
No significant concentrations of waste indicator parameters were noted in any of the wells sampled.

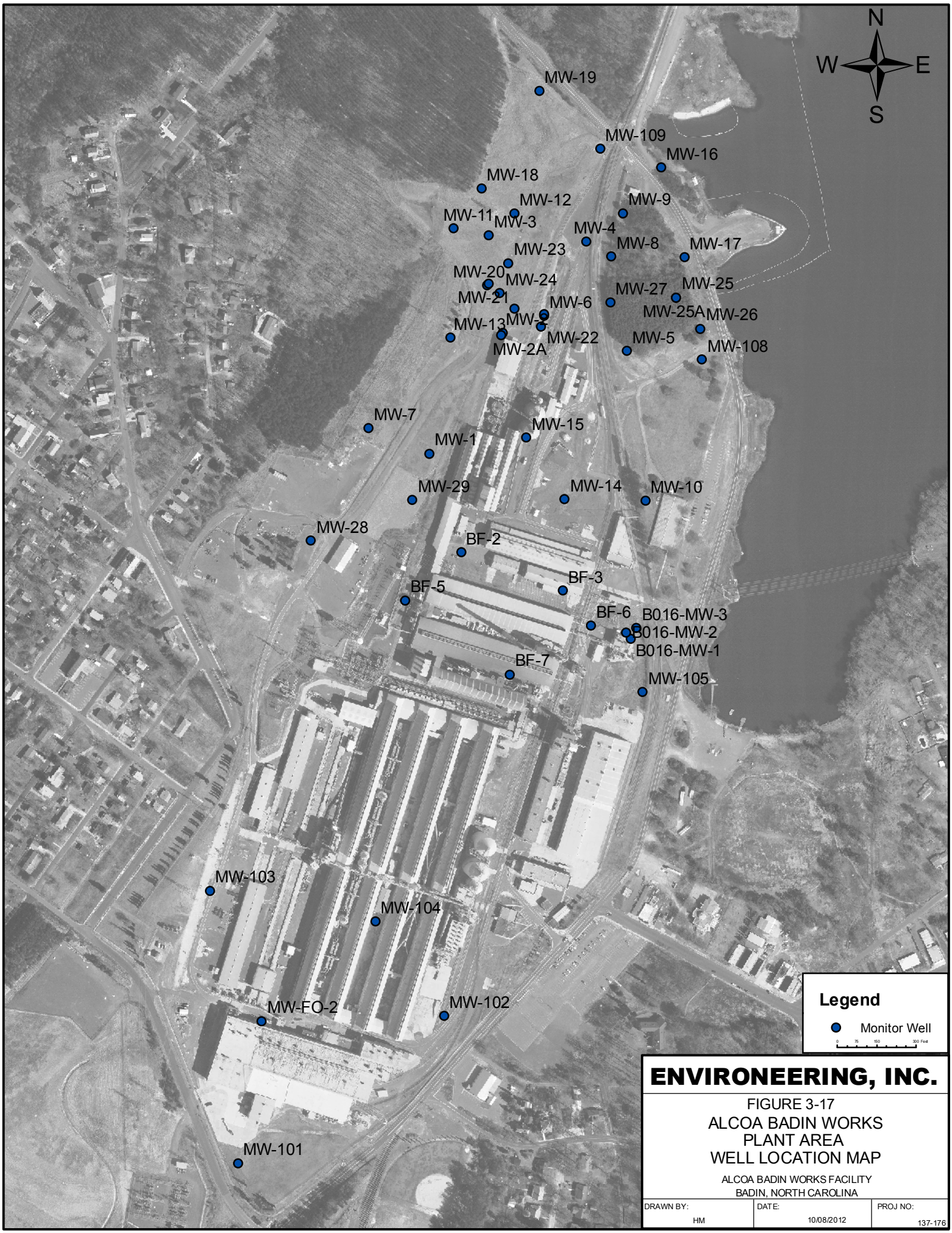
Available Cyanide and Total Fluoride concentration isopleths are illustrated on **Figure 3-18** and **Figure 3-19**. The shapes of the constituent plumes within the fill materials are consistent with preferential groundwater flow through the Northwest Valley. The shape of the constituent plume in the soil-saprolite-weathered rock zone is consistent with the overall preferential flow towards Badin Lake. The aerial distribution of groundwater concentrations in the fill materials suggests that SWMU No. 44 is not contributing as a major source of constituents to groundwater concentrations. It should be noted that access to monitor wells MW-25, 25A, and 26 was not available during the 2011 sampling event. Therefore, to complete the isopleths concentrations maps presented in figures 3-18 and 3-19, historical cyanide and fluoride data were used.

To determine the interaction of the groundwater from this area and Badin Lake, collected hydrologic data was evaluated. Lake level elevations and groundwater elevations from wells nearest the shoreline were compared to groundwater level measurements collected from the pressure transducers for the period of February 2011 through May 2012. Daily average water levels from both the wells and the lake were standardized to a vertical datum established by a State of North Carolina licensed surveyor. Hydrographs of the data are provided in **Appendix N**. The data comparison resulted in a hypothesis being formulated that suggests that in the vicinity of the study, Badin Lake is a losing body of water, rather than a receiving one.

MW-25, a fill material zone well, had water levels on average approximately 1.11 foot lower than the water levels in the lake, indicating groundwater flow is from the lake into the plant. MW-27 is another fill material zone well located further inland from the lake. It had water levels on average approximately 0.04 feet higher than the lake level, indicating that while groundwater flow is towards the lake, this well is near a stagnation point for fill material groundwater flow.

MW-25A and MW-108 are soil-saprolite-weathered rock zone wells in or near the edge of the fill area. Daily groundwater levels were also measured in these wells in 2011-2012. The water levels in the lake are on average approximately 0.73 foot higher than the water levels in MW-25A indicating groundwater flow is from the lake into the plant. In MW-108, lake levels are on average approximately 0.91 foot higher than the groundwater levels. This data suggests that an impediment or restriction to groundwater flow exists at the Pine Grove area within the soil-saprolite-weathered rock zone, with the effective limit west of MW-25A.

Additional groundwater wells installed in the soil-saprolite-weathered rock zone east of the railroad tracks include MW-16. At MW-16, while the groundwater levels average approximately 0.24 foot lower than the lake levels, the groundwater levels appear to “mirror” the lake levels, rising and falling similarly to the lake. The data suggests that a groundwater stagnation point lies near this well.



ENVIRONEERING, INC.

FIGURE 3-17
ALCOA BADIN WORKS
PLANT AREA
WELL LOCATION MAP

ALCOA BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ NO:
HM	10/08/2012	137-176

Table 3-8A
Groundwater Analytical Results
Plant Area
Alcoa-Badin Works Facility
Badin, North Carolina

Sample ID	Units	ABP-MW202-F003	ABP-MW202-D003	ABP-MW203-F003	ABP-MW205-F004	ABP-MW207-F004	ABP-MW001-F004	ABP-MW004-F001	ABP-MW005-F001	ABP-MW006-F004	ABP-MW007-F004	ABP-MW008-F001	NCDENR 15A NCAC 2L
Well ID		**BF-2**	**BF-2 (D)**	**BF-3**	**BF-5**	**BF-7**	**MW-1**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**	--
Date		6/14/2011	6/14/2011	6/14/2011	6/14/2011	6/11/2011	6/9/2011	6/14/2011	6/8/2011	6/13/2011	6/14/2011	6/8/2011	--
Time		9:40	9:40	8:20	14:45	15:45	15:00	12:05	11:30	12:05	12:15	17:05	--
Total Fluoride	*mg/L*	0.92	0.92	0.35	0.40	1.2	0.020 J	49	6.0	1800	0.03 J	14	**2**
Available Cyanide	*mg/L*	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	0.22	ND $_{<0.0018}$	0.58	ND $_{<0.0018}$	0.011	**0.07**
Alkalinity	*mg/L*	43 B	43 B	99 B	92 B	83 B	13 B	230 B	100 B	1800 B	12 B	150 B	--

Sample ID	Units	ABP-MW009-F003	ABP-MW010-F003	ABP-MW011-F003	ABP-MW014-F003	ABP-MW014-D003	ABP-MW015-F004	ABP-MW016-F003	ABP-MW017-F003	ABP-MW018-F001	ABP-MW019-F003	APB-MW023-F001	NCDENR 15A NCAC 2L
Well ID		**MW-9**	**MW-10**	**MW-11**	**MW-14**	**MW-14 (D)**	**MW-15**	**MW-16**	**MW-17**	**MW-18**	**MW-19**	**MW-23**	--
Date		6/7/2011	6/9/2011	6/9/2011	6/15/2011	6/15/2011	6/14/2011	6/9/2011	6/9/2011	6/7/2011	6/7/2011	6/13/2011	--
Time		19:15	10:45	13:25	15:00	15:00	17:05	8:50	7:05	13:25	15:10	9:55	--
Total Fluoride	*mg/L*	23	1.2	0.51	6.4	7.3	0.29	13	0.03 J	0.040 J	0.060	4500	**2**
Available Cyanide	*mg/L*	0.0390	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	0.0340	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	1.4	**0.07**
Alkalinity	*mg/L*	250 B	15 B	24 B	240 B	240 B	93 B	210 B	7.1 B	24 B	15 B	2100 B	--

Sample ID	Units	ABP-MW027-F003	ABP-MW077-F002	ABP-MW029-F001	ABP-MW101-F004	ABP-MW101-D001	APB-MW102-F004	ABP-MW103-F004	ABP-MW104-F004	ABP-MW105-F004	ABP-MW108-F004	ABP-MW109-F004	NCDENR 15A NCAC 2L
Well ID		**MW-27**	**MW-28**	**MW-29**	**MW-101**	**MW-101 (D)**	**MW-102**	**MW-103**	**MW-104**	**MW-105**	**MW-108**	**MW-109**	--
Date		6/8/2011	6/12/2011	6/12/2011	6/10/2011	6/10/2011	6/12/2011	6/15/2011	6/10/2011	6/14/2011	6/8/2011	6/16/2011	--
Time		14:00	14:00	10:40	15:00	15:00	17:55	18:25	17:30	6:50	9:40	8:50	--
Total Fluoride	*mg/L*	300	0.030 J	52	0.17	0.11	2.9	2.8	4.1	0.29	0.47	0.42	**2**
Available Cyanide	*mg/L*	0.0950	ND $_{<0.0018}$	0.70	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	ND $_{<0.0018}$	0.0210	**0.07**
Alkalinity	*mg/L*	840	30 B	ND $_{<0.41}$	10 B	10 B	10 B	15 B	3.0 J B	20 B	9.5 B	330 B	--

ND - The analyte was not detected above laboratory detection limits. Subscript indicates compound-specific MDL in mg/L.
"J" - The associated method blank contained a constituent concentration at a reportable level.
"B" - Compound was found in the blank and sample

Table 3-8B
Additional Groundwater Analytical Results
Plant Area
Alcoa-Badin Works Facility
Badin, North Carolina

Sample ID	Units	ABP-MW004-F001	ABP-MW005-F001	ABP-MW006-F004	ABP-MW014-F003	ABP-MW014-D003	ABP-MW029-F001	NCDENR 15A NCAC 2L
Location		**MW-4**	**MW-5**	**MW-6**	**MW-14**	**MW-14 (D)**	**MW-29**	--
Date		**6/14/2011**	**6/8/2011**	**6/13/2011**	**6/15/2011**	**6/15/2011**	**6/12/2011**	--
Time		**12:05**	**11:30**	**12:05**	**15:00**	**15:00**	**10:40**	--
Acenaphthene	*ug/L*	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	**80**
Acenaphthylene	*ug/L*	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.015}$	ND $_{<0.014}$	**200**
Anthracene	*ug/L*	ND $_{<0.14}$	ND $_{<0.14}$	ND $_{<0.14}$	ND $_{<0.14}$	ND $_{<0.15}$	ND $_{<0.14}$	**2000**
Benzo(a)anthracene	*ug/L*	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	**0.05**
Benzo(b)fluoranthene	*ug/L*	ND $_{<0.015}$	ND $_{<0.015}$	ND $_{<0.015}$	ND $_{<0.015}$	ND $_{<0.015}$	ND $_{<0.015}$	**0.05**
Benzo(k)fluoranthene	*ug/L*	ND $_{<0.052}$	ND $_{<0.052}$	ND $_{<0.052}$	ND $_{<0.052}$	ND $_{<0.053}$	ND $_{<0.052}$	**0.5**
Benzo(g,h,i)perylene	*ug/L*	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.014}$	ND $_{<0.015}$	ND $_{<0.014}$	**200**
Benzo(a)pyrene	*ug/L*	ND $_{<0.013}$	ND $_{<0.013}$	ND $_{<0.013}$	ND $_{<0.013}$	ND $_{<0.013}$	ND $_{<0.013}$	**0.005**
Chrysene	*ug/L*	ND $_{<0.013}$	ND $_{<0.013}$	ND $_{<0.013}$	ND $_{<0.013}$	ND $_{<0.014}$	ND $_{<0.013}$	**5**
Dibenz(a,h)anthracene	*ug/L*	ND $_{<0.015}$	ND $_{<0.015}$	ND $_{<0.015}$	ND $_{<0.015}$	ND $_{<0.015}$	ND $_{<0.015}$	**0.005**
Fluoranthene	*ug/L*	ND $_{<0.015}$	ND $_{<0.015}$	0.074 J	0.041 J	ND $_{<0.016}$	ND $_{<0.015}$	**300**
Fluorene	*ug/L*	ND $_{<0.021}$	ND $_{<0.021}$	ND $_{<0.021}$	ND $_{<0.021}$	ND $_{<0.021}$	ND $_{<0.020}$	**300**
Indeno(1,2,3-cd)pyrene)	*ug/L*	ND $_{<0.019}$	ND $_{<0.019}$	ND $_{<0.019}$	ND $_{<0.019}$	ND $_{<0.019}$	ND $_{<0.019}$	**0.05**
Naphthalene	*ug/L*	ND $_{<0.013}$	0.030 J	ND $_{<0.013}$	ND $_{<0.013}$	ND $_{<0.014}$	ND $_{<0.013}$	**6**
Phenanthrene	*ug/L*	ND $_{<0.041}$	ND $_{<0.041}$	0.081 J	ND $_{<0.041}$	ND $_{<0.041}$	ND $_{<0.040}$	**200**
Pyrene	*ug/L*	ND $_{<0.015}$	ND $_{<0.015}$	0.063 J	0.029 J	ND $_{<0.015}$	ND $_{<0.015}$	**200**

ND - The analyte was not detected above laboratory detection limits. Subscript indicates compound-specific MDL in mg/L.
"J" - Result is less than the Reporting Limit but greater than or equal to the MDL and the concentration is an approximate value

Table 3-8C
Additional Groundwater Analytical Results
Plant Area
Alcoa-Badin Works Facility
Badin, North Carolina

Sample ID	Units	ABPB016MW2F002	ABPF02F002	ABPMW04F002	ABPMW09F002	ABPMW09D002	ABPMW10F002	ABPMW16F002	NCDENR 15A NCAC 2L
Location		**B016-MW2**	**MW-FO-2**	**MW-4**	**MW-9**	**MW-9**	**MW-10**	**MW-16**	--
Date		**12/1/2011**	**12/1/2011**	**12/1/2011**	**11/30/2011**	**11/30/2011**	**11/30/2011**	**11/30/2011**	--
Time		**12:20**	**9:40**	**13:25**	**13:30**	**13:30**	**15:30**	**10:30**	--
General Chemistry									
Chloride	*mg/L*	7.6	9.9	2.4 J	4.7 J	4.8 J	4.7 J	6.4	**250**
Sulfate	*mg/L*	39	110	42	43	44	36	33	**250**
Nitrate as N	*mg/L*	3.1	1.8	3.6	4.0 H	4.0 H	3.4 H	3.2 H	**10**
Chemical Oxygen Demand	*mg/L*	19 J	28	23	32	50	21	19 J	**NE**
Ferrous Iron	*mg/L*	ND $_{<0.025}$ HF	0.19 HF	0.04 JHF	ND $_{<0.025}$ HF	ND $_{<0.025}$ HF	ND $_{<0.025}$ HF	ND $_{<0.025}$ HF	**0.3**
Sulfide	*mg/L*	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	**NE**
Alkalinity	*mg/L*	83	12	NA	NA	NA	NA	NA	**NE**
Total Organic Carbon	*mg/L*	NA	0.8 J	4.6	2	1.9	0.69 J	1.1	**NE**
pH	--	6.43	5.61	7.45	6.89	6.89	5.66	6.94	--
Temperature	*°C*	18.95	16.51	18	18.93	18.93	17.52	17.43	--
Specific Conductance	*µS*	302	323	808	568	568	168	538	--
Dissolved Oxygen	*mg/L*	4.82	3	1.19	1.4	1.4	2.4	2.3	--
Oxidation-Reduction Potential	*mV*	258.6	301.6	230.1	308.3	308.3	302	285.4	--
Turbidity	*NTU*	12.7	1.55	10.9	5.51	5.51	5.23	5.01	--
VOCs									
Ethylbenzene	*ug/L*	NA	NA	ND $_{<0.11}$	NA	NA	NA	ND $_{<0.11}$	**600**
Styrene	*ug/L*	NA	NA	ND $_{<0.11}$	NA	NA	NA	ND $_{<0.11}$	**70**
cis-1,3-Dichloropropene	*ug/L*	NA	NA	ND $_{<0.11}$	NA	NA	NA	ND $_{<0.11}$	**0.4**
trans-1,3-Dichloropropene	*ug/L*	NA	NA	ND $_{<0.21}$	NA	NA	NA	ND $_{<0.21}$	**0.4**
Acrolein	*ug/L*	NA	NA	ND $_{<7.4}$	NA	NA	NA	ND $_{<7.4}$	**4**
Allyl chloride	*ug/L*	NA	NA	ND $_{<0.20}$	NA	NA	NA	ND $_{<0.20}$	**NE**
1,2-Dichloroethane	*ug/L*	NA	NA	ND $_{<0.10}$	NA	NA	NA	ND $_{<0.10}$	**0.4**
Propionitrile	*ug/L*	NA	NA	ND $_{<4.6}$	NA	NA	NA	ND $_{<4.6}$	**NE**
Acrylonitrile	*ug/L*	NA	NA	ND $_{<7.2}$	NA	NA	NA	ND $_{<7.2}$	**NE**
Vinyl acetate	*ug/L*	NA	NA	ND $_{<0.28}$	NA	NA	NA	ND $_{<0.28}$	**88**
4-Methyl-2-pentanone	*ug/L*	NA	NA	ND $_{<1.0}$	NA	NA	NA	ND $_{<1.0}$	**100**
Toluene	*ug/L*	NA	NA	ND $_{<0.33}$	NA	NA	NA	ND $_{<0.33}$	**600**
Chlorobenzene	*ug/L*	NA	NA	ND $_{<0.25}$	NA	NA	NA	ND $_{<0.25}$	**50**
trans-1,4-Dichloro-2-butene	*ug/L*	NA	NA	ND $_{<0.50}$	NA	NA	NA	ND $_{<0.50}$	**NE**
Dibromochloromethane	*ug/L*	NA	NA	ND $_{<0.10}$	NA	NA	NA	ND $_{<0.10}$	**0.4**
Methacrylonitrile	*ug/L*	NA	NA	ND $_{<3.3}$	NA	NA	NA	ND $_{<3.3}$	**NE**
Chloroprene	*ug/L*	NA	NA	ND $_{<0.30}$	NA	NA	NA	ND $_{<0.30}$	**0.4**
Tetrachloroethene	*ug/L*	NA	NA	ND $_{<0.15}$	NA	NA	NA	ND $_{<0.15}$	**0.7**
Xylenes, Total	*ug/L*	NA	NA	ND $_{<0.20}$	NA	NA	NA	ND $_{<0.20}$	**500**
trans-1,2-Dichloroethene	*ug/L*	NA	NA	ND $_{<0.20}$	NA	NA	NA	ND $_{<0.20}$	**100**
Carbon tetrachloride	*ug/L*	NA	NA	ND $_{<0.50}$	NA	NA	NA	ND $_{<0.50}$	**0.3**
2-Hexanone	*ug/L*	NA	NA	ND $_{<1.0}$	NA	NA	NA	ND $_{<1.0}$	**40**
1,1,1,2-Tetrachloroethane	*ug/L*	NA	NA	ND $_{<0.33}$	NA	NA	NA	ND $_{<0.33}$	**1**
Acetone	*ug/L*	NA	NA	ND $_{<5.0}$	NA	NA	NA	ND $_{<5.0}$	**6000**
Chloroform	*ug/L*	NA	NA	ND $_{<0.14}$	NA	NA	0.57 J	0.46 J	**70**
Benzene	*ug/L*	NA	NA	ND $_{<0.25}$	NA	NA	NA	ND $_{<0.25}$	**1**
1,1,1-Trichloroethane	*ug/L*	NA	NA	ND $_{<0.50}$	NA	NA	NA	ND $_{<0.50}$	**200**
Bromomethane	*ug/L*	NA	NA	ND $_{<0.80}$	NA	NA	NA	ND $_{<0.80}$	**10**
Chloromethane	*ug/L*	NA	NA	ND $_{<0.33}$	NA	NA	NA	ND $_{<0.33}$	**3**
Iodomethane	*ug/L*	NA	NA	ND $_{<1.0}$	NA	NA	NA	ND $_{<1.0}$	**3**
Dibromomethane	*ug/L*	NA	NA	ND $_{<0.20}$	NA	NA	NA	ND $_{<0.20}$	**70**
Chloroethane	*ug/L*	NA	NA	ND $_{<1.0}$	NA	NA	NA	ND $_{<1.0}$	**3,000**
Vinyl chloride	*ug/L*	NA	NA	ND $_{<0.18}$	NA	NA	NA	ND $_{<0.18}$	**0.03**
Acetonitrile	*ug/L*	NA	NA	ND $_{<10}$	NA	NA	NA	ND $_{<10}$	**NE**
Methylene chloride	*ug/L*	ND $_{<1.0}$	ND $_{<1.0}$	ND $_{<1.0}$	NA	NA	NA	ND $_{<1.0}$	**5**
Carbon disulfide	*ug/L*	NA	NA	ND $_{<0.60}$	NA	NA	NA	ND $_{<0.60}$	**700**
Bromoform	*ug/L*	NA	NA	ND $_{<0.50}$	NA	NA	NA	ND $_{<0.50}$	**4**
Bromodichloromethane	*ug/L*	NA	NA	ND $_{<0.25}$	NA	NA	NA	ND $_{<0.25}$	**0.6**
1,1-Dichloroethane	*ug/L*	NA	NA	ND $_{<0.25}$	NA	NA	NA	ND $_{<0.25}$	**6**
1,1-Dichloroethene	*ug/L*	NA	NA	1.1	NA	NA	NA	0.26 J	**6**
Trichlorofluoromethane	*ug/L*	NA	NA	ND $_{<0.25}$	NA	NA	NA	ND $_{<0.25}$	**2000**
Dichlorodifluoromethane	*ug/L*	NA	NA	ND $_{<0.25}$	NA	NA	NA	ND $_{<0.25}$	**1000**
Pentachloroethane	*ug/L*	NA	NA	ND $_{<1.2}$	NA	NA	NA	ND $_{<1.2}$	**NE**
Isobutanol	*ug/L*	NA	NA	ND $_{<11}$	NA	NA	NA	ND $_{<11}$	**100**
1,2-Dichloropropane	*ug/L*	NA	NA	ND $_{<0.13}$	NA	NA	NA	ND $_{<0.13}$	**0.6**
2-Butanone	*ug/L*	NA	NA	ND $_{<1.0}$	NA	NA	NA	ND $_{<1.0}$	**4000**
1,1,2-Trichloroethane	*ug/L*	NA	NA	ND $_{<0.13}$	NA	NA	NA	ND $_{<0.13}$	**0.6**
Trichloroethene	*ug/L*	NA	NA	40	86	NA	NA	19	**3**
1,1,2,2-Tetrachloroethane	*ug/L*	NA	NA	ND $_{<0.18}$	NA	NA	NA	ND $_{<0.18}$	**0.2**
Methyl methacrylate	*ug/L*	NA	NA	ND $_{<0.48}$	NA	NA	NA	ND $_{<0.48}$	**25**
Ethyl methacrylate	*ug/L*	NA	NA	ND $_{<0.25}$	NA	NA	NA	ND $_{<0.25}$	**25**
SVOCs									
4-Nitroaniline	*ug/L*	NA	NA	ND $_{<4.9}$	NA	NA	NA	ND $_{<4.9}$	**30**
4-Nitrophenol	*ug/L*	NA	NA	ND $_{<1.9}$	NA	NA	NA	ND $_{<1.9}$	**30**
Benzyl alcohol	*ug/L*	NA	NA	2.5 J B	NA	NA	NA	4.4 JB	**700**
N-Nitrosopiperidine	*ug/L*	NA	NA	ND $_{<0.87}$	NA	NA	NA	ND $_{<0.87}$	**3**
4-Bromophenyl phenyl ether	*ug/L*	NA	NA	ND $_{<0.76}$	NA	NA	NA	ND $_{<0.76}$	**28**
2,4-Dimethylphenol	*ug/L*	NA	NA	ND $_{<3.9}$	NA	NA	NA	ND $_{<3.9}$	**100**
N-Nitrosomethylethylamine	*ug/L*	NA	NA	ND $_{<3.3}$	NA	NA	NA	ND $_{<3.3}$	**10**
1,4-Dichlorobenzene	*ug/L*	NA	NA	ND $_{<0.53}$	NA	NA	NA	ND $_{<0.53}$	**6**
4-Chloroaniline	*ug/L*	NA	NA	ND $_{<2.2}$	NA	NA	NA	ND $_{<2.2}$	**25**
p-Phenylene diamine	*ug/L*	NA	NA	ND $_{<9.9}$	NA	NA	NA	ND $_{<9.9}$	**NE**
bis (2-chloroisopropyl) ether	*ug/L*	NA	NA	ND $_{<0.77}$	NA	NA	NA	ND $_{<0.77}$	**0.03**
Phenol	*ug/L*	NA	NA	ND $_{<0.82}$	NA	NA	NA	ND $_{<0.82}$	**30**
2-Picoline	*ug/L*	NA	NA	ND $_{<1.4}$	NA	NA	NA	ND $_{<1.4}$	**30**
Pyridine	*ug/L*	NA	NA	ND $_{<2.3}$	NA	NA	NA	ND $_{<2.3}$	**30**
Bis(2-chloroethyl)ether	*ug/L*	NA	NA	ND $_{<1.1}$	NA	NA	NA	ND $_{<1.1}$	**3**
Bis(2-chloroethoxy)methane	*ug/L*	NA	NA	ND $_{<0.93}$	NA	NA	NA	ND $_{<0.93}$	**3**
Bis(2-ethylhexyl) phthalate	*ug/L*	ND $_{<1.5}$	ND $_{<1.5}$	ND $_{<1.6}$	NA	NA	NA	ND $_{<1.6}$	**3**
Di-n-octyl phthalate	*ug/L*	ND $_{<1.3}$	NA	ND $_{<1.4}$	NA	NA	NA	ND $_{<1.4}$	**100**
Hexachlorobenzene	*ug/L*	NA	NA	ND $_{<0.78}$	NA	NA	NA	ND $_{<0.78}$	**0.02**
3,3'-Dimethylbenzidine	*ug/L*	NA	NA	ND $_{<9.9}$	NA	NA	NA	ND $_{<9.9}$	**NE**
Anthracene	*ug/L*	NA	NA	ND $_{<0.68}$	NA	NA	NA	ND $_{<0.68}$	**2000**
Isosafrole	*ug/L*	NA	NA	ND $_{<0.49}$	NA	NA	NA	ND $_{<0.49}$	**NE**

Table 3-8C
Additional Groundwater Analytical Results
Plant Area
Alcoa-Badin Works Facility
Badin, North Carolina

Sample ID	Units	ABPB016MW2F002	ABPF02F002	ABPMW04F002	ABPMW09F002	ABPMW09D002	ABPMW10F002	ABPMW16F002	NCDENR 15A NCAC 2L
Location		**B016-MW2**	**MW-FO-2**	**MW-4**	**MW-9**	**MW-9**	**MW-10**	**MW-16**	**--**
Date		**12/1/2011**	**12/1/2011**	**12/1/2011**	**11/30/2011**	**11/30/2011**	**11/30/2011**	**11/30/2011**	**--**
Time		**12:20**	**9:40**	**13:25**	**13:30**	**13:30**	**15:30**	**10:30**	**--**
1,2,4-Trichlorobenzene	*ug/L*	NA	NA	ND <0.55	NA	NA	NA	ND <0.55	**70**
2,4-Dichlorophenol	*ug/L*	NA	NA	ND <1.1	NA	NA	NA	ND <1.1	**0.98**
2,4-Dinitrotoluene	*ug/L*	NA	NA	ND <1.2	NA	NA	NA	ND <1.2	**0.1**
alpha,alpha-Dimethyl phenethylamine	*ug/L*	NA	NA	ND <35	NA	NA	NA	ND <35	**NE**
1,4-Dioxane	*ug/L*	NA	NA	ND <3.4	NA	NA	NA	ND <3.4	**3**
o,o',o''-Triethylphosphorothioate	*ug/L*	NA	NA	ND <0.99	NA	NA	NA	ND <0.99	**10**
Pyrene	*ug/L*	NA	NA	ND <0.62	NA	NA	NA	ND <0.62	**200**
1,4-Naphthoquinone	*ug/L*	NA	NA	ND <0.61	NA	NA	NA	ND <0.61	**NE**
Dimethyl phthalate	*ug/L*	NA	NA	ND <0.98	NA	NA	NA	ND <0.98	**NE**
Dibenzofuran	*ug/L*	NA	NA	ND <0.78	NA	NA	NA	ND <0.78	**28**
1-Naphthylamine	*ug/L*	NA	NA	ND <1.1	NA	NA	NA	ND <1.1	**NE**
Aramite	*ug/L*	NA	NA	ND <0.90	NA	NA	NA	ND <0.90	**NE**
Hexachloropropene	*ug/L*	NA	NA	ND <1.4	NA	NA	NA	ND <1.4	**25**
Benzo[g,h,i]perylene	*ug/L*	NA	NA	ND <0.86	NA	NA	NA	ND <0.86	**200**
Indeno[1,2,3-cd]pyrene	*ug/L*	NA	NA	ND <0.99	NA	NA	NA	ND <0.99	**0.05**
Benzo[b]fluoranthene	*ug/L*	NA	NA	ND <2.6	NA	NA	NA	ND <2.6	**0.05**
Fluoranthene	*ug/L*	NA	NA	ND <0.73	NA	NA	NA	ND <0.73	**300**
Benzo[k]fluoranthene	*ug/L*	NA	NA	ND <1.2	NA	NA	NA	ND <1.2	**0.5**
Acenaphthylene	*ug/L*	NA	NA	ND <0.84	NA	NA	NA	ND <0.84	**200**
Chrysene	*ug/L*	NA	NA	ND <0.50	NA	NA	NA	ND <0.50	**5**
Diallate	*ug/L*	NA	NA	ND <0.77	NA	NA	NA	ND <0.77	**10**
Pronamide	*ug/L*	NA	NA	ND <0.88	NA	NA	NA	ND <0.88	**NE**
Thionazin	*ug/L*	NA	NA	ND <0.90	NA	NA	NA	ND <0.90	**NE**
Methyl parathion	*ug/L*	NA	NA	ND <0.87	NA	NA	NA	ND <0.87	**1**
Phorate	*ug/L*	NA	NA	ND <0.86	NA	NA	NA	ND <0.86	**1**
Disulfoton	*ug/L*	NA	NA	ND <0.78	NA	NA	NA	ND <0.78	**0.3**
Sulfotepp	*ug/L*	NA	NA	ND <0.52	NA	NA	NA	ND <0.52	**NE**
Benzo[a]pyrene	*ug/L*	NA	NA	ND <0.70	NA	NA	NA	ND <0.70	**0.005**
2,4-Dinitrophenol	*ug/L*	NA	NA	ND <9.9	NA	NA	NA	ND <9.9	**NE**
Famphur	*ug/L*	NA	NA	ND <1.1*	NA	NA	NA	ND <1.1*	**NE**
4,6-Dinitro-2-methylphenol	*ug/L*	NA	NA	ND <9.9	NA	NA	NA	ND <9.9	**50**
Dibenz(a,h)anthracene	*ug/L*	NA	NA	ND <0.99	NA	NA	NA	ND <0.99	**0.005**
2-Acetylaminofluorene	*ug/L*	NA	NA	ND <1.6	NA	NA	NA	ND <1.6	**NE**
1,3-Dichlorobenzene	*ug/L*	NA	NA	ND <0.58	NA	NA	NA	ND <0.58	**200**
N-Nitrosodiethylamine	*ug/L*	NA	NA	ND <0.92	NA	NA	NA	ND <0.92	**0.004**
Ethyl Parathion	*ug/L*	NA	NA	ND <1.3	NA	NA	NA	ND <1.3	**NE**
3-Methylcholanthrene	*ug/L*	NA	NA	ND <1.4	NA	NA	NA	ND <1.4	**NE**
Benzo[a]anthracene	*ug/L*	NA	NA	ND <0.54	NA	NA	NA	ND <0.54	**0.05**
4-Nitroquinoline-1-oxide	*ug/L*	NA	NA	ND <9.9	NA	NA	NA	ND <9.9	**NE**
7,12-Dimethylbenz(a)anthracene	*ug/L*	NA	NA	ND <1.2	NA	NA	NA	ND <1.2	**10**
2,3,4,6-Tetrachlorophenol	*ug/L*	NA	NA	ND <0.71	NA	NA	NA	ND <0.71	**200**
4-Chloro-3-methylphenol	*ug/L*	NA	NA	ND <0.99	NA	NA	NA	ND <0.99	**400**
N-Nitrosomorpholine	*ug/L*	NA	NA	ND <0.83	NA	NA	NA	ND <0.83	**10**
p-Dimethylamino azobenzene	*ug/L*	NA	NA	ND <0.78	NA	NA	NA	ND <0.78	**10**
Dimethoate	*ug/L*	NA	NA	ND <0.74	NA	NA	NA	ND <0.74	**NE**
2,6-Dinitrotoluene	*ug/L*	NA	NA	ND <1.1	NA	NA	NA	ND <1.1	**0.1**
Pentachlorobenzene	*ug/L*	NA	NA	ND <0.51	NA	NA	NA	ND <0.51	**NE**
N-Nitrosodi-n-propylamine	*ug/L*	NA	NA	ND <0.71	NA	NA	NA	ND <0.71	**5**
Phenacetin	*ug/L*	NA	NA	ND <1.4	NA	NA	NA	ND <1.4	**NE**
Ethyl methanesulfonate	*ug/L*	NA	NA	ND <0.95	NA	NA	NA	ND <0.95	**NE**
Aniline	*ug/L*	NA	NA	ND <2.1	NA	NA	NA	ND <2.1	**NE**
N-Nitrosodimethylamine	*ug/L*	NA	NA	ND <2.8	NA	NA	NA	ND <2.8	**0.0007**
Methyl methanesulfonate	*ug/L*	NA	NA	ND <0.59	NA	NA	NA	ND <0.59	**NE**
Hexachloroethane	*ug/L*	NA	NA	ND <0.75	NA	NA	NA	ND <0.75	**0.02**
4-Chlorophenyl phenyl ether	*ug/L*	NA	NA	ND <0.83	NA	NA	NA	ND <0.83	**NE**
Hexachlorophene	*ug/L*	NA	NA	ND <27	NA	NA	NA	ND <27	**NE**
Hexachlorocyclopentadiene	*ug/L*	NA	NA	ND <2.5	NA	NA	NA	ND <2.5	**5**
Isophorone	*ug/L*	NA	NA	ND <0.89	NA	NA	NA	ND <0.89	**40**
Pentachloronitrobenzene	*ug/L*	NA	NA	ND <0.77	NA	NA	NA	ND <0.77	**10**
Acenaphthene	*ug/L*	NA	NA	ND <0.75	NA	NA	NA	ND <0.75	**80**
Diethyl phthalate	*ug/L*	NA	NA	ND <0.87	NA	NA	NA	ND <0.87	**10**
Di-n-butyl phthalate	*ug/L*	NA	NA	ND <0.82	NA	NA	NA	ND <0.82	**700**
Phenanthrene	*ug/L*	NA	NA	ND <0.76	NA	NA	NA	ND <0.76	**200**
Butyl benzyl phthalate	*ug/L*	NA	NA	ND <1.2	NA	NA	NA	ND <1.2	**1000**
N-Nitrosodiphenylamine	*ug/L*	NA	NA	ND <0.91	NA	NA	NA	ND <0.91	**0.0007**
Fluorene	*ug/L*	NA	NA	ND <0.95	NA	NA	NA	ND <0.95	**300**
2,6-Dichlorophenol	*ug/L*	NA	NA	ND <0.72	NA	NA	NA	ND <0.72	**0.98**
Hexachlorobutadiene	*ug/L*	NA	NA	ND <0.61	NA	NA	NA	ND <0.61	**0.4**
Pentachlorophenol	*ug/L*	NA	NA	ND <2.0	NA	NA	NA	ND <2.0	**0.3**
2,4,6-Trichlorophenol	*ug/L*	NA	NA	ND <0.84	NA	NA	NA	ND <0.84	**4**
2-Nitroaniline	*ug/L*	NA	NA	ND <1.3	NA	NA	NA	ND <1.3	**50**
2-Nitrophenol	*ug/L*	NA	NA	ND <0.75	NA	NA	NA	ND <0.75	**10**
Dinoseb	*ug/L*	NA	NA	ND <4.9	NA	NA	NA	ND <4.9	**7**
Naphthalene	*ug/L*	NA	NA	ND <0.69	NA	NA	NA	ND <0.69	**6**
2-Methylnaphthalene	*ug/L*	NA	NA	ND <0.77	NA	NA	NA	ND <0.77	**30**
2-Chloronaphthalene	*ug/L*	NA	NA	ND <0.79	NA	NA	NA	ND <0.79	**5**
2-Naphthylamine	*ug/L*	NA	NA	ND <1.5	NA	NA	NA	ND <1.5	**NE**
Methapyrilene	*ug/L*	NA	NA	ND <2.7	NA	NA	NA	ND <2.7	**50**
3,3'-Dichlorobenzidine	*ug/L*	NA	NA	ND <30	NA	NA	NA	ND <30	**10**
N-Nitrosodi-n-butylamine	*ug/L*	NA	NA	ND <0.95	NA	NA	NA	ND <0.95	**10**
4-Aminobiphenyl	*ug/L*	NA	NA	ND <1.2	NA	NA	NA	ND <1.2	**50**
N-Nitrosopyrrolidine	*ug/L*	NA	NA	ND <0.99	NA	NA	NA	ND <0.99	**10**
Safrole	*ug/L*	NA	NA	ND <0.79	NA	NA	NA	ND <0.79	**10**
2-Methylphenol	*ug/L*	NA	NA	ND <0.88	NA	NA	NA	ND <0.88	**400**
1,2-Dichlorobenzene	*ug/L*	NA	NA	ND <0.52	NA	NA	NA	ND <0.52	**20**
o-Toluidine	*ug/L*	NA	NA	ND <1.4	NA	NA	NA	ND <1.4	**10**
2-Chlorophenol	*ug/L*	NA	NA	ND <0.86	NA	NA	NA	ND <0.86	**0.4**
1,2,4,5-Tetrachlorobenzene	*ug/L*	NA	NA	ND <0.75	NA	NA	NA	ND <0.75	**2**
2,4,5-Trichlorophenol	*ug/L*	NA	NA	ND <1.2	NA	NA	NA	ND <1.2	**63**
Acetophenone	*ug/L*	NA	NA	ND <0.56	NA	NA	NA	ND <0.56	**700**
Nitrobenzene	*ug/L*	NA	NA	ND <0.72	NA	NA	NA	ND <0.72	**NE**
3-Nitroaniline	*ug/L*	NA	NA	ND <4.9	NA	NA	NA	ND <4.9	**50**

Table 3-8C
Additional Groundwater Analytical Results
Plant Area
Alcoa-Badin Works Facility
Badin, North Carolina

Sample ID	Units	ABPB016MW2F002	ABPF02F002	ABPMW04F002	ABPMW09F002	ABPMW09D002	ABPMW10F002	ABPMW16F002	NCDENR 15A NCAC 2L
Location		**B016-MW2**	**MW-FO-2**	**MW-4**	**MW-9**	**MW-9**	**MW-10**	**MW-16**	**--**
Date		**12/1/2011**	**12/1/2011**	**12/1/2011**	**11/30/2011**	**11/30/2011**	**11/30/2011**	**11/30/2011**	**--**
Time		**12:20**	**9:40**	**13:25**	**13:30**	**13:30**	**15:30**	**10:30**	**--**
1,3,5-Trinitrobenzene	*ug/L*	NA	NA	ND $_{<2.0}$	NA	NA	NA	ND $_{<2.0}$	**400**
N-Nitro-o-toluidine	*ug/L*	NA	NA	ND $_{<1.5}$	NA	NA	NA	ND $_{<1.5}$	**NE**
1,3-Dinitrobenzene	*ug/L*	NA	NA	ND $_{<0.59}$	NA	NA	NA	ND $_{<0.59}$	**NE**
3&4 Methylphenol	*ug/L*	NA	NA	ND $_{<1.3}$	NA	NA	NA	ND $_{<1.3}$	**40**
ICP Metals									
Antimony	*ug/L*	NA	NA	ND $_{<5.3}$	NA	NA	NA	ND $_{<5.3}$	**1**
Arsenic	*ug/L*	NA	NA	ND $_{<4.6}$	NA	NA	NA	10 J	**10**
Barium	*ug/L*	NA	NA	3 J	NA	NA	NA	2.6 J	**700**
Beryllium	*ug/L*	NA	NA	0.21 J	NA	NA	NA	ND $_{<0.20}$	**4**
Cadmium	*ug/L*	NA	NA	ND $_{<2.0}$	NA	NA	NA	ND $_{<2.0}$	**2**
Chromium	*ug/L*	NA	NA	1.4 J	NA	NA	NA	1.4 J	**10**
Cobalt	*ug/L*	NA	NA	35	NA	NA	NA	52	**1**
Copper	*ug/L*	NA	NA	3.5 J	NA	NA	NA	1.9 J	**1000**
Lead	*ug/L*	NA	NA	ND $_{<4.0}$	NA	NA	NA	ND $_{<4.0}$	**15**
Nickel	*ug/L*	NA	NA	2.8 J	NA	NA	NA	ND $_{<2.3}$	**100**
Selenium	*ug/L*	NA	NA	ND $_{<6.4}$	NA	NA	NA	ND $_{<6.4}$	**20**
Silver	*ug/L*	NA	NA	ND $_{<0.89}$	NA	NA	NA	ND $_{<0.89}$	**20**
Thallium	*ug/L*	NA	NA	ND $_{<8.8}$	NA	NA	NA	ND $_{<8.8}$	**0.2**
Tin	*ug/L*	NA	NA	ND $_{<5.1}$	NA	NA	NA	ND $_{<5.1}$	**2000**
Vanadium	*ug/L*	NA	NA	5.4 J	NA	NA	NA	ND $_{<2.4}$	**0.3**
Zinc	*ug/L*	NA	NA	ND $_{<8.7}$	NA	NA	NA	ND $_{<8.7}$	**1000**
Mercury	*ug/L*	NA	NA	ND $_{<0.091}$	NA	NA	NA	ND $_{<0.091}$	**1**

NA - COC not analyzed
ND - The analyte was not detected above laboratory detection limits. Subscript indicates compound-specific MDL in mg/L.
"H" - Sample was prepped or analyzed beyond the specified holding time.
"HF" - Field parameter with a holding time of 15 minutes.
"B" - Compound was found in the blank and sample
"" - LCS or LCSD exceeds the control limits*
"J" - Result is less than the Reporting Limit but greater than or equal to the MDL and the concentration is an approximate value

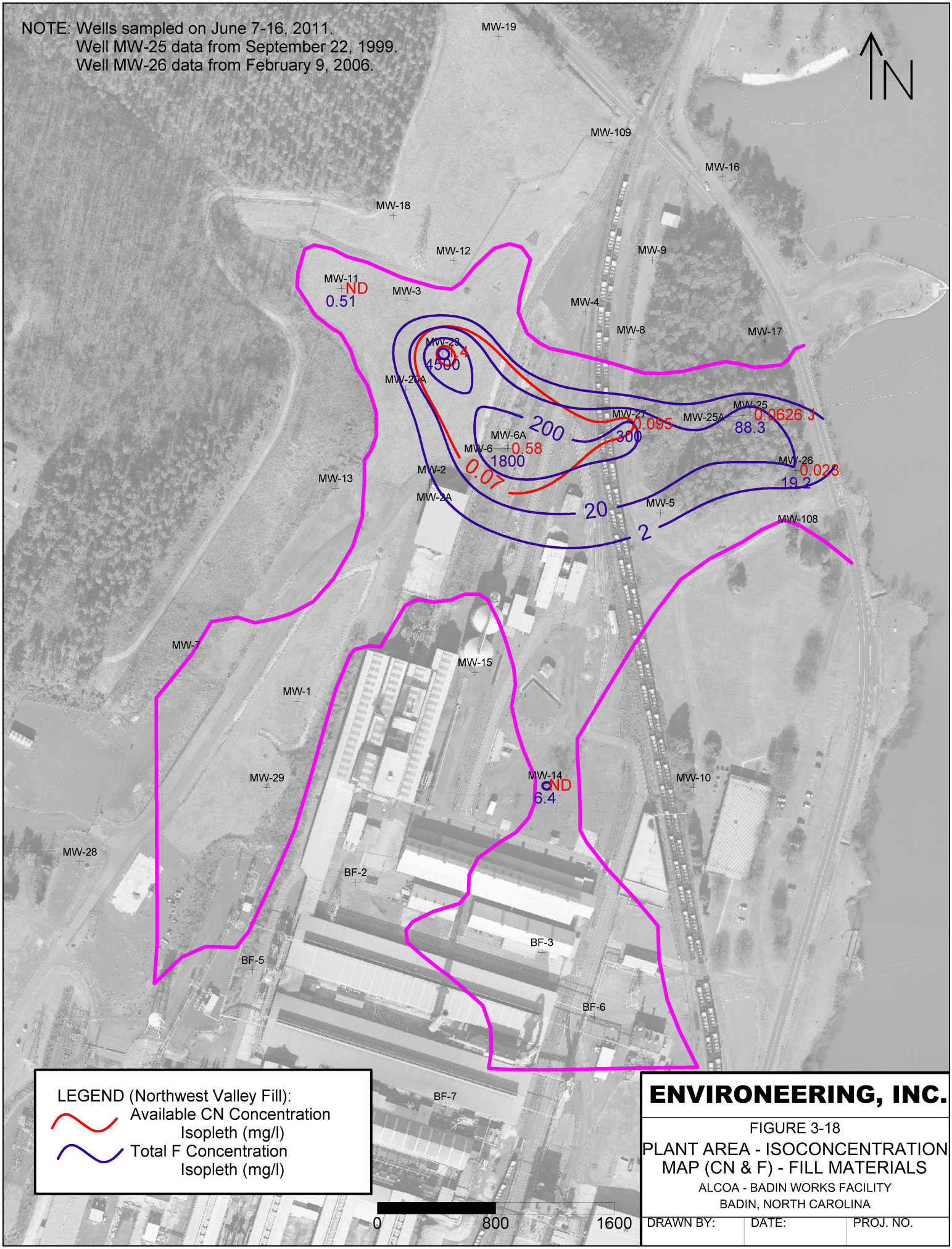


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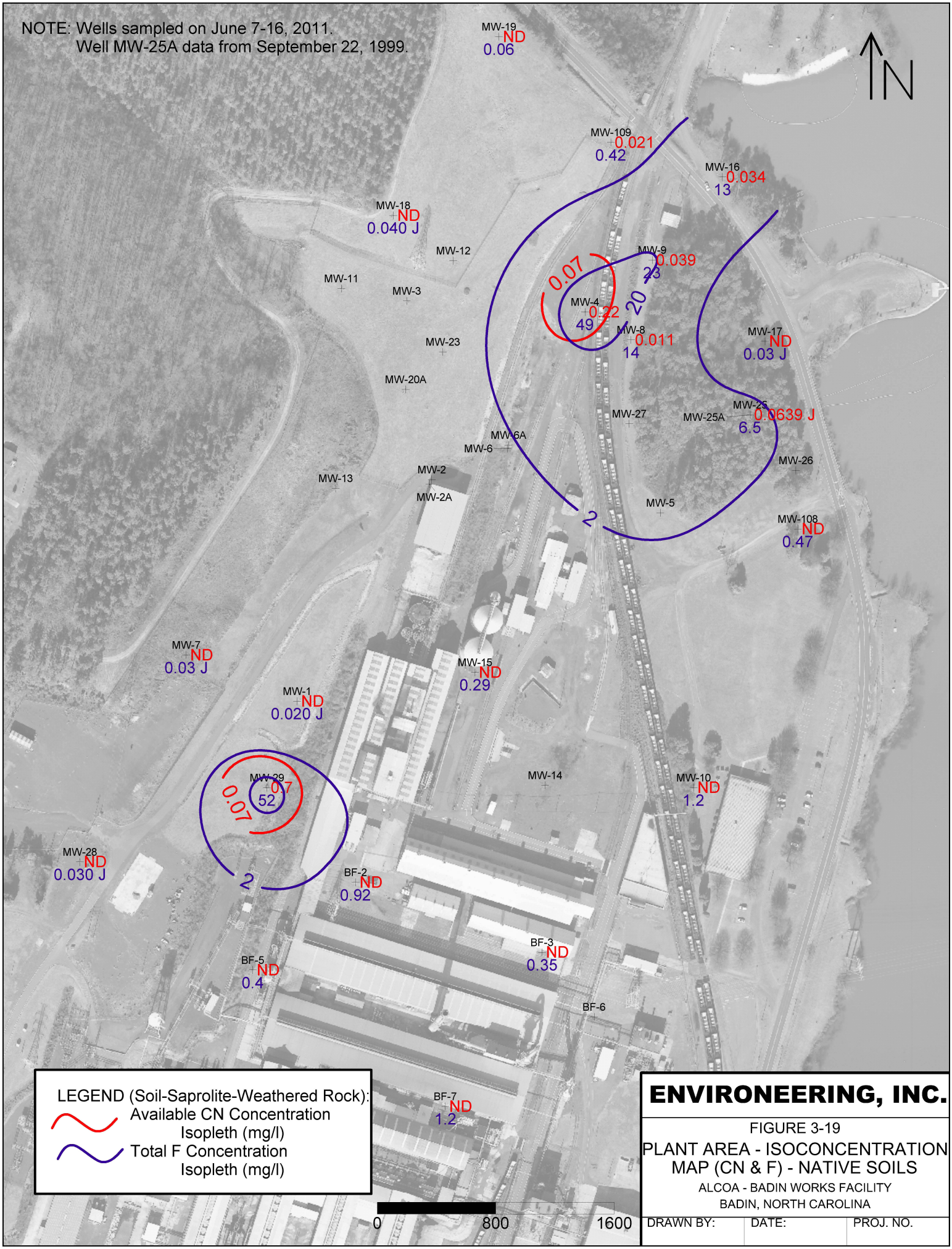
FIGURE 3-18

PLANT AREA - ISOCONCENTRATION MAP (CN & F) - FILL MATERIALS

ALCOA - BADIN WORKS FACILITY

BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.


NOTE: Wells sampled on June 7-16, 2011.
Well MW-25A data from September 22, 1999.
N
MW-19
ND
0.06
MW-109
0.021
0.42
MW-16
0.034
13
MW-18
ND
0.040 J
MW-12
MW-9
0.039
23
MW-11
MW-3
0.07
MW-4
0.22
49
20
MW-8
0.011
14
MW-17
ND
0.03 J
MW-23
MW-20A
MW-27
MW-25A
MW-25
0.0639 J
6.5
MW-6A
MW-6
MW-26
MW-13
MW-2
MW-2A
MW-5
2
MW-108
ND
0.47
MW-7
ND
0.03 J
MW-15
ND
0.29
MW-1
ND
0.020 J
MW-29
0.07
52
0.07
MW-14
MW-10
ND
1.2
MW-28
ND
0.030 J
2
BF-2
ND
0.92
BF-3
ND
0.35
BF-5
ND
0.4
BF-6
BF-7
ND
1.2
LEGEND (Soil-Saprolite-Weathered Rock):
Available CN Concentration Isopleth (mg/l)
Total F Concentration Isopleth (mg/l)
0
800
1600
ENVIRONEERING, INC.
FIGURE 3-19
PLANT AREA - ISOCONCENTRATION MAP (CN & F) - NATIVE SOILS
ALCOA - BADIN WORKS FACILITY
BADIN, NORTH CAROLINA
DRAWN BY:
DATE:
PROJ. NO.

3.3.6 Badin Lake at the Alcoa Badin Works Plant Surface Water

The RFI screening level risk assessment showed that no COIs were present at concentrations exceeding applicable human health screening values in Badin Lake at the the Alcoa Badin Works Plant. To confirm this current understanding, a surface water sampling event was performed to collect water quality data from Badin Lake.

Surface water samples were collected from seven targeted locations where groundwater plume(s) migrating from the Northwest Valley could enter Badin Lake, at the locations illustrated on **Figure 3-20**. To determine the most suitable locations to collect samples, temperature and conductivity readings were taken along the shoreline to determine where groundwater is entering the lake. The result of the field readings did not show significant contrast between shoreline location points, and were deemed inconclusive. Grab samples were collected from evenly spaced locations along the shoreline and analyzed for free cyanide, fluoride, TCE, PCBs, PAHs, and standard field parameters (pH, Specific Conductivity, Dissolved Oxygen, Temperature, Turbidity, and Oxidation-Reduction Potential). This monitoring was conducted in November 2011 and again in May 2012.

The surface water samples were analyzed for the presence of Available Cyanide, Total Fluoride, Trichloroethene (TCE), PAHs, and PCBs. The November 2011 results reported fluoride in the laboratory Method Blank, and samples from this period were noted with a “B” qualifier by the lab. It is believed that the surface water sample from this period did not contain fluoride, and the reported value is the result of a laboratory artifact. The subsequent sampling event in May 2012 did not contain detectable concentrations of fluoride. Cyanide, TCE, PAHs, and PCBs were not detected in the November 2011 and May 2012 sampling event. The Badin Lake surface water analytical results are presented in **Table 3-6**.

ENVIRONEERING, INC.

FIGURE 3-20

BADIN LAKE AT ALCOA BADIN WORKS
SURFACE WATER SAMPLING
LOCATION MAP

ALCOA BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ NO:
HM	10/08/2012	137-176

4.0 CURRENT UNDERSTANDING

The additional data collected and actions taken to maintain and/or improve the environmental conditions at the site since the start of the CMS have improved the general understanding of the sites. The following section provides an update of the current understanding at the Badin Works facility and surrounding sites.

4.1 SWMU No. 2: Alcoa Badin Landfill

The Alcoa Badin Landfill (ABL) was used as an unlined municipal/industrial solid-waste landfill. This unit was positioned within a natural ravine located southeast of Wood St. extending to the edge of Little Mountain Creek flood plain. Municipal refuse, process material, and native fill material were used to fill the natural ravine approximately 13 to 42 feet.

In 1997, Alcoa completed interim measures at the ABL consisting of re-grading and cover improvements of two additional feet of low permeability clay and six inches of topsoil to establish a vegetative cover. The objectives of the interim measures were to prevent surface run-on, promote surface run-off, and reduce infiltration into the landfill.

Three seeps (western, middle, and eastern) are present at the base of the landfill. Historic analytical data suggested the seeps emanate water that passes through the landfill materials. A portion of the seep water was believed to originate upslope of the landfill due to precipitation infiltration and a portion from recharge from bedrock through the base of the landfill. In 2005, a seep collection system was installed to re-route the discharge to a utility sewer that leads to a Stanly County Utilities POTW. The fill and hydrogeological assessments suggest a more complex hydrological model is taking place. Components of seep water may include components of surficial flow, infiltration through the cap and surrounding areas, and shallow horizontal flow through soil and fill materials. Hydrographs indicate that the cap is impeding infiltration.

Recent groundwater sampling results demonstrate the beneficial effects of the cover system upgrades. In results from all the recent sampling events, available cyanide and fluoride were not reported in any well at concentrations that exceed the NC 2L Standard.

4.2 SWMU No. 3: Old Brick Landfill

The OBL has had significant cover system upgrades implemented since the commencement of the RFI process. These efforts were implemented to reduce infiltration through the landfill cap and control storm water run-on and run-off from the cap.

Recent groundwater sampling results demonstrate the beneficial effects of the cover system upgrades. Available Cyanide was reported above the NC 2L Standard in one well during one of the sampling events. In the subsequent sampling events the compound was not detected at concentrations above the 2L standard in any of the wells. In results from all the recent sampling events, fluoride was not reported in any well at concentrations that exceed the NC 2L Standard.

4.3 SWMU No. 44: Pine Tree Grove Area and Northwest Valley

The Pine Tree Grove Area is located in the North End of the Badin facility adjacent to Badin Lake and outside of the plant's fenced area. The North End is characterized by a natural west-east trending valley (Northwest Valley) that was progressively filled during the period between 1916 and 1968. The Pine Tree Grove Area, located at the eastern end of the valley, is a former pond that was connected to Badin Lake. Filling of the Pine Tree Grove Area was completed between 1959 and 1961 and contents of the fill material are varied.

Multiple distinct lithological units have been identified in the SWMU No. 44 area. The uppermost unit, fill materials, consisted of decaying organic material, mulch, and wood debris; sand, silt, and clay soils; construction debris including gravel, concrete, brick, and rock fragments; aluminum scrap; and granular carbonaceous material. Residual soils are present beneath fill materials, and at the ground surface where fill is not present. The residual soils are mainly clayey-silt with subordinate sandy silt/silty sand. Residual soils that retain the general structure of the parent rock from which they formed are referred to as saprolite. These soils typically contain some rock fragments and clayey lenses. Partially weathered rock, defined as residual materials with penetration resistances equivalent to or greater than 100 blows per foot, is present at depths of 2 to 20 ft from ground surface in the main plant area. Refusal to soil drilling equipment has been recorded at depths varying from approximately 20 to 45 feet. Where refusal material was sampled by rock coring, the rock consisted of fractured and variable weathered volcanic metamudstone.

Groundwater occurs in fill materials, residual soils (including saprolite), partially weathered bedrock, and bedrock. The groundwater occurs within the fill material where fill material is present at a sufficient thickness and depth. Where fill material is thin or absent, groundwater exists within the residual soils or partially weathered bedrock. Saturated bedrock lies beneath the residual soils or partially weathered bedrock intervals. Historical groundwater contour maps for the facility indicate the horizontal groundwater flow potential in these zones is generally to the east toward Badin Lake.

Concentration isopleth maps for cyanide and fluoride for the fill material and the soil-saprolite-weathered rock zones were presented in Section 3.2.5. The shapes of the constituent plumes within the fill materials are consistent with preferential groundwater flow through the Northwest Valley. The shape of the constituent plume in the soil-saprolite-weathered rock zone is consistent with the overall preferential flow towards Badin Lake.

Based on the data collected, groundwater flow through most of the northern end of the plant is from the west to the east toward the lake. However, in the proximity of the shoreline area recent data collected suggests that groundwater elevations are lower than the lake level. The fact that the lake exerts a higher head pressure on the surrounding area would result in Badin Lake behaving like a hydraulic barrier for groundwater flow towards the lake. The decreased gradient in wells closer to the lake and stabilization of the groundwater constituent plume suggests that surface water is acting as an opposing force to eastern groundwater movement towards the lake. Affected groundwater in the northern portion of the plant may not discharge into Badin Lake, however, this hypothesis will require additional data collection and verification.

4.4 SWMU No. 46

Similarly to SWMU No. 44, multiple distinct lithological units have been identified in the SWMU No. 46 area. The uppermost unit, fill materials, consisted primarily of sand, silt, and clay soils with minor lenses of granular carbonaceous material. Residual soils and saprolite are present beneath fill materials, and are mainly clayey-silt with subordinate sandy silt/silty sand.

As written in the RFI, in 1998 Alcoa identified this area as potentially receiving waste materials through a review of historical photographs. A recent review of historical plant drawings and photographs suggests that the morphology of this area may be more related to plant expansion and modernization and not related to deliberate waste disposal.

A review of historical topographic maps, historical photographs, aerial imagery and recent Site investigative activities confirms that the SWMU No. 46 is a fill area related to plant expansion and modernization activities. This recent data supports a morphology consisting of native fill soils and minor amounts of plant process remnants used to raise the area to its existing grade, or approximately 10 to 20 feet. These incidental plant process remnants may contribute to the groundwater 2L exceedance observed in the well located at the SWMU No. 46 (MW-29).

Since a more detailed plant expansion and modernization morphology of the SWMU No. 46 area has been developed, Alcoa believes a more appropriate designation for the SWMU No. 46 is "Coke Management Area".

APPENDIX A

ABL GEOPHYSICAL SURVEY

GEOPHYSICAL EVALUATION AT THE ALCOA POWER GENERATING, INC. YADKIN DIVISION SWITCHYARD AND THE SWMU NO. 2, ALCOA/BADIN LANDFILL, BADIN, NORTH CAROLINA

PREPARED FOR ENVIRONEERING, INC.

by

GEO SOLUTIONS LIMITED, INC.
RALEIGH, NORTH CAROLINA

FEBRUARY 2008

Geo Solutions Ltd.

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1.0 INTRODUCTION

Geo Solutions Limited, Inc. ("*Geo Solutions*") is pleased to submit this report to Environeering, Inc., ("*Environeering*") for a geophysical survey at the Alcoa Power Generating, Inc. - Yadkin Division ("*Yadkin*") Switchyard and the SWMU No. 2: Alcoa/Badin Landfill ("*Badin Landfill*"), Badin, North Carolina.

1.1 Background

Environeering requested Geo Solutions complete a two-phase geophysical evaluation of an inactive landfill site (Badin Landfill) situated next to the Alcoa-Badin Works facility in Badin, North Carolina. The purpose of the geophysical survey was to evaluate the extent and nature of buried material along portions of the fenced landfill and portions beneath an active high voltage electrical power switchyard (Figure 1).

The site is located west of the Alcoa Badin Works facility and is situated in a hilly to mountainous terrain. Figure 2 illustrates the location of the site landfill with respect to the area topographic features and the implied complex geologic structures that has controlled the development of the area geomorphology.

1.2 Scope of Work

Geophysical activities at the site consisted of an initial electromagnetic ("*EM*") profile mapping of the landfill area and the area inside of the fenced switchyard. The purpose of the EM survey was to identify the distribution of buried material containing metallic-like substances and to identify the distribution of buried material of varying apparent electrical conductivity. Following the completion of the EM survey, Geo Solutions completed a ground-penetrating radar ("*GPR*") survey over most of the landfill area and the area inside of the fenced switchyard. The purpose of this investigation was to evaluate, if possible, the depth vertical distribution of the landfill cap and buried debris beneath the cap and inside of the fenced switchyard. The GPR survey, in particular was concentrated in areas containing anomalous readings from the EM survey.

1.3 Field Activities

On August 29 and 30, 2007, Geo Solutions completed field activities at the landfill site and the adjacent electrical switchyard. These activities utilized two geophysical techniques:

1. First, Geo Solutions completed a multifrequency EM survey of the existing Badin Landfill and the existing switchyard. The EM survey was used to evaluate the extent of buried subsurface debris and the distribution of varying conductivity as it is related to the fill.

2. Based on the results of the EM survey, Geo Solutions completed a limited GPR survey at suspected fill boundaries and potential locations of buried material.

GEOPHYSICAL SURVEY
BADIN LANDFILL PROJECT
BADIN, NC

LOCATION MAP

0 300 FEET

SCALE IN FEET

FIGURE 1

8/30/2007

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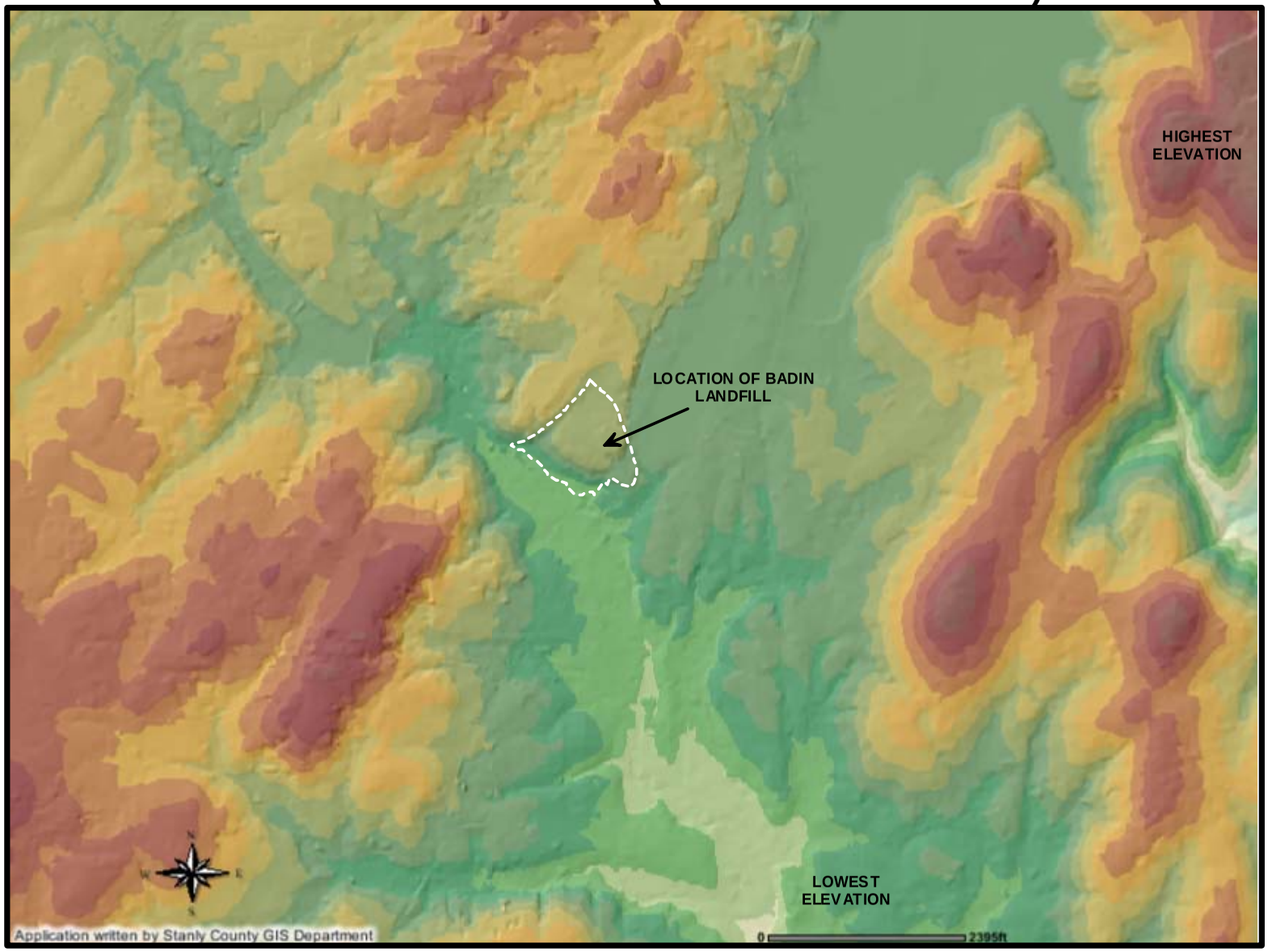
COLOR RENDITION OF AREA ELEVATION USING NC FLOOD LIDAR DATA (STANLY COUNTY GIS)



BADIN LANDFILL PROJECT
GEOPHYSICAL SURVEY
BADIN, NC
8/30/2007

FIGURE 2

Geo Solutions Ltd.

2.0 GEOPHYSICAL TECHNIQUES

2.1 Multifrequency Electromagnetic Survey

2.1.1 Introduction

The EM Method is a non-contact (uncoupled) geophysical method that utilizes a multiple frequency electromagnetic detector (Geophex Model GEM-2). The EM instrument collects electromagnetic responses in the in-phase (metal detection or magnetic susceptibility mode) and quadrature (conductivity) mode. An object, made partly or wholly of metals or conductive materials, has a characteristic combination of electrical conductivity, magnetic permeability properties, and a geometrical shape and size. When the object is exposed to a low-frequency electromagnetic field, it produces a secondary magnetic field. By measuring the broadband spectrum of the secondary field, it is possible to obtain a distinct spectral signature that may uniquely identify the object. Thus the response spectrum from buried material becomes a clue or a "fingerprint" of the material. This is the basic concept of electromagnetic induction spectroscopy ("*EMIS*") (Won, et. al. 1998).

EMIS technology is useful in characterizing buried material (either metal bearing or conductive). In this case, Geo Solutions was interested in evaluating the distribution of buried material containing electrically highly conductive carbon and metal. Based on our experience with buried carbon debris at an NPL Site located in Tarpon Springs Florida, buried carbon material exhibits very high quadrature (apparent conductivity) values when compared with a non-carbon bearing host material (Benson, et. al., 2004). The high conductivity values are generally exhibited across all EM frequencies. Metal bearing materials (such as steel) tend to have lower conductivity responses and higher in-phase responses. As a result, a comparison of apparent conductivity values with the in-phase (metal detection mode) values provides insight as to the composition and extent of buried material with anomalous high in-phase and apparent conductivity values.

2.1.2 EM Field Activities

The EM in-phase and conductivity data were collected simultaneously at five varying frequencies (1530 Hz, 5010 Hz, 9990 Hz, 20010 Hz, and 47010 Hz). By varying the collection frequencies, Geo Solutions is able to better characterize the makeup of buried debris (i.e., distinguish between highly conductive carbon and other metal bearing material), if present.

The GEM-2 was operated in remote control configuration while evaluating the landfill area (using a sled) and switchyard (carried by hand). In this mode the GEM-2 unit is mounted on PVC tubular sled positioned approximately .75 meters from the ground surface, or is held by hand while the land is traversed on foot. The receiving coil (detector coil) is situated directly above the exposed ground surface.

Photograph showing typical deployment of EM unit mounted on sled (left) or hand carried (right).

Data was collected at the rate of six samples per second. The position of each sample point was measured utilizing a CSI Wireless SERES global positioning system ("*GPS*") with a data update rate of 6 Hz (Crowson et. al. 2007). These data were transferred from the GEM-2 unit to a portable laptop computer that was carried on board a 4WD vehicle (Polaris Ranger with covered cab area). The sample spacing is thus a function of rate of travel of the sled or pace rate of the person carrying the GEM-2 and rate of data sampling. Here, Geo Solutions collected data along straight survey lines at 1.5 to 2 ft. intervals. The location of the EM data points is presented in Figure 3 for both sites.

The EM data was transferred from the GEM-2 to a laptop computer using the WinGEM Version 3 software provided by the manufacturer. During the transfer process, the WinGEM software assigns UTM metric coordinates to each data collection station, and calculates the apparent conductivity, sum of conductivity, and magnetic susceptibility for each frequency collected using the system software. These data were then transferred to a Microsoft Excel Spread Sheet and reviewed for data anomalies such as poor GPS confidence levels that would likely result in poor coordinate assignments. As a result all data with GPS confidence levels of less than 1 were rejected (approximately 40 records out of 66,020 records collected were rejected). The UTM Coordinates were transformed into the North Carolina State Plane System (in survey feet) using the Corpscon Freeware Software (Version 6.0.1). These data were used to compile a series of maps illustrating various responses using a simple 3D mapping program (Golden Software's Surfer Mapping System Version 8).

2.1.3 EM In-Phase Survey – Metal Detection Mode

The results of the EM data were reviewed across all frequencies for both the in-phase (metal detection) and quadrature (conductivity) modes. Based on this review the five collection frequencies, the 9990 Hz frequency in-phase data was selected to identify the location of potentially buried metal debris (Figure 4). The 9990 Hz frequency was chosen because it is the established EM frequency used by the Geonics EM-31, and it appeared to provide a uniform (low noise level) representation of the overall data base in comparison of the other four frequencies. Figure 4A illustrates our interpretation of the extent of buried material potentially containing metal debris. Site coordinates for four areas containing concentrations of potential

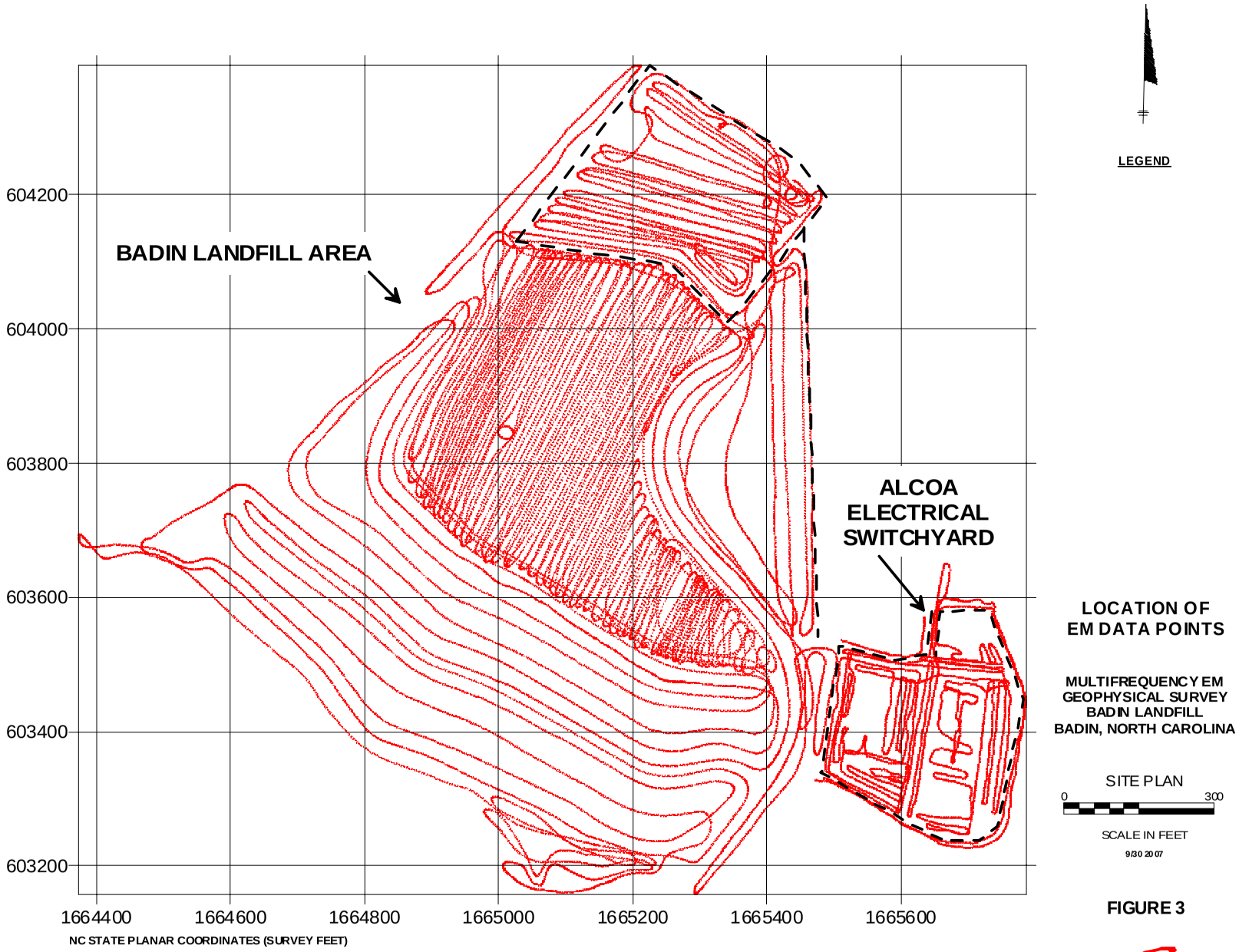


FIGURE 3

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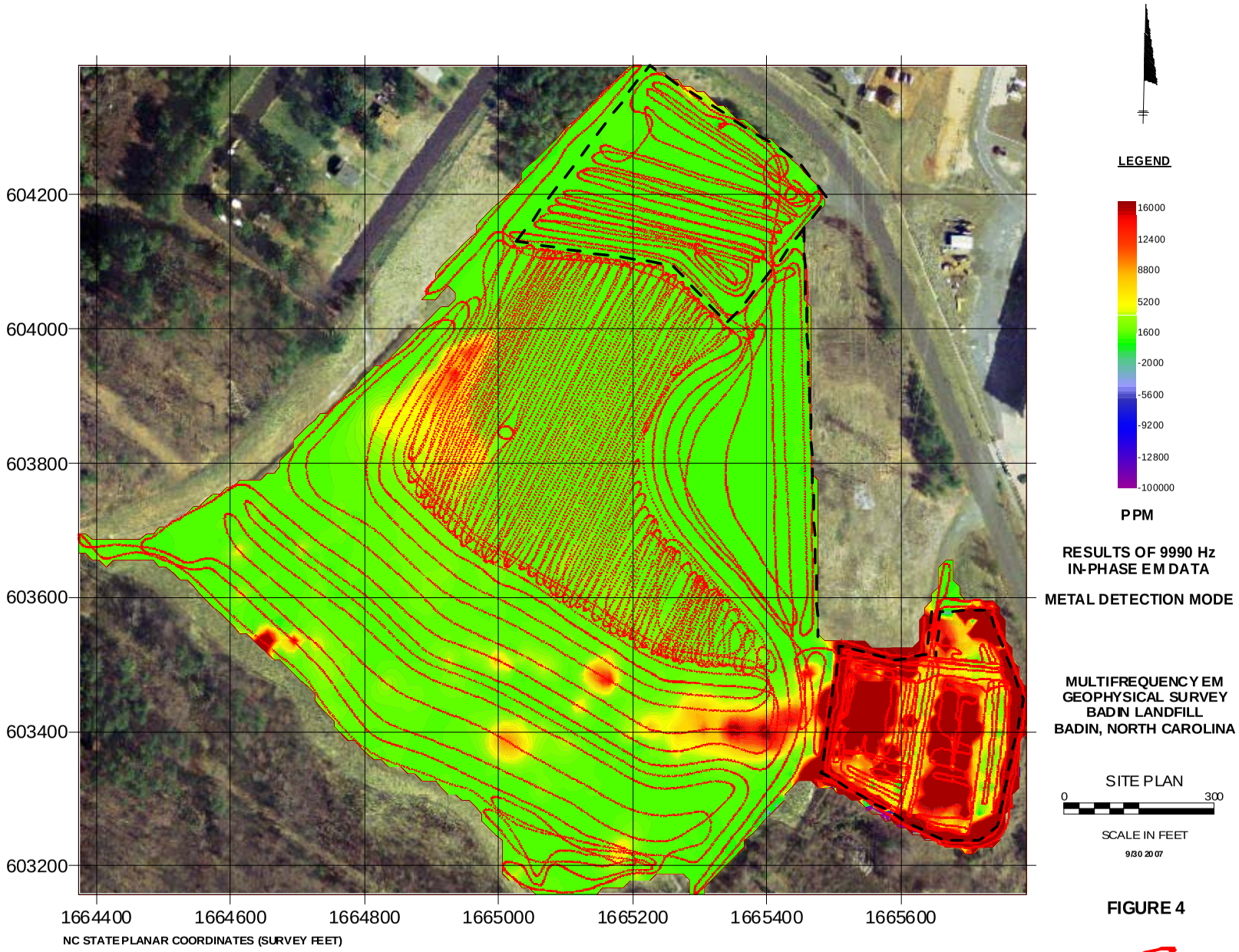
604200
604000
603800
603600
603400
603200
1664400
1664600
1664800
1665000
1665200
1665400
1665600
NC STATE PLANAR COORDINATES (SURVEY FEET)
LEGEND
16000
12400
8800
5200
1600
-2000
-5600
-9200
-12800
-100000
PPM
RESULTS OF 9990 Hz
IN-PHASE EM DATA
METAL DETECTION MODE
MULTIFREQUENCY EM
GEOPHYSICAL SURVEY
BADIN LANDFILL
BADIN, NORTH CAROLINA
SITE PLAN
0
300
SCALE IN FEET
9/30/2007
FIGURE 4
Geo Solutions Ltd.

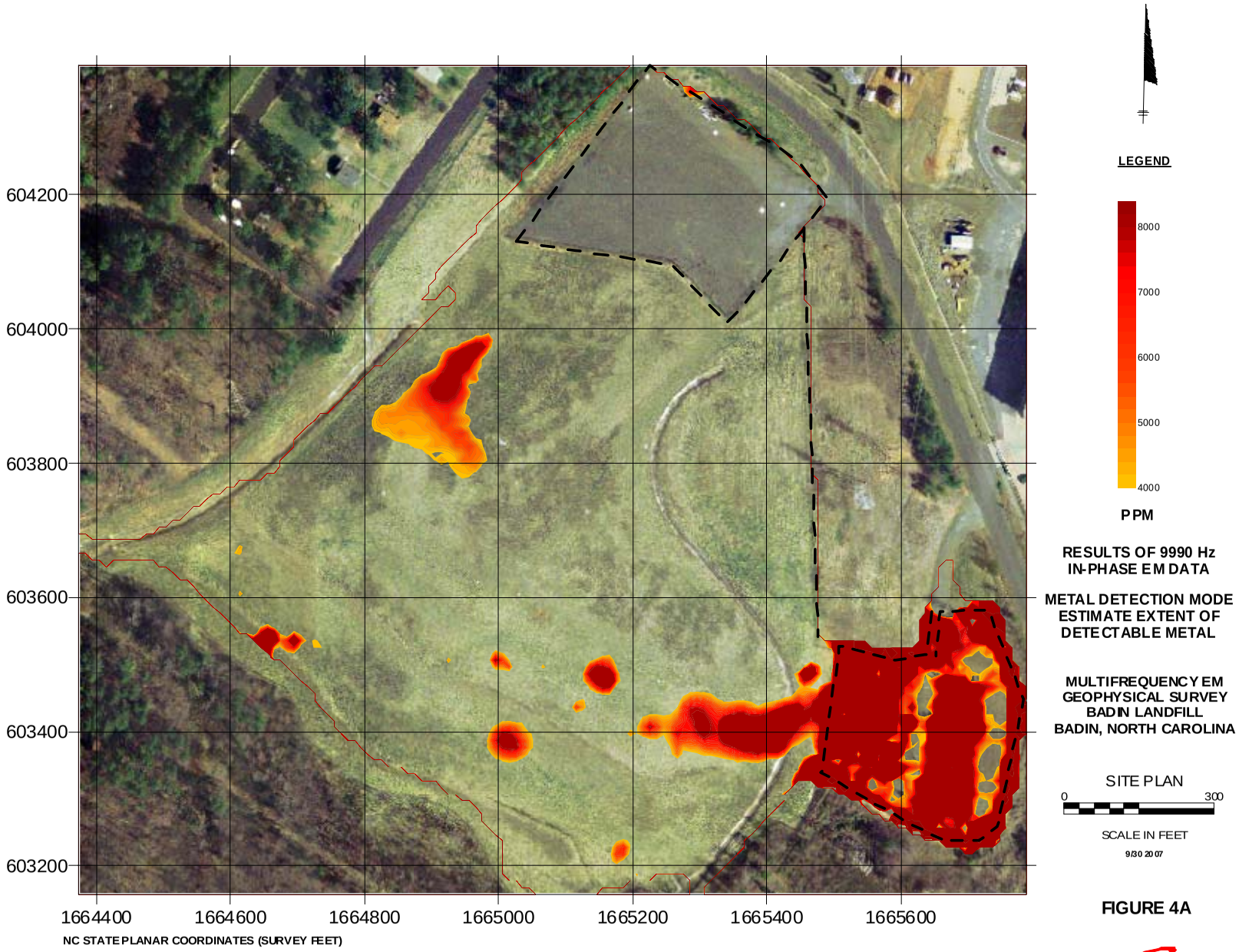

FIGURE 4A

Geo Solutions Ltd.

buried debris with strong in-phase responses are listed in Table 1, and represents approximately 0.75 acres.

Table 1

Easting	Northing	Description
1664918.7233	603905.6874	Large area where overburden is reportedly greater than 15 feet thick.
1665009.2495	603383.582	Small area near the face of a sloped surface.
1665150.3021	603480.4242	Small area near the face of a sloped surface.
1665386.0917	603404.6346	Large area where area trend suggests potential presence beneath the switchyard.

2.1.4 EM Quadrature Survey – Conductivity Mode

Similarly, Geo Solutions collected EM data over the site for variations in apparent conductivity. Geo Solutions compiled the sum of conductivity across each frequency, which enables the EM data to reflect subtle changes in conductivity while also showing large anomalous conditions.

A map illustrating the results of the sum of all collected conductivity values is presented as Figure 5. In Figure 5, areas of high soil conductivity are generally more widespread than the distribution of suspected buried metal debris. However, zones of strong positive soil conductivity generally coincide with locations of potentially buried very conductive (electrically) debris. These conductive areas may also reflect changes in the overall conductivity of groundwater. However, given the magnitude of the conductivity values it is more likely a result of highly conductive material such as carbon. In Figure 5A, Geo Solutions has identified the interpreted extent of very high conductivity values shown in the combined landfill and switchyard area. Figure 5B is an enlarged area of just the switchyard with an interpreted outline of the areas containing the highest soil conductivity. Here, Geo Solutions estimates the area of elevated conductivities to be less than one acre. Site coordinates for four areas containing concentrations of high soil conductivities are listed in Table 2, and represent approximately 6.5 acres in area.

Table 2

Easting	Northing	Description
1664910.3021	603850.9504	Large area located near a large In-Phase anomaly
1664722.9337	603514.1084	Area located near the west fence area.
1665350.3021	603413.0558	Very large site extending from the southwest portion of the landfill to the switchyard.
1665165.0391	603213.0558	Anomalies situated near the south edge of the fill near the fence line.

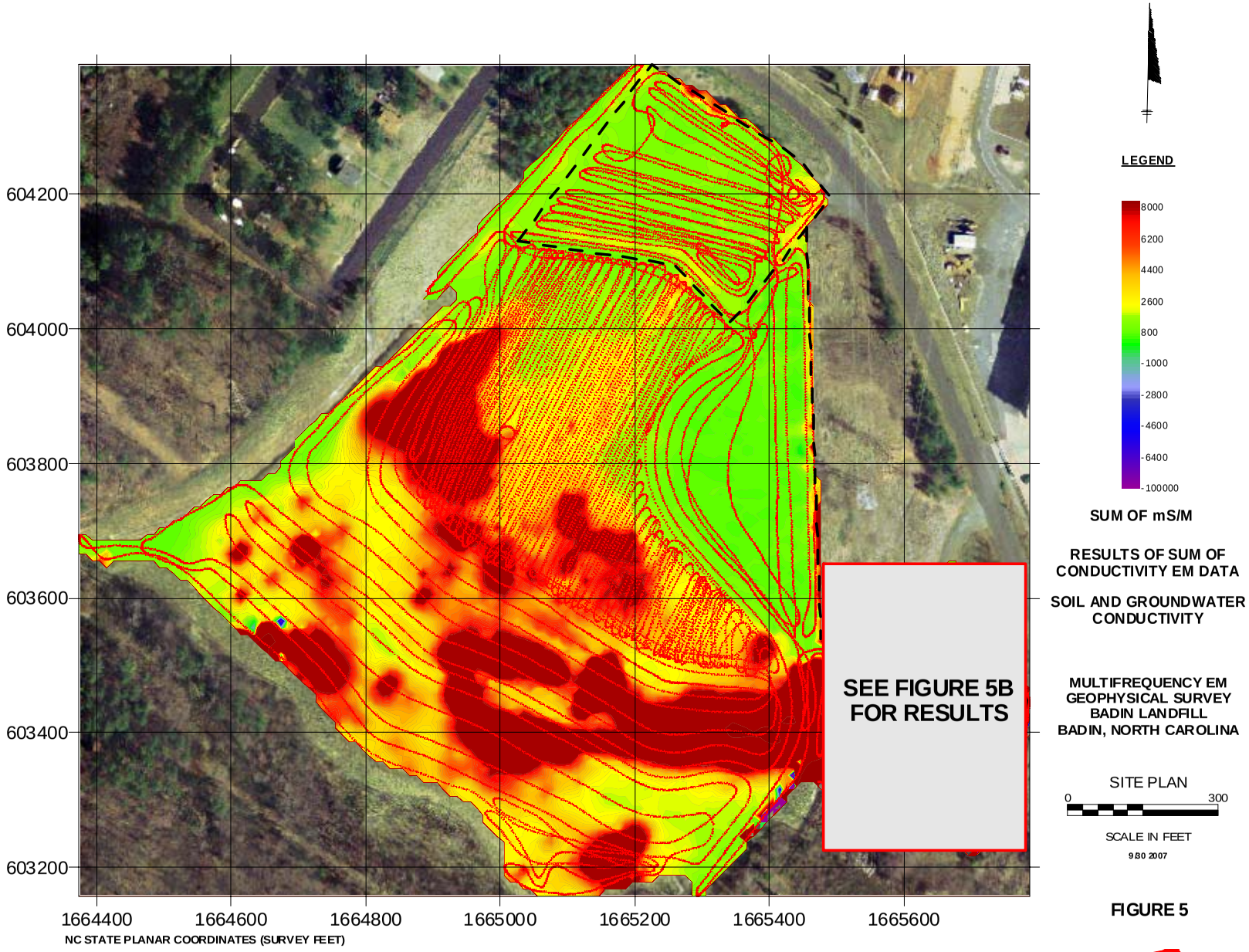

FIGURE 5

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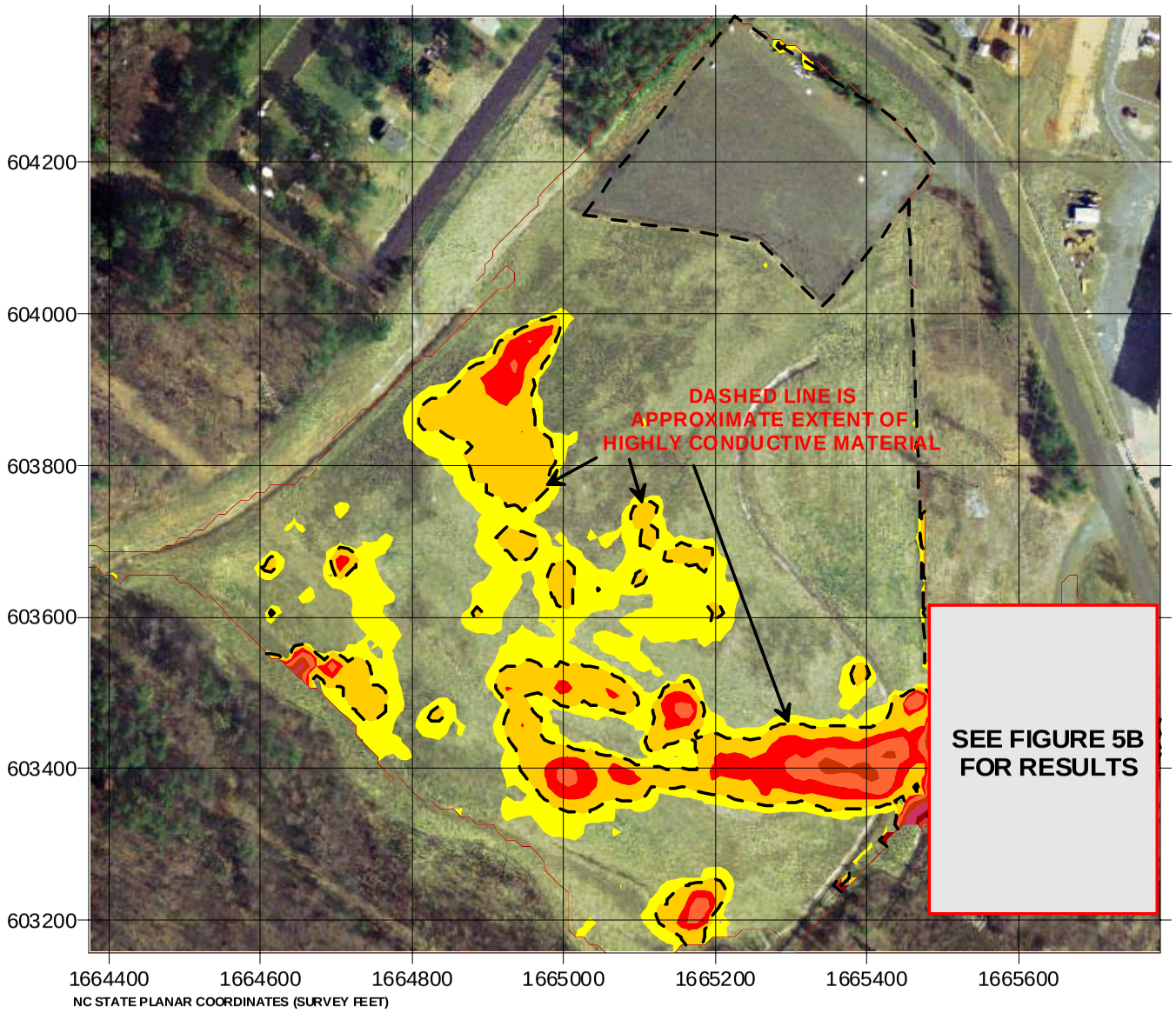
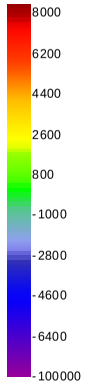


LEGEND



SUM OF mS/M

RESULTS OF SUM OF CONDUCTIVITY EM DATA

SOIL AND GROUNDWATER CONDUCTIVITY

MULTIFREQUENCY EM GEOPHYSICAL SURVEY
BADIN LANDFILL
BADIN, NORTH CAROLINA

SITE PLAN

0 300

SCALE IN FEET

9 80 2007

FIGURE 5A

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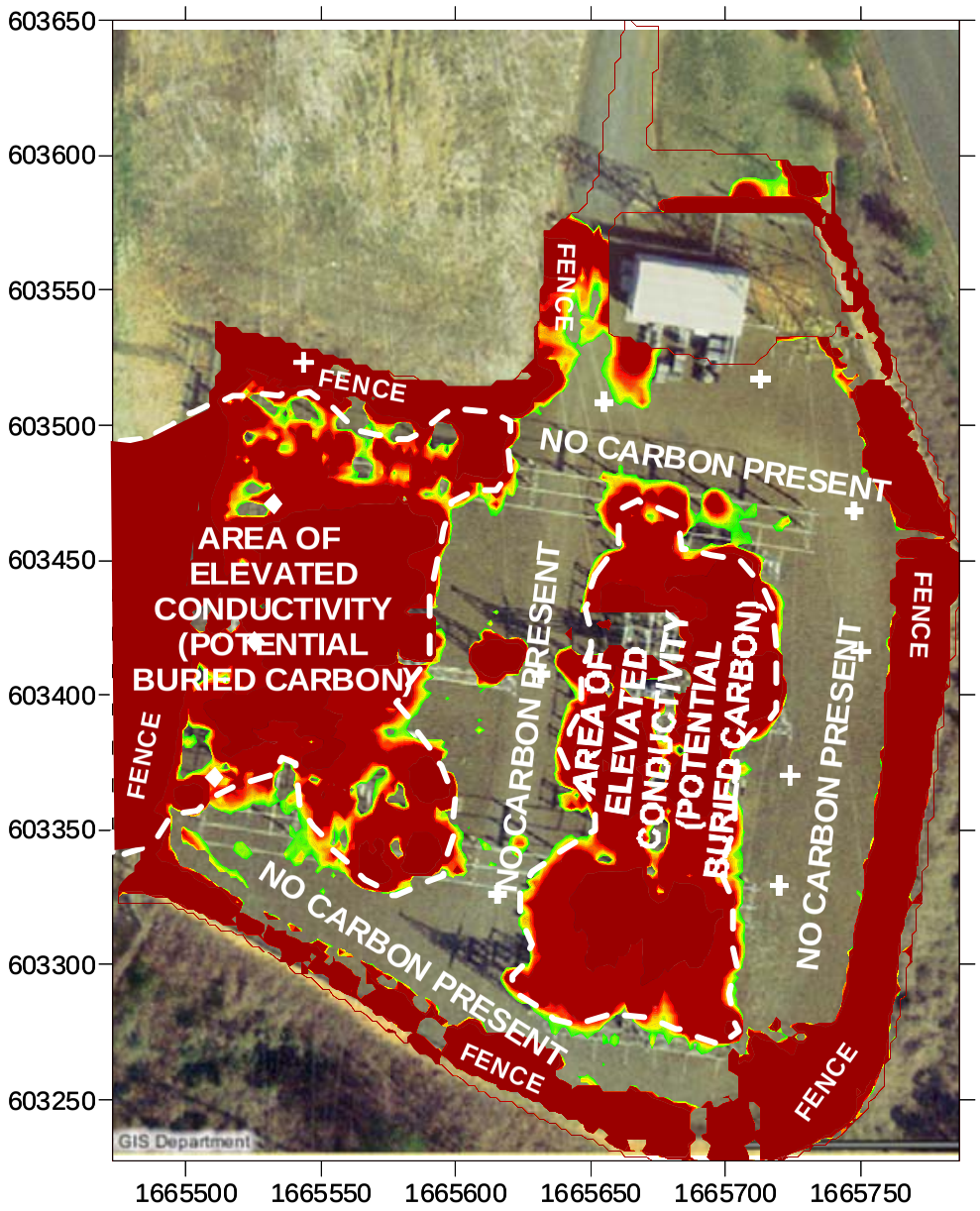

BORING LOCATION AND RESULTS PROVIDED BY ENVIRONEERING, INC.

NC STATE COORDINATES (SURVEY FEET)

LEGEND

- ✚ LOCATION OF BORING CONTAINING NO CARBON
- ◆ LOCATION OF BORING CONTAINING CARBON

200
175
150
125
100
75
50
25
0

SUM OF mS/M

RESULTS OF SUM OF CONDUCTIVITY EM DATA

SOIL AND GROUNDWATER CONDUCTIVITY IN THE SWITCHYARD

MULTIFREQUENCY EM GEOPHYSICAL SURVEY BADIN LANDFILL BADIN, NORTH CAROLINA

SITE PLAN

0 300

SCALE IN FEET

9/30 2007

FIGURE 5B

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2.2 Ground-Penetrating Radar

2.2.1 Introduction

GPR is an effective geophysical tool used to establish vertical and horizontal variations of certain electrical properties of soil. GPR is a noninvasive electromagnetic geophysical technique that utilizes radio frequency EM energy to detect various layers in the earth's shallow subsurface. It is widely used in environmental site characterization and landfill construction verification. It may be deployed from the surface by hand or vehicle (sled). It has the highest resolution of any geophysical method for imaging the subsurface, with centimeter scale resolution sometimes possible. However, GPR investigations usually are affected by subsurface conditions:

1. Soil composition affects the depth of detection (i.e. higher clay content generally equal lesser depths of penetration of the radar signal and thus the lesser depths of detection).

2. Presence of highly conductive material (i.e., less resistive material) generally equals poorer quality of recovered data. Conductive material enhances the attenuation of the radar signal, thus reducing the depth of penetration.

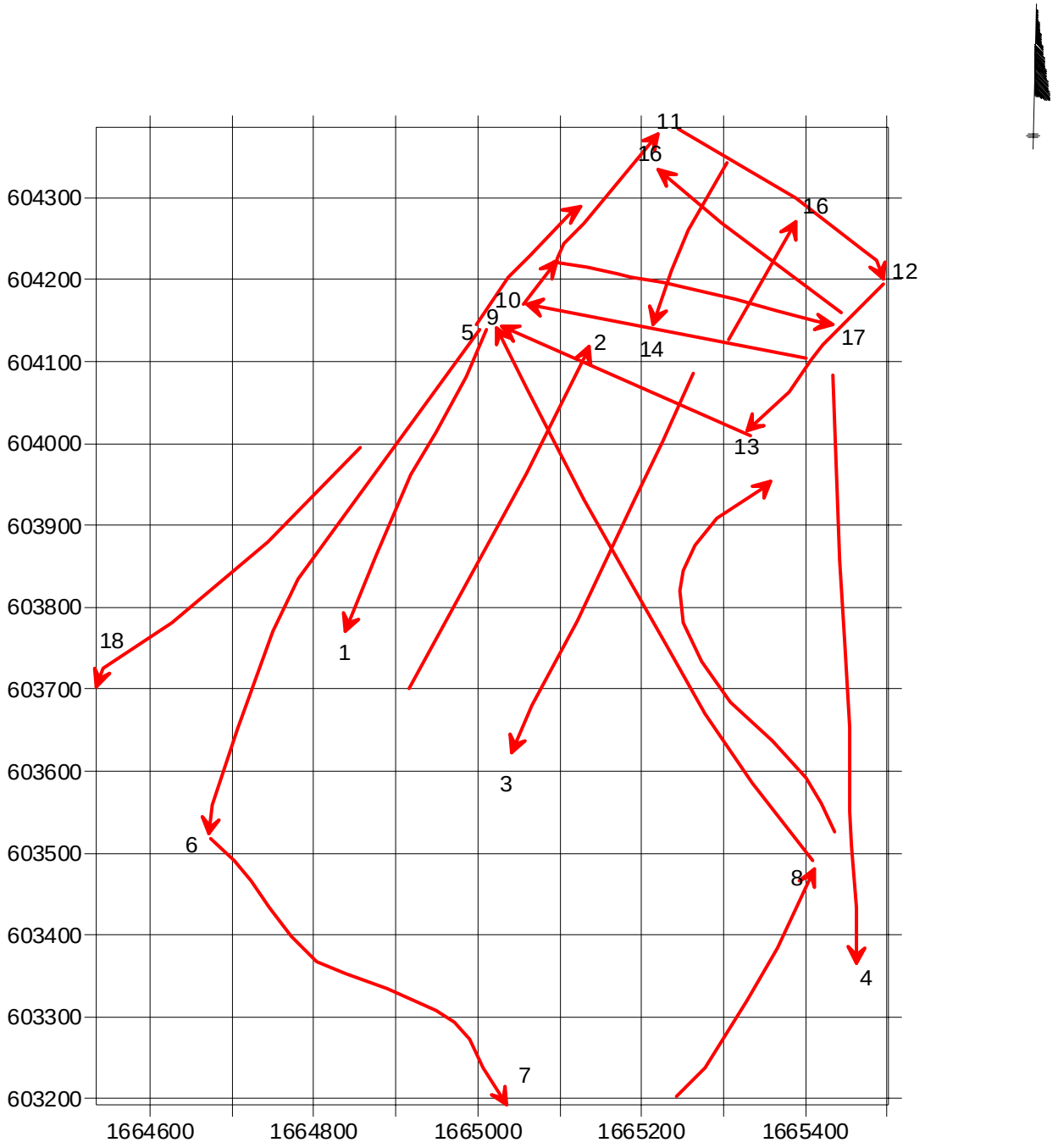
Typical setup of GPR using a hand-pushed cart (left) and the Model 3000 display (right).

2.2.2 Field Activities

The GPR data was collected on the SIR 3000 data collection unit using a 400 and 200 MHz antennas, and reviewed in the field for completeness and reliability. The SIR 3000 unit uses a digital survey wheel to determine the distance between each vertical survey GPR sounding. These data are also collected along with the time domain records of the GPR. These data were post-processed using GSSI Radar Radan Version 6 software. In general, the GPR records are good with an average depth of detection of 4 feet for the 400 MHz, and 8 feet for the 200 MHz antennas. This depth of detection is more than Geo Solutions anticipated given the presence of a clay cap on the landfill. The presence of clay capping material generally reduces the depth of penetration for GPR.

2.2.3 GPR Survey

The location of each GPR profile in relationship the landfill area is presented in Figure 6. Here, a moderate density of GPR profiles was completed across the landfill and parking area. These data were collected to evaluate the presence of shallow buried debris. The results of the profiles are presented in Figures 7A and 7B. No shallow material was detected in the capped landfill. Additional GPR profiles were completed in the fenced area of the electrical switchyard. The location of these GPR profiles is presented in Figure 8. The results of the profiles are presented in Figure 9. GPR penetration in the electrical switchyard was limited on average to 5 feet with localized maximums of 10 feet. Shallow debris was recognized only in areas near the northwestern 1/3rd of the switchyard site.



GEOPHYSICAL SURVEY
BADIN LANDFILL PROJECT
BADIN, NC

LEGEND

C

LOCATION AND DIRECTION OF GPR PROFILE

LOCATION GPR PROFILES

FIGURE 6

8/30/2007

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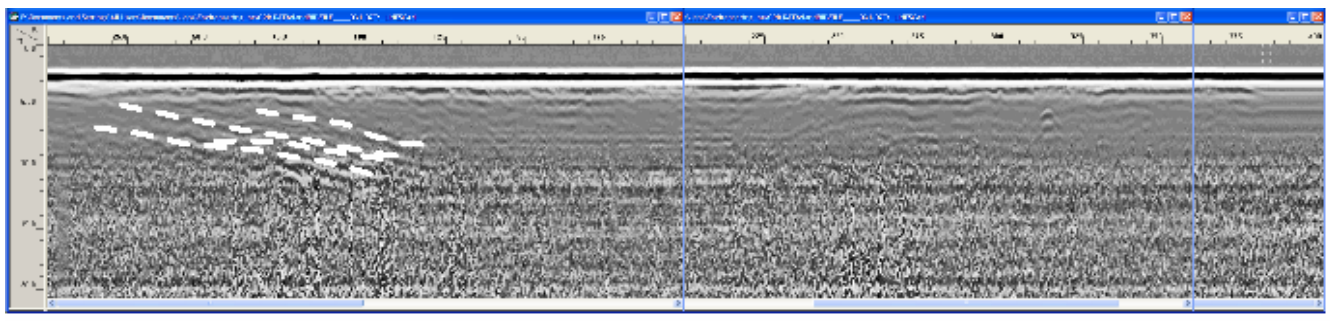
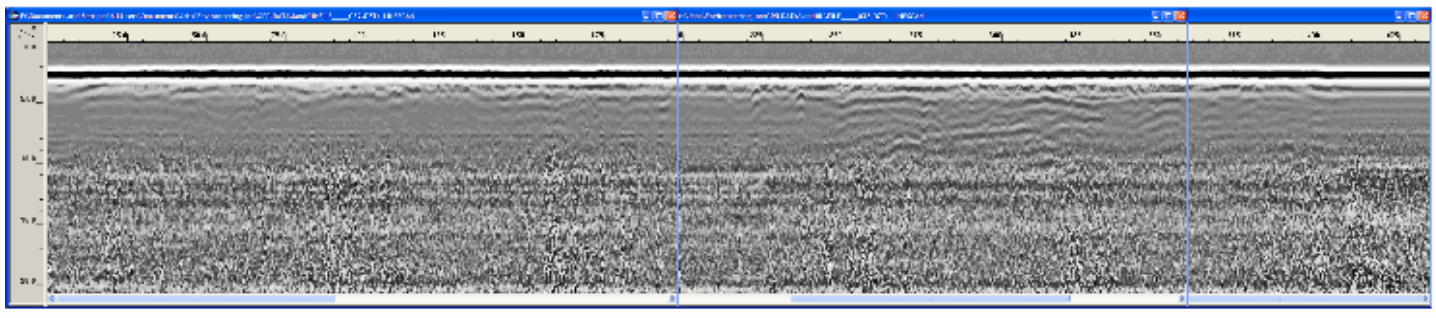
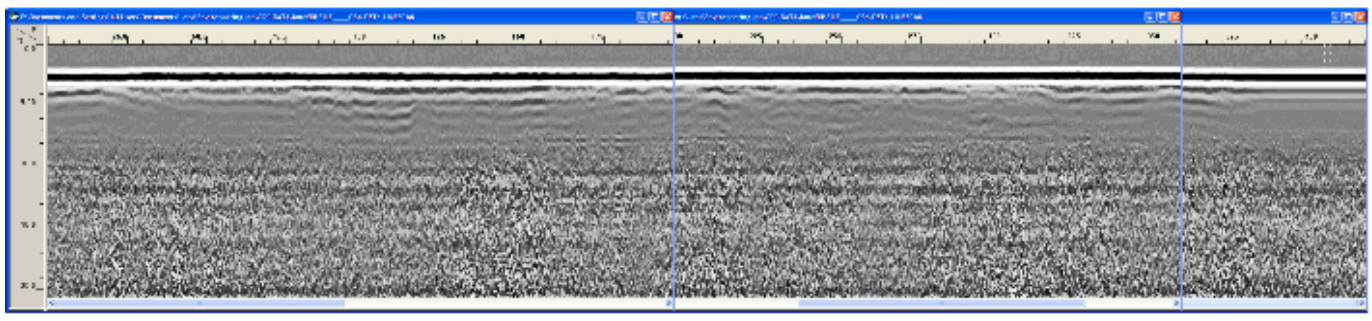


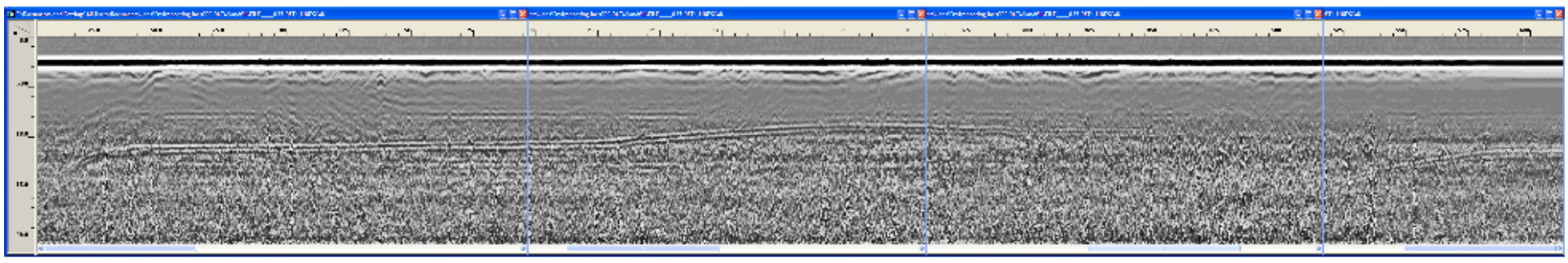
GPR PROFILE 1



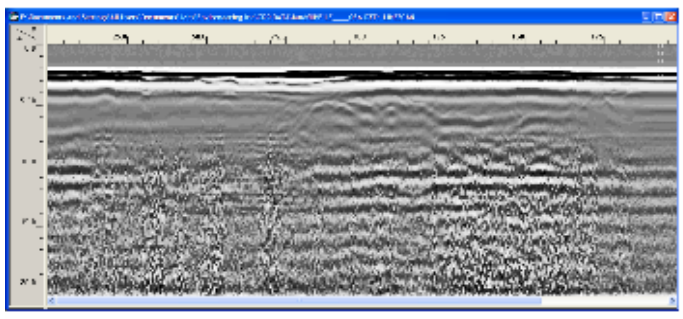
GPR PROFILE 2



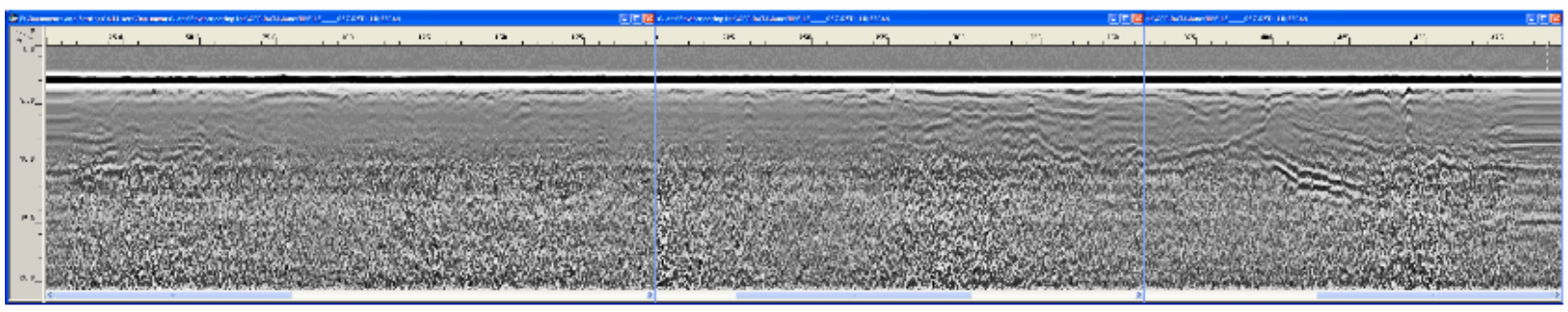
GPR PROFILE 3



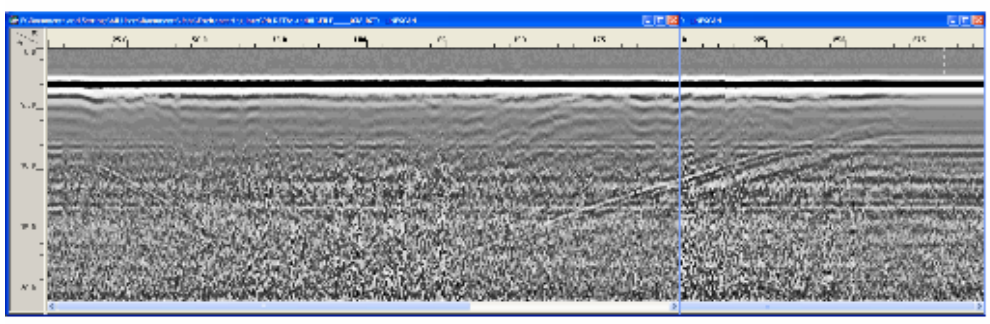
GPR PROFILE 4



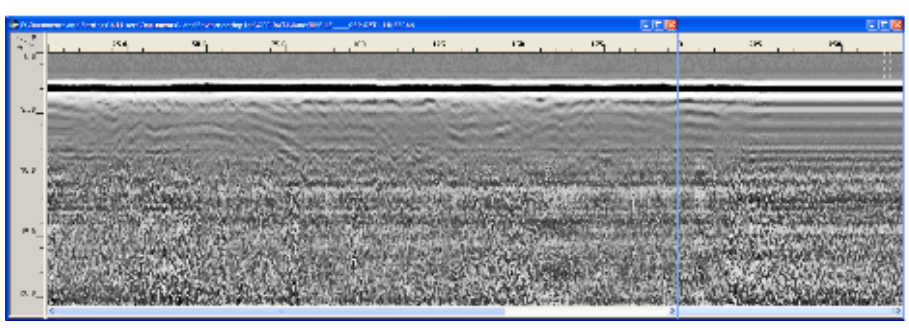
GPR PROFILE 5



GPR PROFILE 6



GPR PROFILE 7



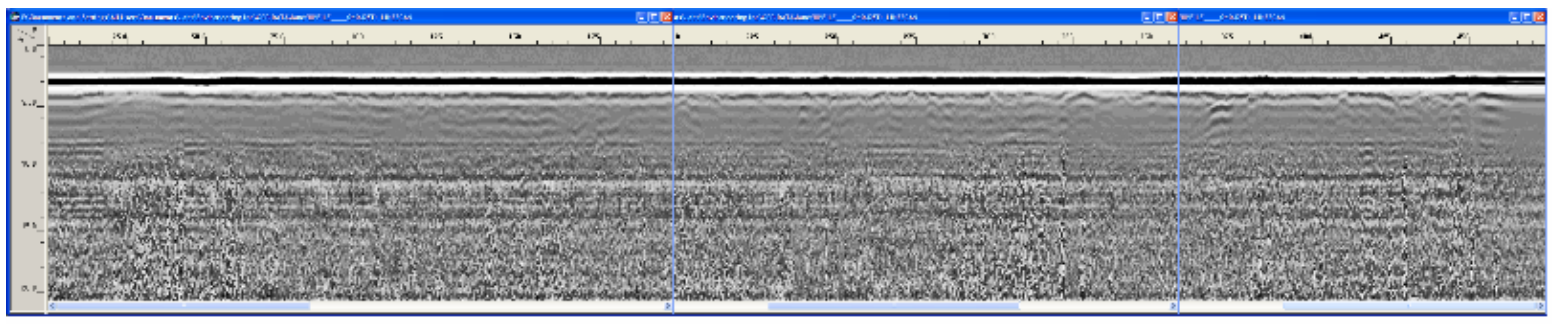
GPR PROFILE 8

GROUND-PENETRATING RADAR
GEOPHYSICAL SURVEY
ALCOA LANDFILL
BADIN, NORTH CAROLINA

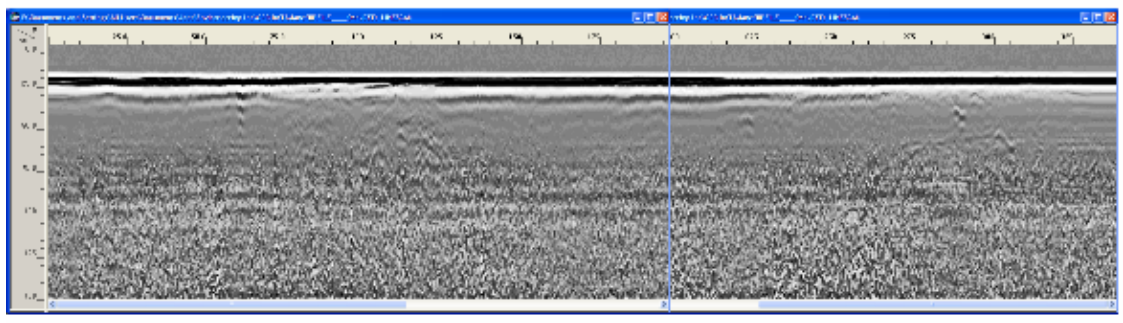
FIGURE 7A

8/30/2007

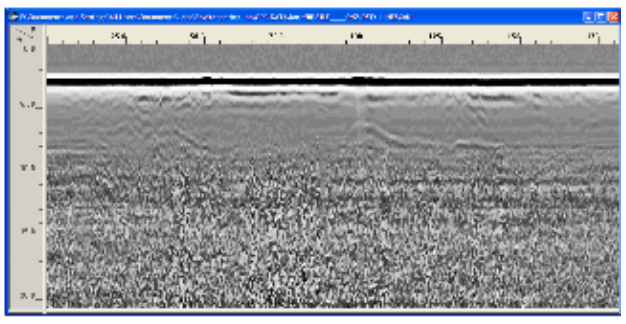
Geo Solutions Ltd.



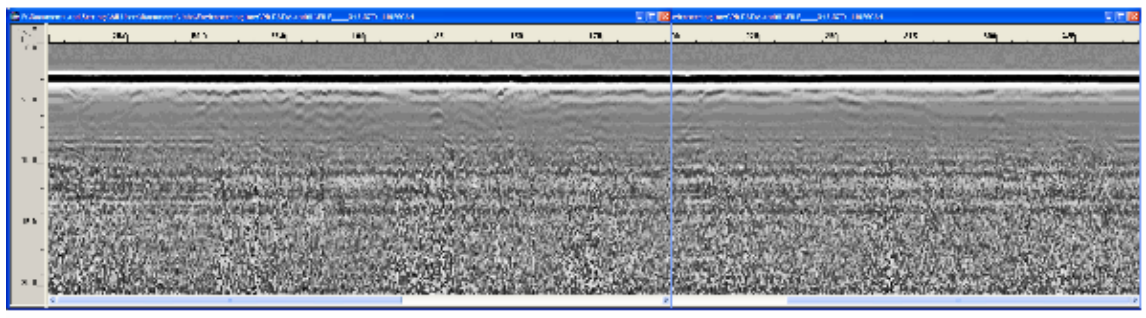
GPR PROFILE 9



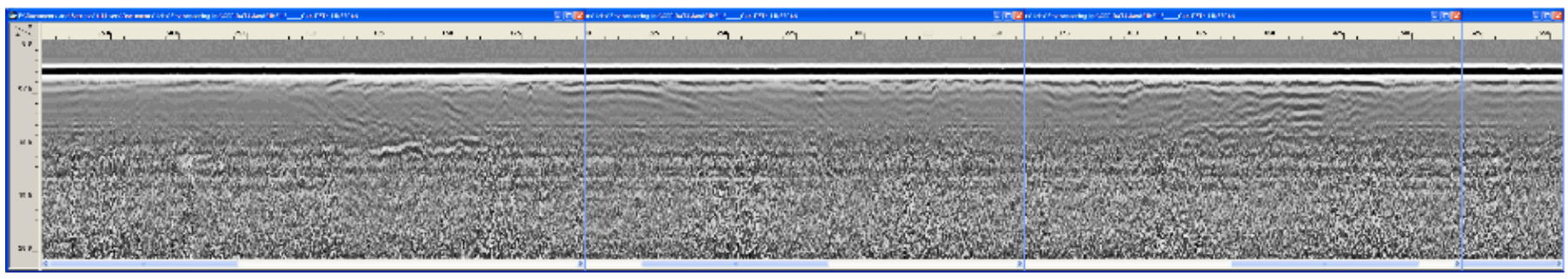
GPR PROFILE 10



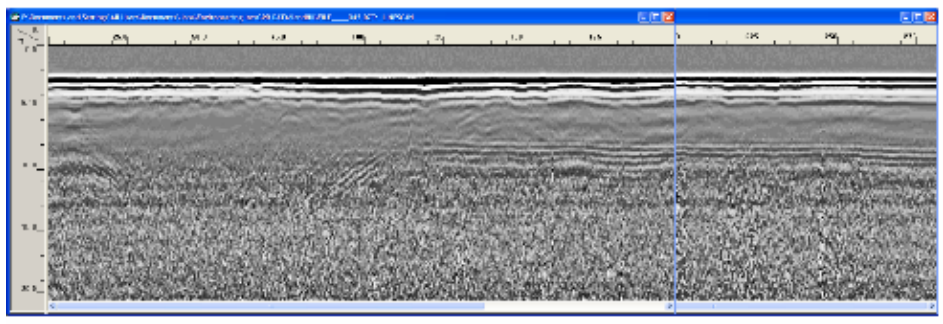
GPR PROFILE 11



GPR PROFILE 12



GPR PROFILE 13



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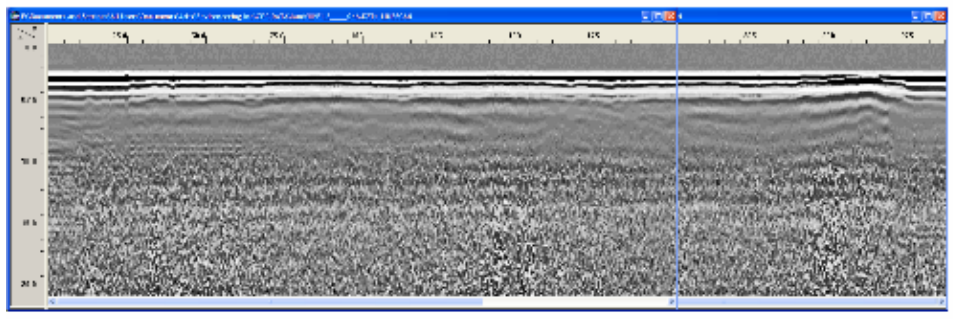

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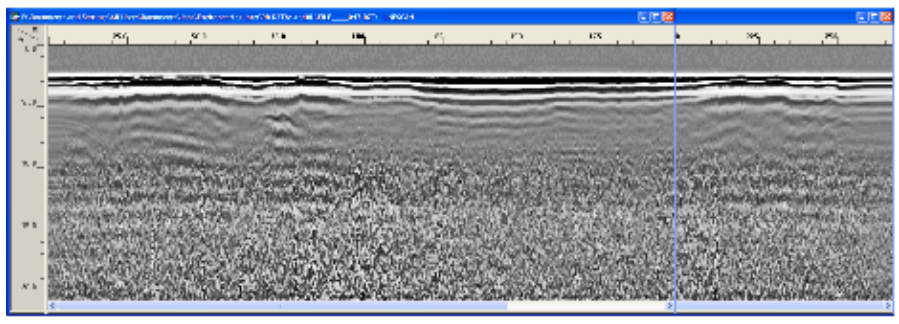

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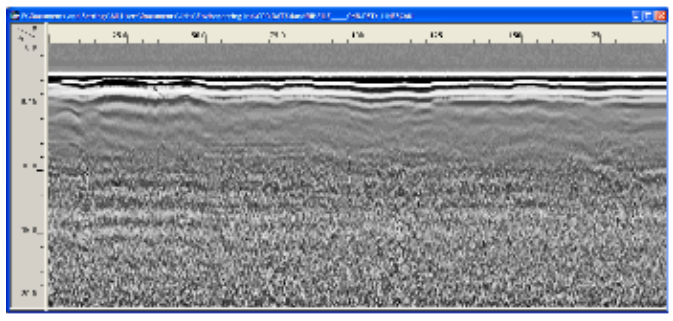
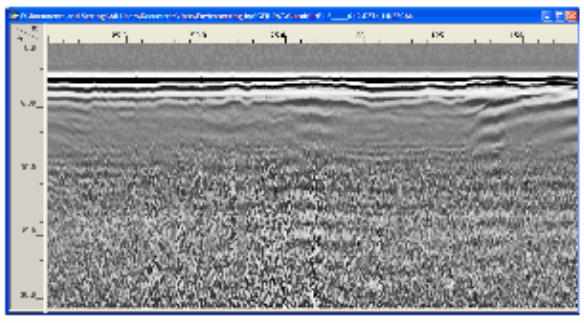


GPR PROFILE 17



GPR PROFILE 18

GROUND-PENETRATING RADAR
GEOPHYSICAL SURVEY
ALCOA LANDFILL
BADIN, NORTH CAROLINA

FIGURE 7B

8/30/2007

Geo Solutions Ltd.

LEGEND

C — LOCATION AND DIRECTION OF GPR PROFILE

RED DASHES INDICATE AREA OF BRIGHT GPR REFLECTORS (PRESENCE OF POTENTIALLY BURIED CARBON)

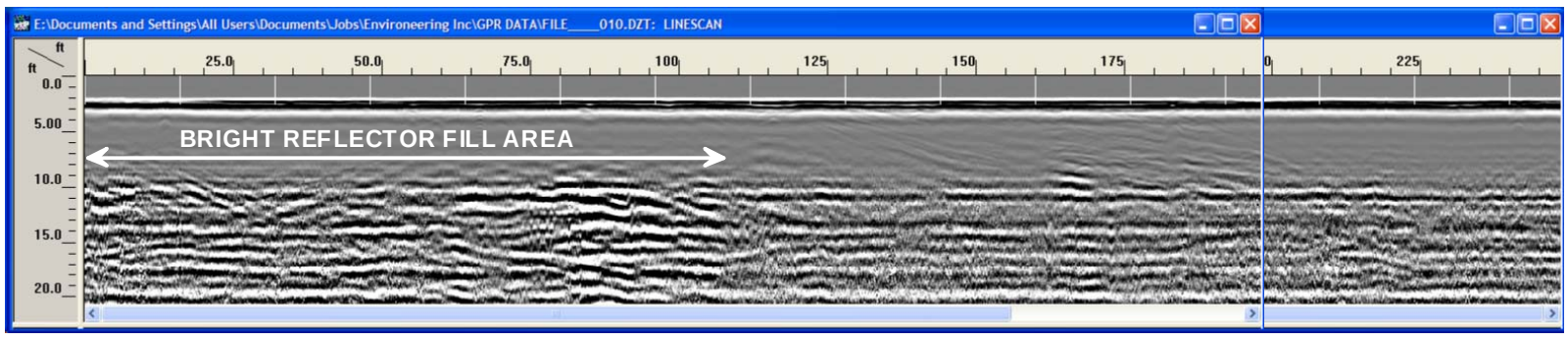
GEOPHYSICAL SURVEY
BADIN LANDFILL PROJECT
BADIN, NC

LOCATION GPR PROFILES
ALCOA SUBSTATION

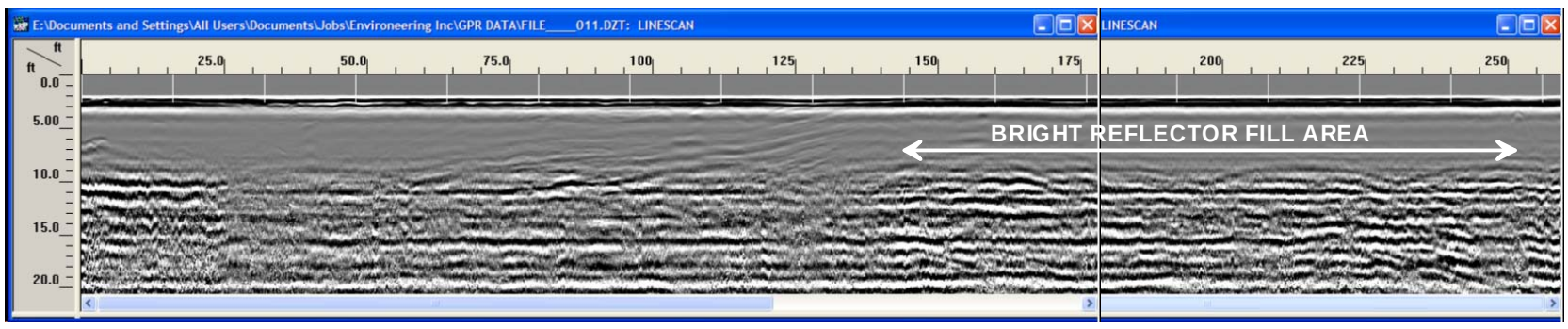
FIGURE 8

8/30/2007

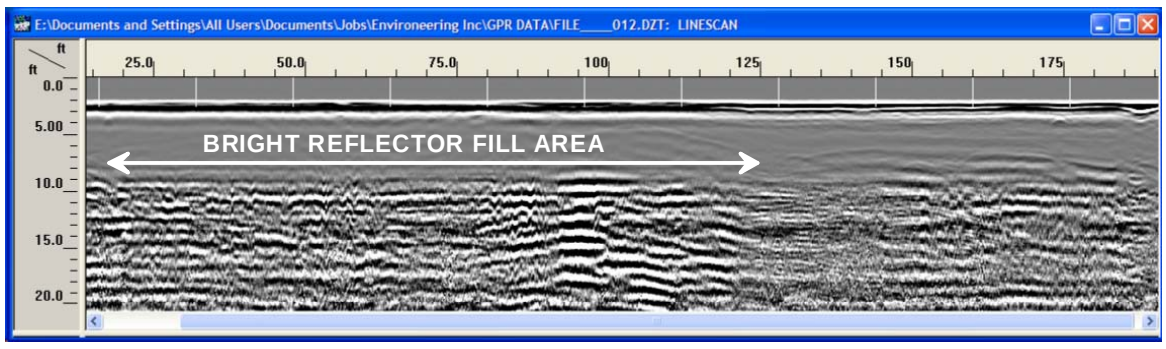
Geo Solutions Ltd.



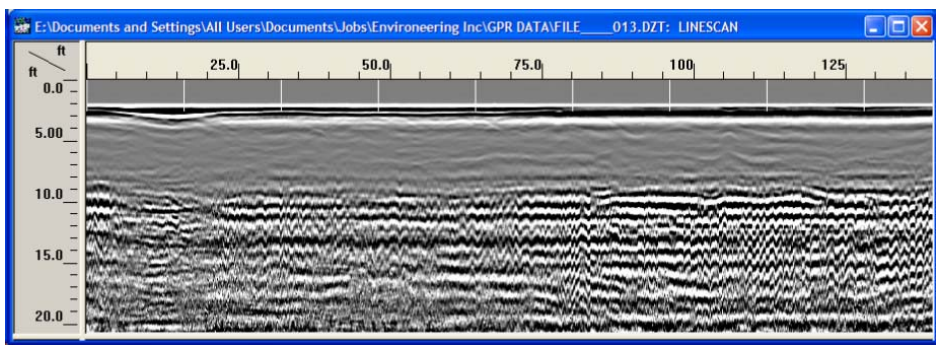
GPR
PROFILE A



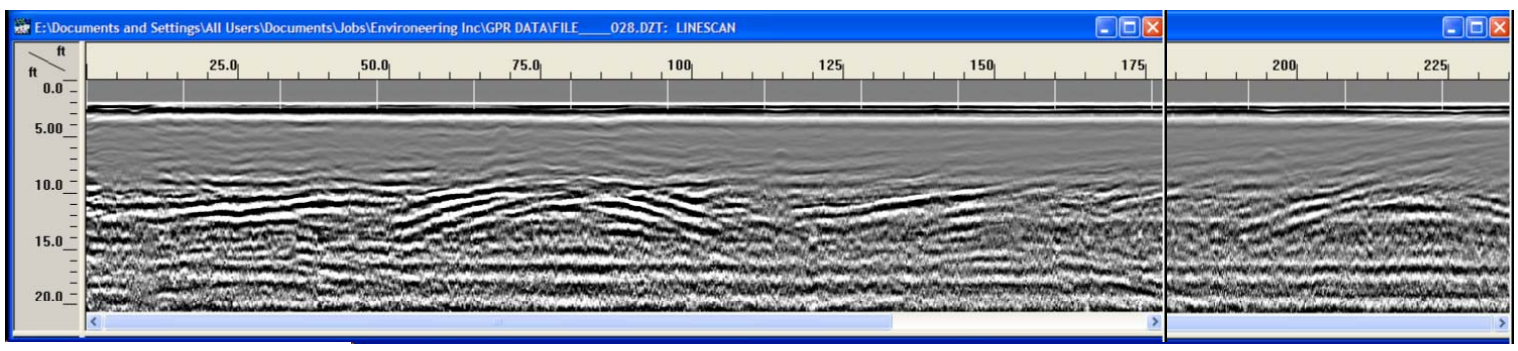
GPR
PROFILE B



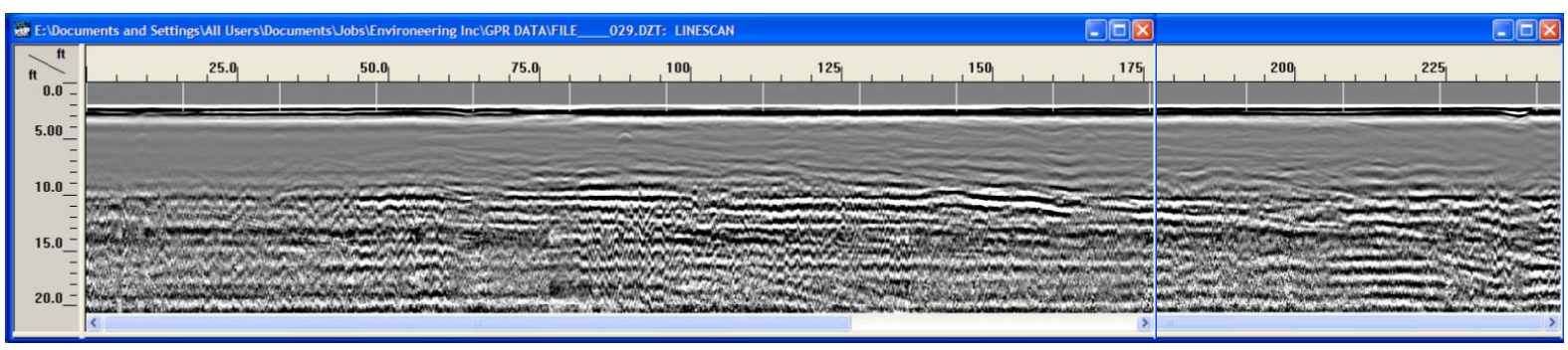
GPR
PROFILE C



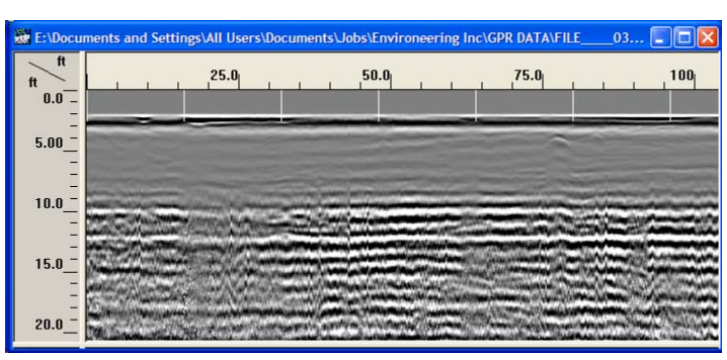
GPR
PROFILE D



GPR
PROFILE E



GPR
PROFILE F



GPR
PROFILE G

RESULTS OF GPR PROFILES SUBSTATION AREA (SEE FIGURE 8 FOR LOCATIONS)

8/30/2007

FIGURE 9

Geo Solutions Ltd.

3.0 EM INTERPRETATION

3.1 Introduction

An EM evaluation was completed at the Badin Landfill and Alcoa Switchyard located in Badin, North Carolina. The following is a summary of findings.

3.2 Summary of Findings

An EM evaluation was completed at the Badin Landfill site located near Badin, North Carolina. The area of the investigation represented approximately 20 acres in area. The EM profiles were completed and maps produced illustrated the following:

1. Presence of anomalous conditions (areas where the in-phase EM values exceeded background conditions and are not explained by observed surface conditions) in the in-phase data indicated buried metal and metallic like debris within isolated regions of the landfill area. These areas represent approximately 0.75 acres of the whole landfill.

2. Other, smaller EM in-phase anomalies were also present as discrete zones, and represent less than 0.25 acres.

3. EM quadrature data (apparent conductivity) indicates anomalous soil conductivity conditions are present over larger areas than the in-phase EM anomalies (areas where the in-phase EM values exceeded background conditions and are not explained by observed surface conditions). The area affected by elevated conductivity values is in excess of 6.5 acres and is found in the southwestern ½ of the landfill.

4. Additionally, several conductivity anomalies coincide with the location of the boundary fence on the southwest side of the landfill. These data indicate the potential presence of material containing elevated conductivity present beyond the extent of the fenced property.

5. Likewise, elevated subsurface soil conductivity conditions are present at the site of suspected metal anomalies found beneath the Alcoa switchyard. The presence of carbon material found by Environeering in three borings suggests that the elevated conductivity values detected beneath the switching and transformers in the switchyard may be due impart to the presence of buried carbon.

4.0 GPR INTERPRETATION

4.1 Introduction

A total of 25 GPR survey profiles were collected over portions of the landfill area, and the fenced switchyard area. These profiles were collected to provide a verification of the continuity of the landfill clay cap and to evaluate the potential presence of buried debris within the detection depth of GPR (a depth less than 10 feet).

4.2 Landfill Summary of Findings

A total of 18 GPR profiles were collected within the Badin Landfill. Here, the depth of GPR detection was generally less than 10 feet. The continuity of the GPR profile records over the landfill proper is an indication that the cap is continuous. Shallow bed forms, as exhibited in GPR Profile 1 are an indication of the fill process during the construction of the clay cap. Bright GPR reflectors were not observed in the landfill records indicating that potential carbon fill material was not present at depths less than the detection depth of the GPR (generally less than10 feet).

4.3 Switchyard Summary of Findings

The GPR evaluation was completed as a series of 7 profiles that covered the accessible areas within the fenced switchyard and over portions of the switchyard where suspected metal and/or highly conductive carbon debris was indicated by the EM evaluation. Here, Geo Solutions found:

1. GPR penetration was limited in depth because of the clayey nature of the soil and the presence of highly conductive material at depth. However, several shallow zones were identified to contain potential buried debris because of the high contrast of the GPR reflectors. These areas are evidenced by bright GPR reflectors (Profiles A, B and C).

2. GPR penetration was sufficient only to evaluate the presence of bright reflectors (potential presence of buried carbon) to a depth of 4 feet.

5.0 CONCLUSIONS

EM and GPR evaluations conducted at the Badin landfill and the Alcoa switchyard indicates the following:

- The landfill cap is complete everywhere evaluated.
- Based on the GPR results, the presence of shallow buried debris was not detected in the landfill area.
- Based on the results of the EM Data, approximately 0.75 acres of the landfill contains potential buried metal debris. Smaller areas totaling less than 0.25 acres represent scattered buried metal debris.
- Based on the results of the EM data, approximately 6.5 acres of the landfill contains material with elevated conductivity values. Based on existing site borings, and our experience with carbon debris as other sites, we interpret this material to be buried carbon.
- This same material has been confirmed to be present beneath limited portions of the Alcoa switchyard, and represents less than 1.0 acre in area.

6.0 REFERENCES

Benson, R. C., Heckathorne, J. R., 2004, Geophysical Studies Report, Stauffer Chemical Company, Superfund Site, Tarpon Springs, Florida.

I.J. Won, D.A. Keiswetter, and E. Novikova, 1998, Electromagnetic induction spectroscopy, *Journal of Environmental and Engineering Geophysics*, v. 3, Issue 1, pp. 27-40.

Crowson, R. A., Allen, R. C., 2007, Use of Multi-frequency Electromagnetic Profiling in a Remedial Investigation at Camp Kohler, McClellan Air Force Base, Sacramento, California. SAGEEP 2007 Conference.

APPENDIX B

ABL BORING LOGS AND WELL CONSTRUCTION DETAILS

ENVIRONEERING, INC.
HOUSTON, TEXAS

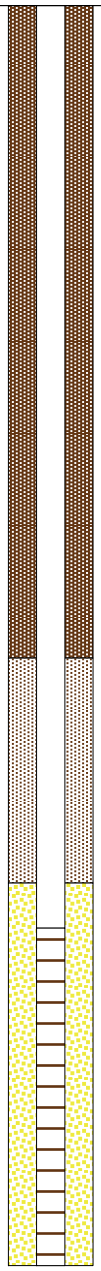
Log of : P-13

CLIENT:	Alcoa
PROJECT:	Badin Municipal Landfill - SWMU No. 2
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	American Env. Drilling
DRILLER:	K. Grant
DRILLING METHOD:	Geoprobe; Macrocore; Direct Push Well
GROUND SURFACE ELEVATION AND DATUM:	546.33'
DATE COMPLETED:	7/19/10
TOTAL DEPTH (ft.):	60'
BOREHOLE DIAMETER:	2.25"/3"
CASING:	0-41'
SLOT SIZE:	0.010"
SCREEN INTERVAL (ft.):	41-56'
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol
0			FILL: Topsoil with organic fragments	
2			FILL: Red to orange brown sandy clay, dry, medium stiff	
4			FILL: Tan brown sandy clay, minor pebble rock fragments, dry, medium stiff	
6			FILL: Dark gray to black silty sand, carbonaceous, red brick fragments (6.5'), dry, loose	
8				
10			FILL: Tan brown sandy clay with intermittent mottled clay saprolite fragments, gravel (12.5-13'), dry, medium stiff	
12				
14				
16			FILL: Dark gray to black silty sand, carbonaceous, minor pebble-sized fragments, dry, loose	
18				
20			FILL: Tan brown sandy clay with intermittent mottled clay saprolite fragments, dry, medium stiff	
22				
24				
26				
28			FILL: Blue gray to medium gray silty sandy clay, increasing organic fragments with depth, plastic sheeting fragments at 30', wood fragments at 33', rubber fragments at 34', dry to moist, medium stiff to very stiff	
30				
32				
34				
36				
38			FILL: Red brown, tan, and blue gray mottled sandy clay, metal fragments (39'), concrete fragments (42.5'), moist, medium to very stiff	
40				
42				
44				
46				
48			FILL: Blue gray gravel with minor sand/silt/clay, dry, loose	
50			FILL: Tan to light brown silty sand, poorly sorted, lightly cemented, dry, medium dense	
52			FILL: Gray and brown mottled silty clay, moist to wet, slight organic odor, soft	
54			FILL: Red brown, tan, and blue gray mottled sandy clay, minor gravel (54-54.5'), moist to dry, medium to very stiff	
56			SAPROLITE: Red brown sandy clay saprolite, dry, medium to very stiff	
58				
60			SWR: Soft weathered rock fragments	

TOC Elevation: 541.94

WELL CONSTRUCTION



WELL COMPLETED ABOVE GRADE

ENVIRONEERING, INC.
HOUSTON, TEXAS

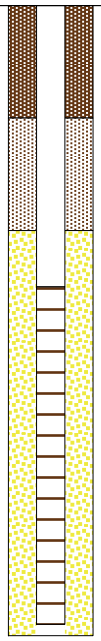
Log of : P-14

CLIENT:	Alcoa
PROJECT:	Badin Municipal Landfill - SWMU No. 2
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	American Env. Drilling
DRILLER:	K. Grant
DRILLING METHOD:	Geoprobe; Macrocore; Direct Push Well
GROUND SURFACE ELEVATION AND DATUM:	536.1'
DATE COMPLETED:	7/19/10
TOTAL DEPTH (ft.):	30'
BOREHOLE DIAMETER:	2.25"/3"
CASING:	0-12.5'
SLOT SIZE:	0.010"
SCREEN INTERVAL (ft.):	12.5-27.5'
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol
0			FILL: Topsoil with organic fragments	
2–8			FILL: Red to orange brown sandy clay, dry to moist (4.5'), medium stiff	
8–12			FILL: Tan brown silty clay, minor sand, moist, medium stiff	
12–14			FILL: Dark gray to black silty sand, carbonaceous, moist, loose	
14–16			FILL: Tan brown silty clay, minor sand, moist, medium stiff	
16			FILL: Tan to light brown sand, minor silt. dry, medium dense	
16–26			FILL: Dark gray to black silty sand, carbonaceous, brick fragments (24'), wet to saturated, loose	
26–30			SAPROLITE: Orange brown sandy clay saprolite, dry, medium to very stiff	

TOC Elevation: 541.94

WELL CONSTRUCTION



WELL COMPLETED ABOVE GRADE

ENVIRONEERING, INC.
HOUSTON, TEXAS

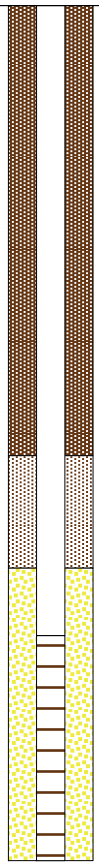
Log of : P-15

CLIENT:	Alcoa
PROJECT:	Badin Municipal Landfill - SWMU No. 2
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	American Env. Drilling
DRILLER:	K. Grant
DRILLING METHOD:	Geoprobe; Macrocore; Direct Push Well
GROUND SURFACE ELEVATION AND DATUM:	511.92'
DATE COMPLETED:	7/20/10
TOTAL DEPTH (ft.):	45'
BOREHOLE DIAMETER:	2.25"/3"
CASING:	0-28'
SLOT SIZE:	0.010"
SCREEN INTERVAL (ft.):	28-38'
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol
0			FILL: Topsoil with organic fragments	
2			FILL: Red brown sandy clay, dry, medium stiff	
			FILL: Orange brown sandy clay, dry, medium stiff	
4			FILL: Concrete and gravel fragments, dry, loose	
6			FILL: Orange brown sandy clay, dry, medium stiff	
8			FILL: Orange brown sandy clay with gravel, dry, medium stiff	
10			FILL: Orange brown sandy clay, dry to moist (12.5'), medium stiff	
12				
14				
			FILL: Concrete fragments, minor lime, dry, loose	
16			FILL: Medium brown silty clay, minor pebbles, few organic fragments, moist, medium stiff	
18				
20			FILL: Orange brown sandy clay, few saprolite fragments, trace organic fragments (23-23.5'), moist, medium stiff	
22				
24				
26				
28			FILL: Medium to dark brown silty clay, trace sand, few organic fragments, moist to wet, soft	
30				
32			FILL: Orange brown silty sand, minor gravel, moist to wet, medium dense	
34			FILL: Orange brown sandy clay, moist to wet, medium stiff	
36			FILL: Gravel with minor sand/silt/clay, wet to saturated, loose	
38			FILL: Medium gray silty clay, few organic fragments, saturated, soft to very soft	
40			SOIL: Red brown silty clay, minor SWR fragments, saturated, soft	
42				
44			SAPROLITE: Orange brown silty clay saprolite, moist, medium to very stiff	
46				
48				
50				
52				
54				
56				
58				
60				

TOC Elevation: 541.94

WELL CONSTRUCTION



WELL COMPLETED ABOVE GRADE

ENVIRONEERING, INC.
HOUSTON, TEXAS

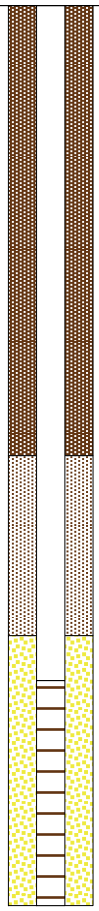
Log of : P-16

CLIENT:	Alcoa
PROJECT:	Badin Municipal Landfill - SWMU No. 2
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	American Env. Drilling
DRILLER:	K. Grant
DRILLING METHOD:	Geoprobe; Macrocore; Direct Push Well
GROUND SURFACE ELEVATION AND DATUM:	507.49'
DATE COMPLETED:	7/21/10
TOTAL DEPTH (ft.):	40'
BOREHOLE DIAMETER:	2.25"/3"
CASING:	0-30'
SLOT SIZE:	0.010"
SCREEN INTERVAL (ft.):	30-40'
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol
0			FILL: Topsoil with organic fragments	
2			FILL: Red brown silty clay, dry, medium stiff	
4–10			FILL: Orange brown to tan brown sandy clay, minor gravel, 2" organic lens (4.5'), 2" brick fragment (9'), small metal fragments (9.5'), dry, medium stiff	
12			FILL: Orange brown silty clay saprolite, dry, medium stiff	
14			FILL: Blue gray sandy clay, dry, medium stiff	
16			FILL: Orange brown to tan brown sandy clay, minor gravel, dry, medium stiff	
18			FILL: Light gray gravel with minor sand/silt/clay, dry, loose	
20			FILL: Orange brown silty clay, brick fragment (19.5'), dry to moist (18'), medium stiff	
22			FILL: Light gray gravel with minor sand/silt/clay, dry, loose	
24			FILL: Red brown silty clay, dry to moist, medium stiff	
26–30			FILL: Orange brown silty clay, moist, medium stiff	
32–36			FILL: Dark gray to black silty sand, carbonaceous, basal gravel, wet to saturated, loose	
38			FILL: Red brown clayey sand to sandy clay, wet, soft	
40			SAPROLITE: Orange brown silty clay saprolite, moist to dry, medium to very stiff	

TOC Elevation: 541.94

WELL CONSTRUCTION



WELL COMPLETED ABOVE GRADE

ENVIRONEERING, INC.
HOUSTON, TEXAS

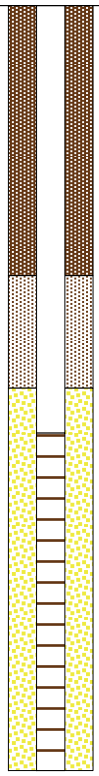
Log of : P-17

CLIENT:	Alcoa
PROJECT:	Badin Municipal Landfill - SWMU No. 2
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	American Env. Drilling
DRILLER:	K. Grant
DRILLING METHOD:	Geoprobe; Macrocore; Direct Push Well
GROUND SURFACE ELEVATION AND DATUM:	504.07'
DATE COMPLETED:	7/20/10
TOTAL DEPTH (ft.):	40'
BOREHOLE DIAMETER:	2.25"/3"
CASING:	0-19'
SLOT SIZE:	0.010"
SCREEN INTERVAL (ft.):	19-34'
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol
0			FILL: Topsoil with organic fragments	
2			FILL: Red brown slightly sandy silty clay, dry, stiff	
4, 6			FILL: Tan brown to gray brown sandy clay, minor saprolite fragments, dry, stiff	
8			FILL: Light gray sandy silt, consistency like loose lime, dry, soft	
10, 12, 14, 16, 18, 20			FILL: Tan brown to gray brown sandy clay, minor saprolite fragments (17.5-18), 1" gravel lens (17' and 18.5'), 1" organic fragment lens (19'), dry to moist (13.5'), stiff	
22, 24, 26			FILL: Tan brown silty clay, 1" gravel lens (24'), moist to wet, soft	
28, 30, 32			FILL: Dark gray to black silty sand, carbonaceous, minor localized wood fragments, wet, loose	
34			FILL: Tan brown, red brown, and orange brown sandy clay, wet to moist, soft	
36			SOIL: Medium gray silty clay, few root traces, moist, stiff	
38			SOIL: Medium gray silty sand, wet, medium dense	
40			SAPROLITE: Red brown silty clay saprolite, moist, medium to very stiff	
42, 44, 46, 48, 50, 52, 54, 56, 58, 60				

TOC Elevation: 541.94

WELL CONSTRUCTION



WELL COMPLETED ABOVE GRADE

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : P-18

CLIENT:	Alcoa	GROUND SURFACE ELEVATION AND DATUM:	471.2'
PROJECT:	Badin Municipal Landfill - SWMU No. 2	DATE COMPLETED:	7/20/10
PROJECT LOCATION:	Badin, NC	TOTAL DEPTH (ft.): 10'	BOREHOLE DIAMETER: 2.25"/3"
DRILLING COMPANY:	American Env. Drilling	CASING: 0-2.2'	SLOT SIZE: 0.010"
DRILLER:	K. Grant	SCREEN INTERVAL (ft.):	2.2-7.2'
DRILLING METHOD:	Geoprobe; Macrocore; Direct Push Well	GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: 541.94 WELL CONSTRUCTION
0			FILL: Topsoil with organic fragments		
2			FILL: Orange brown sandy clay, moist to wet, medium stiff		
4			SOIL: Dark gray silty clay, minor sand, wood fragments (4.5-5'), saturated, soft		
6					
8			SOIL: Medium gray to blue gray silty clay, minor orange brown mottled lenses, moist, medium stiff		
10					
12					
14					
16					
18					
20					
22					
24					
26					
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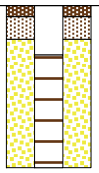


WELL COMPLETED ABOVE GRADE

ENVIRONEERING, INC.
HOUSTON, TEXAS

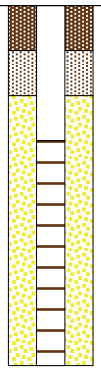
Log of : P-19

CLIENT:	Alcoa
PROJECT:	Badin Municipal Landfill - SWMU No. 2
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	American Env. Drilling
DRILLER:	K. Grant
DRILLING METHOD:	Geoprobe; Macrocore; Direct Push Well
GROUND SURFACE ELEVATION AND DATUM:	505.07'
DATE COMPLETED:	9/30/10
TOTAL DEPTH (ft.):	20'
BOREHOLE DIAMETER:	2.25"/3"
CASING:	0-6'
SLOT SIZE:	0.010"
SCREEN INTERVAL (ft.):	6-16'
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol
0			FILL: Topsoil with organic fragments	
2			FILL: Red brown slightly sandy silty clay, moist, stiff	
4, 6, 8			FILL: Orange brown clayey silt, minor saprolite fragments, dry to wet (8'), stiff	
10			FILL: Dark gray silty clay, minor organic fragments, plastic fragments (9.5'), wood fragments (14'), wet to saturated, soft	
12			FILL: Red brown silty clay, moist, stiff	
14, 16			FILL: Dark gray silty clay, minor organic fragments, plastic fragments (9.5'), wood fragments (14'), wet to saturated, soft	
18			SOIL: Red brown silty clay, moist to dry (16.5'), soft to stiff (16.5')	
20			SAPROLITE: Tan brown to gray silty clay saprolite, dry, medium to very stiff	

TOC Elevation: 541.94

WELL CONSTRUCTION



WELL COMPLETED ABOVE GRADE

APPENDIX C

ALCOA BADIN WORKS PLANT – PINE TREE GROVE AREA GEOPHYSICAL SURVEY

GEOPHYSICAL EVALUATION AT THE ALCOA-BADIN WORKS FACILITY
ALCOA-BADIN WORKS FACILITY SWMU NO. 44: PINE TREE GROVE AREA
BADIN, NORTH CAROLINA

PREPARED FOR ENVIRONEERING, INC.

by

GEO SOLUTIONS LIMITED, INC.
RALEIGH, NORTH CAROLINA

JULY 2012

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1.0 INTRODUCTION

Geo Solutions Limited, Inc. ("*Geo Solutions*") is pleased to submit this report to Environeering, Inc., ("*Environeering*") for a geophysical survey at the Alcoa-Badin Works Facility SWMU No. 44: Pine Tree Grove Area ("*Pine Tree Grove Area*"), Badin, North Carolina.

1.1 Background

Environeering requested Geo Solutions complete a multi-phase geophysical evaluation of this identified SWMU at the Alcoa-Badin Works facility in Badin, North Carolina (Figure 1). The purpose of the geophysical survey was to evaluate the extent and nature of buried fill materials.

The Pine Tree Grove Area is located in the North End of the Badin facility adjacent to Badin Lake and outside of the plant's fenced area. The North End is characterized by a natural west-east trending valley that was progressively filled during the period between 1916 and 1968. The Pine Tree Grove Area, located at the eastern end of the valley, is a former prong of Badin Lake, which was filled between 1938 and 1951. Filling of the Pine Tree Grove Area was completed between 1959 and 1961. The site was a suspected waste management area that is designated as SWMU No. 44 in the March 2001 RCRA Facility Investigation Report.

Fill material reportedly consisted of soil, brick, construction debris, and carbonaceous and non-carbonaceous plant waste materials. In 1996, high conductivity areas of the fill material were previously located using EM geophysics by Geophex, Ltd. Geophex identified the approximate boundary of fill material on a site map but did not provide a coordinate outline or depth to the top or bottom of the fill material.

As part of assessment activities, several borings and monitoring wells have been completed to evaluate the potential impact of fill activities in the area. This information, along with the results of this survey, will identify if the fill material is above or below the groundwater at the unit and whether that location of fill material is adversely impacting groundwater quality. This information is essential in determining the best and most efficient way to apply remedial technologies.

1.2 Scope of Work

Geophysical activities at the site consisted of an electromagnetic ("*EM*") profile mapping of the site and immediate surrounding area. An EM survey can be used identify the distribution of fill material containing varying apparent electrical conductivity. Following the completion of the EM survey, Geo Solutions completed a ground-penetrating radar ("*GPR*") survey over three profile lines (approximately north south through the property. The purpose of a GPR survey was to evaluate, if possible, the vertical distribution of fill material (depth to top and bottom). Finally, Geo Solutions completed multiple seismic profiles using standard seismic refraction methods to evaluate the depth to bedrock, the depth to the former natural west-east trending valley, and the vertical distribution of fill material. Seismic refraction is generally used to estimate the pressure (p-wave) velocity in the shallow subsurface. The p-wave velocity is directly related to soil/rock strength.

1.3 Field Activities

During the week of July 11, 2011, Geo Solutions completed field activities at the site. These activities utilized three geophysical techniques:

1. First, Geo Solutions completed a multifrequency EM survey of site. The EM survey was used to evaluate the extent of fill materials and the distribution of varying conductivity as it is related to the fill.

2. Second, Geo Solutions completed a mid to low-frequency GPR evaluation of the site. The GPR was completed to evaluate the presence or absence of fill materials, and may indicate subsurface structures which can be used to evaluate the thickness and distribution of past filling activities.

3. Third, Geo Solutions completed a limited seismic refraction survey at suspected fill boundaries and potential locations of fill material. The seismic refraction survey was used to evaluate the thickness of potential fill material and the depth to bedrock.

1.4 Site Conditions

Geo Solutions arrived on site during the morning of July 13, 2011. According to the local weather reports the site had not received any rainfall during the previous day. As a result the site surface dry, no standing water was observed anywhere on the site. A majority of the field area was covered by dense tree and undergrowth vegetation and an open area that had recently been cut-over using a bush-hog. This portion of the field area had a thick layer of mulched wood and loose branches. Outlying areas were covered with well-maintained grass cover, and sparse shrubs and trees.

Geo Solutions completed a site inspection over the area to be surveyed. Here we found the surface to be relatively smooth with the exception of a few small depressions less than 1 foot deep, a steep (approximately 5 to 6 feet high) ledge that makes up a drainage low that eventually leads to a storm drain beneath NC Highway 740 leading to Badin Lake.

2.0 GEOPHYSICAL TECHNIQUES

2.1 Multifrequency Electromagnetic Survey

2.1.1 Introduction

The EM Method is a non-contact (uncoupled) geophysical method that utilizes a multiple frequency electromagnetic detector (Geophex Model GEM-2). The EM instrument collects electromagnetic responses in the in-phase (metal detection or magnetic susceptibility mode) and quadrature (conductivity) mode. An object, made partly or wholly of metals or conductive materials, has a characteristic combination of electrical conductivity, magnetic permeability properties, and a geometrical shape and size. When the object is exposed to a low-frequency electromagnetic field, it produces a secondary magnetic field. By measuring the broadband spectrum of the secondary field, it is possible to obtain a distinct spectral signature that may uniquely identify the object. Thus the response spectrum from buried material becomes a clue or a "fingerprint" of the material. This is the basic concept of electromagnetic induction spectroscopy ("*EMIS*") (Won, et. al. 1998).

EMIS technology is useful in characterizing buried material (either metal bearing or conductive). In this case, Geo Solutions was interested in evaluating the distribution of buried material containing electrically highly conductive carbon and metal. Based on our experience with buried carbon debris at an NPL Site located in Tarpon Springs Florida, buried carbon material exhibits very high quadrature (apparent conductivity) values when compared with a non-carbon bearing host material (Benson, et. al., 2004). The high conductivity values are generally exhibited across all EM frequencies. Metal bearing materials (such as steel) tend to have lower conductivity responses and higher in-phase responses. As a result, a comparison of apparent conductivity values with the in-phase (metal detection mode) values provides insight as to the composition and extent of buried material with anomalous high in-phase and apparent conductivity values.

2.1.2 Field Activities

The GEM-2 was operated in remote control configuration while evaluating the site. In this mode the GEM-2 unit is mounted on PVC tubular sled positioned approximately .75 meters from the ground surface. The receiving coil (detector coil) is situated directly above the exposed ground surface. The EM in-phase and conductivity data were collected simultaneously at nine varying frequencies (810 Hz, 2310 Hz, 3870 Hz, 6570 Hz, 11070 Hz, 18750 Hz, 31590 Hz, 53370 Hz, and 90030 Hz).

Data was collected at the rate of six samples per second. The position of each sample point was measured utilizing a CSI Wireless SERES global positioning system ("*GPS*") with a data update rate of 6 Hz (Crowson et. al. 2007). These data were transferred from the GEM-2 unit to a portable laptop computer that was carried on board a 4WD vehicle (Polaris Ranger with covered cab area). The sample spacing is thus a function of rate of travel of the sled. Here, Geo Solutions collected data along straight survey lines at 1.5 to 2 ft. intervals. The location of the EM data points is presented in Figure 2.

Photograph showing typical deployment of EM unit mounted on sled, as configured for this evaluation.

The EM data was transferred from the GEM-2 to a laptop computer using the WinGEM Version 3 software provided by the manufacturer. During the transfer process, the WinGEM software assigns UTM metric coordinates to each data collection station, and calculates the apparent conductivity, sum of conductivity, and magnetic susceptibility for each frequency collected using the system software. These data were then transferred to a Microsoft Excel Spread Sheet and reviewed for data anomalies such as poor GPS confidence levels that would likely result in poor coordinate assignments. These data were used to compile a series of maps illustrating various responses using a simple 3D mapping program (Golden Software's Surfer Mapping System Version 11).

2.1.3 EM In-Phase Survey

The results of the EM data were reviewed across all frequencies for both the in-phase (metal detection) and quadrature (apparent conductivity) modes. Based on this review the nine collection frequencies, the 11,070 Hz frequency in-phase data was selected to identify the location of potentially buried metal debris (Figure 3). The 11,070 Hz frequency was chosen because it is a similar EM frequency used by the Geonics EM-31, and it appeared to provide a uniform (low noise level) representation of the overall data base in comparison of the other eight frequencies.

2.1.4 EM Apparent Conductivity Survey

Similarly, Geo Solutions collected EM data over the site for variations in apparent conductivity. Geo Solutions compiled the average of the sum of conductivity across each frequency, which enables the EM data to reflect subtle changes in conductivity while also showing large anomalous conditions.

A map illustrating the results of the average of the sum of all collected conductivity values is presented as Figure 4. In Figure 4, areas of high soil conductivity (red and yellow hues) are generally more widespread than the distribution of suspected buried metal debris. However, zones of strong positive soil conductivity generally coincide with locations of potentially buried very conductive (electrically) debris. These conductive areas may also reflect changes in the overall conductivity of groundwater. However, given the magnitude of the conductivity values it is more likely a result of highly conductive material such as carbonaceous material.

2.1.5 Data Quality

The EM data was consistent with the field observations made during the survey. Care was taken to reduce the possible contact of the GEM-2 unit with vegetation, and field notes were collected in order to better identify potential surface debris so that its location can be later identified on maps.

2.1.6 Limitations

The EM depth of detection was not ascertained during this evaluation. However, in general, EM commonly detects to depth in excess of 20 feet (within the limits of the anticipated fill thickness identified by Environeering.

2.2 Ground-Penetrating Radar

2.2.1 Introduction

GPR is an effective geophysical tool used to establish vertical and horizontal variations of certain electrical properties of soil. GPR is a noninvasive electromagnetic geophysical technique that utilizes radio frequency EM energy to detect various layers in the earth's shallow subsurface. It is widely used in environmental site characterization and landfill construction verification. It may be deployed from the surface by hand or vehicle (sled).

Typical setup of GPR using a towed sled (left) and the Model 3000 display (right).

GPR has the highest resolution of any geophysical method for imaging the subsurface, with centimeter scale resolution sometimes possible. However, GPR investigations usually are affected by subsurface conditions:

1. Soil composition affects the depth of detection (i.e. higher clay content generally equal lesser depths of penetration of the radar signal and thus the lesser depths of detection).

2. Presence of highly conductive material (i.e., less resistive material) generally equals poorer quality of recovered data and shallower sounding depths. Conductive material enhances the attenuation of the radar signal, thus reducing the depth of penetration.

2.2.2 Field Activities

The GPR data was collected on the GSSI Model 3000 GPR unit equipped with a 200 MHz antenna, and visually reviewed in the field for completeness and reliability. The GSSI Model 3000 unit uses a digital survey wheel to determine the distance between each vertical survey GPR sounding. These data are also collected along with the time domain records of the GPR. These data were post-processed using GSSI Radar Radan Version 6 software. In general, the GPR records can detect up to 3 feet bls for the 400 MHz, and 6 feet bls for the 200 MHz antennas. The presence of clay capping material generally reduces the depth of penetration for GPR. Geo Solutions anticipated a shallower depth of detection given the presence of clay in surficial soils and elevated conductivity values identified in the EM evaluation.

2.2.3 GPR Survey

Because the GPR data was limited to 8 feet of penetration a partial examination of the land fill record was possible. The location of each of the profiles lines for all of the GPR data is presented in Figure 6.

2.2.4 Data Quality

The quality of the GPR data was average, with a high signal-to-noise ratio to a depth of 8 feet and poorer quality information in very few areas to a depth of 10 feet. The observed data related well to the observed site conditions: where EM records indicated buried material the GPR records exhibited sharp GPR reflectors to depths of 8 feet. Elsewhere, where fill material was composed of more clayey and conductive material poor GPR penetration to only 3 feet was observed.

2.2.5 Limitations

GPR data is limited by the type of soil and the presence or absence of groundwater. Here, a high quantity of clay in the upper units prevented detection to the target depth of +20 feet below land surface ("*bls*"). Therefore, the GPR detection was limited to approximately 3 to 8 feet bls. Thus the GPR records extended only through the top of the fill material.

2.3 Seismic Refraction (SRA)

2.3.1 Introduction

The seismic refraction method (SRA) was utilized at this site to evaluate the depth to bedrock. This method is a widely used technique that uses a seismic wave generator and a series of geophones equally spaced along a straight line. The SRA method was utilized at this location as opposed to a MASW method because of the rough ground surface. Here, the SRA survey was completed with minimum site clearing and without removal of leaf ground cover. Geo Solutions utilizes a Geometrics Geode seismic unit to complete refraction profiles to depths of 50 feet.

In this method, seismic waves travel outward from a source and reach a detector. The detector first senses the waves that went directly to it along the ground surface, and then it senses waves that went downward, were bent (refracted) at a deep layer, then left the deep layer and came back to the surface. Because the waves move faster in the deep layer, they catch up to the surface waves the farther you go from the source. At a certain distance (the crossover point), the refracted waves reach the detector first. Using a well-known computer program it was possible to establish the vertical and horizontal distribution of p-wave velocities. This information was used to evaluate the top of bedrock and the strength of overlying soils.

2.3.2 Field Activities

The seismic equipment is composed of four basic units: seismic energy source (a drop hammer weighing 40-lbs); 24 geophones placed in a linear array at 10-ft spacing with a total length of each profile line of 230-ft; a data processing unit (a 24-channel Geometrics Geode System); and a data collection system operated from a portable laptop computer.

The seismic survey is completed with the placement of 24 spiked geophones into the ground along 10-ft spacing. Once placement is completed the geophone array is hooked up to the Geode processing unit and laptop. When the data acquisition module, the Geode data processing unit is booted up a series of internal checks are conducted. Errors in timing, geophone connectivity, and system operation are exhibited on the monitor. If error messages do appear, then data collection will not proceed until all errors are resolved. This internal check represents the internal calibration of the instrument. Additionally, once the system has been successfully booted-up the first testing of each geophone is monitored by the geophysicist. Typically a few geophones may appear to be "noisy" due to placement near a tree root and near a grounded branch that is moving due to wind. These conditions are generally easily corrected by removal of the movement or replacement of the geophone to a less noisy area. Once all of the geophones have been deemed "clear of noise" the geophysical survey can begin.

Given the designed depth of the survey Geo Solutions collected a total of seven hammer point locations along each of the 24 geophone alignments. Four of the hammer points were collected outside of the survey line and three inside. The number of hammer events per hammer point was determined by the geophysicist as each seismic record was collected (5 hammer drops per hammer point location). The seismic data was reviewed on the data collection screen. The

geophysicist reviewed each data collection event and determined the relative cleanness and reliability of the records. Most important to the geophysicist was the identification of the "first arrival time" measured directly from each geophone. In essence, the clearer this measurement is the better the quality of data.

2.3.3 SRA Survey

Each SRA profile line is completed as a single profile with 7 data files associated with hammer point along each line. These data are collected and stored on the laptop computer. A duplicate copy of this data is transferred to a USB Memory Stick. These data are later transferred to a large desktop computer equipped with the Geometric SeisImager Software used to process and the seismic data and prepare the interpreted depth to rock profiles. The processing of the data is completed by an experienced geophysicist in accordance with the Geometrics Software Operation Manual provided with the software.

2.3.4 Data Quality

Potential adverse conditions that may adversely affect the data collection include nearby road activity (data was not collected when roadway vehicles were observed; rainfall events (no rainfall events occurred during the completion of the survey), and large low flying aircraft. When these events are observed on the seismic monitoring screen, data collection will be paused until the collection conditions improve.

2.3.5 Limitations

SRA surveys are affected/limited by the type of soil and the presence or absence of groundwater. The SRA analysis is largely based on the concept of "Snell's Law" where p-waves are refracted between geologic layers as a function of contrasting rock strength. As such, the solution models assume that rock strength increases with depth. The analysis model "falls-apart" when rock or soils become seismically slower with depth.

3.0 EM INTERPRETATION

Geo Solutions evaluated the EM results of the in-phase and apparent conductivity data from each collected frequency. Based on this review, Geo Solutions selected the 11,070 Hz data to best represent the results of the EM in-phase survey. The following is a summary of the results:

1. In-phase data indicated non-uniform conditions over nearly the entire site. Three distinct regions within the site exist: A) a very strong anomaly located along the north edge of the fill area (physiographically, this represents a 5 ft high break in topography; B) a second region that represents a weaker anomaly located south and west of the strongest anomaly; C) a larger zone of small anomalies that are disperse and cover portions of the wooded and grassy area.

2. The following is a list of coordinates that define the outline the horizontal distribution of the combined in-phase and apparent conductivity data that indicate a distinction between areas containing buried conductive materials and that of the natural background conditions.

Location	Easting	Northing
1	1667646	606914
2	1667676	606848
3	1667737	606660
4	1667548	606589
5	1667530	606631
6	1667453	606603
7	1667429	606662
8	1667521	606698
9	1667503	606750
10	1667360	606703
11	1667336	606728
12	1667322	606758
13	1667324	606781
14	1667353	606834
15	1667344	606877
16	1667469	606912

4.0 GPR INTERPRETATION

Geo Solutions evaluated the GPR results from the profile data collected. The following is a summary of the results:

1. The quality of the GPR data was average, with a low signal-to-noise ratio beginning at a depth of 8 feet. The maximum GPR probing depth was approximately 10 feet.

2. The observed data related well to the observed site conditions: where EM records indicated buried material the GPR records exhibited sharp GPR reflectors to depths of 8 feet. Elsewhere, where fill material was composed of more clayey material poor GPR penetration of only 3 feet was observed.

3. Analysis of the records confirmed the presence strong GPR reflectors indicative of fill materials. These records were confirmed to depths of 10 feet. However, these data most likely did not intersect the base of the fill material. As such, the fill materials likely extend to greater depth.

4. The GPR records diminish is quality over zones identified to contain anomalously elevated apparent conductivity values. This is a typical response to GPR records collected in highly conductive soils.

5.0 SEISMIC INTERPRETATION

Geo Solutions evaluated the RSA Seismic Survey results from the profile data collected. The following is a summary of the results:

1. The RSA seismic survey results indicated the depth to unweathered rock as shallow as 5 ft bls and as deep as 30 ft bls and averages approximately 20 ft bls across the field area. The shallowest rock occurs along the northern edge of the field area.

2. A comparison was made between the relative depth to competent rock, the estimated surface elevation, and the estimated elevation of the water surface prior to the filling of the valley. This comparison suggests that competent rock was not exposed in the valley walls. Due to the limitations of the method, the depth of fill is best evaluated using pre-fill topographic maps.

3. The shallow fill material could not be differentiated by composition. As such it was not possible to identify carbonaceous fill from regular non-carbonaceous material. This may be a result of a relative shallow burial of the fill that could not be picked-up by seismic methods, or the carbonaceous material seismically has the same properties as regular fill.

6.0 CONCLUSIONS

EM, GPR, and SRA seismic evaluations conducted at the Pine Tree Grove Area indicate the following:

- EM results indicate a distinct zone of anomalously elevated in-phase and apparent conductivity values coincident with the location of a suspected burial of carbonaceous material. The dominant EM anomaly is located in designated area A. Lesser intense EM anomalies are identified in areas B and C.

- Geo Solutions has interpreted the presence of low and probably background EM values for the remainder of the site to indicate no other burial of carbonaceous material is likely present elsewhere on the site.

- GPR data was average except in those areas known to have elevated conductivity values. The depth of penetration of the GPR signal was generally up to 8 feet over the grassy area and only 2 to 3 feet in the wooded and recently cleared areas.

- Seismic data confirmed the depth to unweathered bedrock at the site. The depth to bedrock ranged from 5 feet bls to 30 feet bls. The carbonaceous material (conductive) could not be seismically distinguished from other fill materials (low conductivity).

7.0 REFERENCES

Benson, R. C., Heckathorne, J. R., 2004, Geophysical Studies Report, Stauffer Chemical Company, Superfund Site, Tarpon Springs, Florida.

I.J. Won, D.A. Keiswetter, and E. Novikova, 1998, Electromagnetic induction spectroscopy, *Journal of Environmental and Engineering Geophysics,* v. 3, Issue 1, pp. 27-40.

Crowson, R. A., Allen, R. C., 2007, Use of Multi-frequency Electromagnetic Profiling in a Remedial Investigation at Camp Kohler, McClellan Air Force Base, Sacramento, California. SAGEEP 2007 Conference.

Zhang, S.X., Chan, L.S., and Xia, J., 2004, The selection of field acquisition parameters for dispersion images from multichannel surface wave data: Pure and Applied Geophysics, 161,185–201.

Figure 1 – Location Map
Figure 2 – Location of EM Profile Lines
Figure 3 – Results of 11,070 Hz In-phase EM Data
Figure 4 – Results of Apparent Conductivity EM Data
Figure 5 – Combined In-phase and Apparent Conductivity EM Data
Figure 6 – Location and Results of GPR Profile Records
Figure 7 – Location and Results of RSA Seismic Profile Lines

Figure 1. Location of the Pine Tree Grove Site, SWMU No. 44, Alcoa-Badin Works, Badin, North Carolina (outlined in yellow).

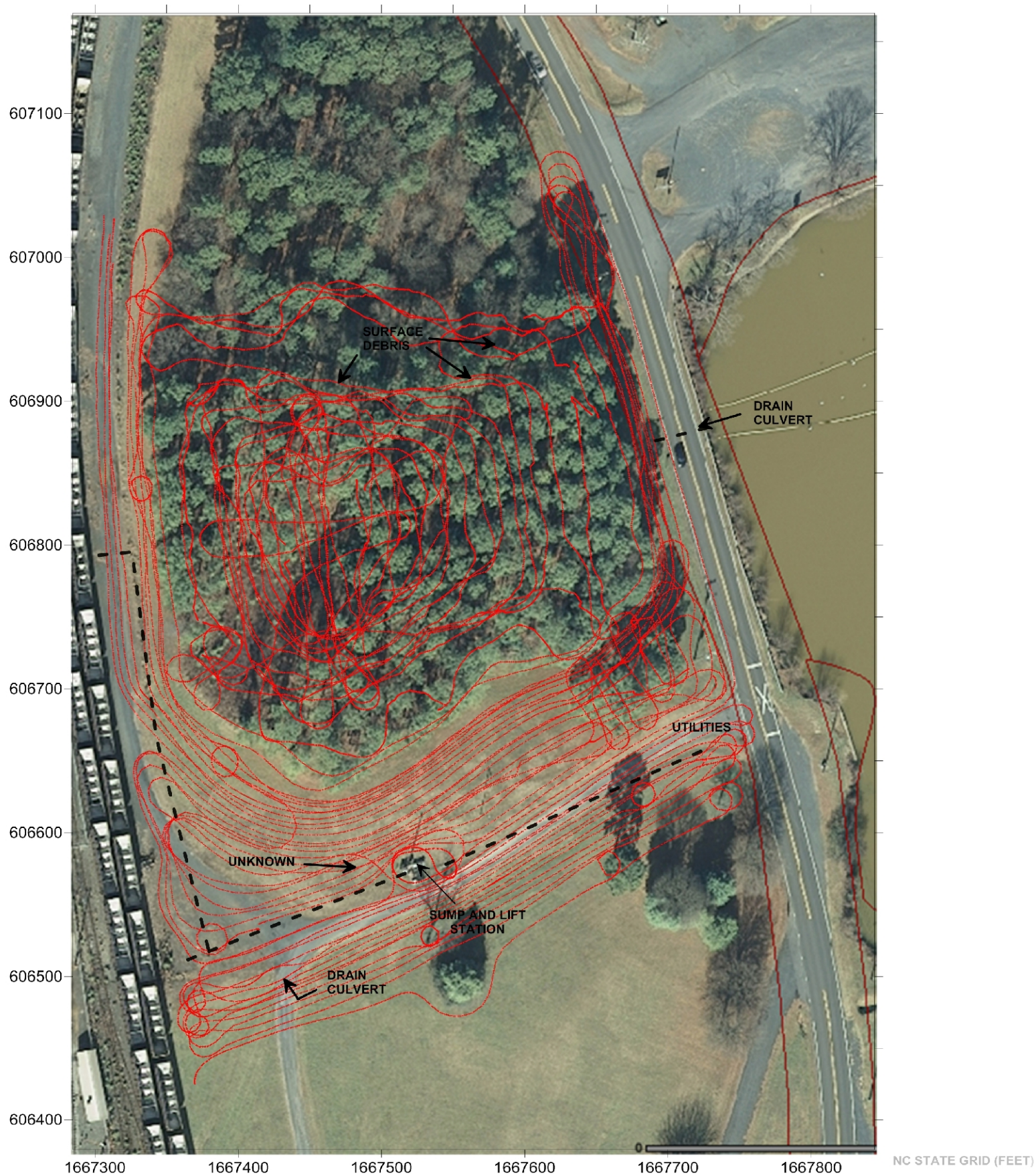


FIGURE 2

PINE TREE GROVE SITE
SWMU NO. 44

RESULTS OF EM SURVEY

LOCATION OF BURIED UTILITY

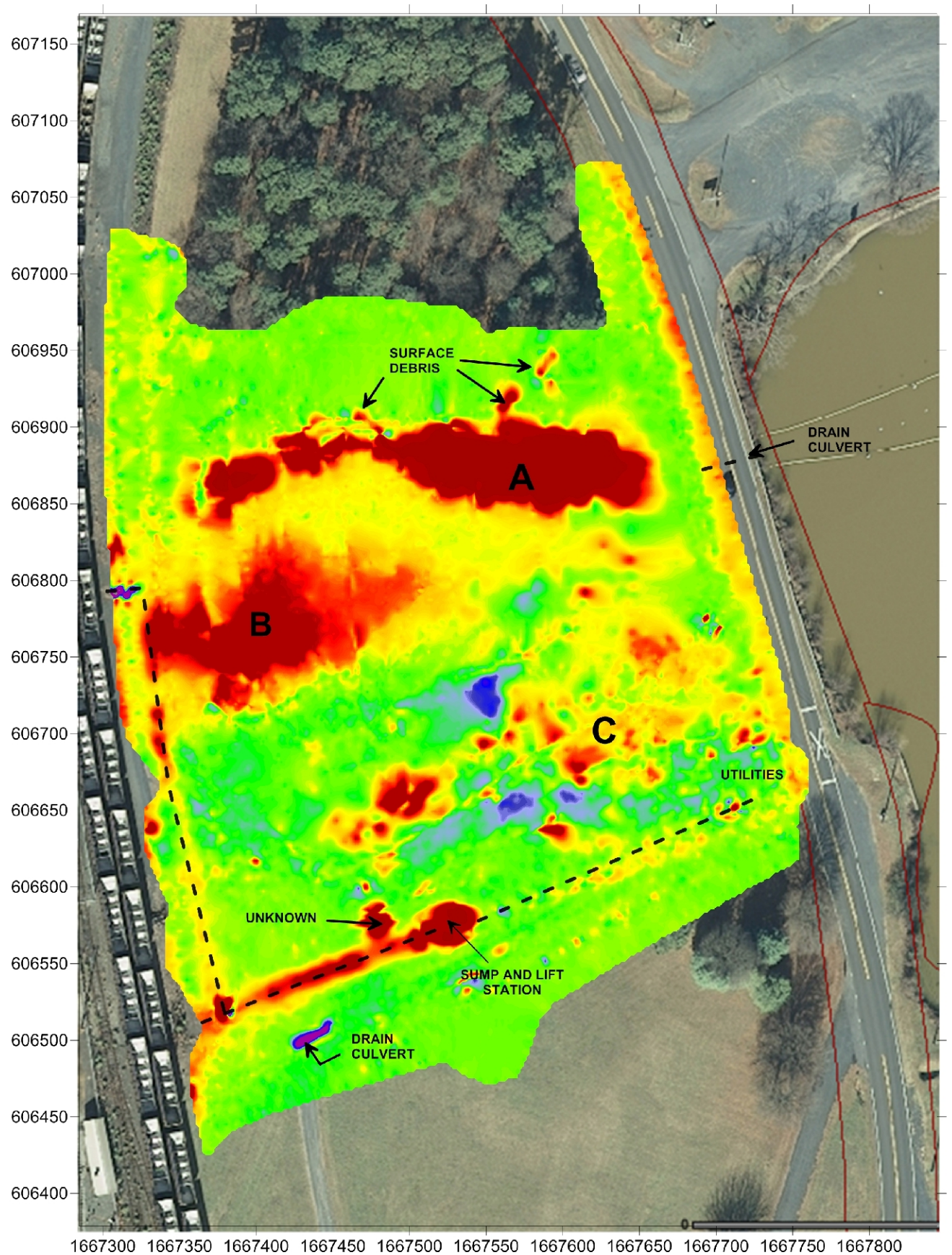
LOCATION OF EM PROFILE LINES

EM PROFILE LINES COMPLETED EVERY 3 TO 5 FEET WITH DATA POINTS EVERY 0.5 FT ALONG EACH PROFILE LINE

ALCOA-BADIN WORKS
BADIN, NORTH CAROLINA

0 200
SCALE IN FEET

Geo Solutions Ltd.

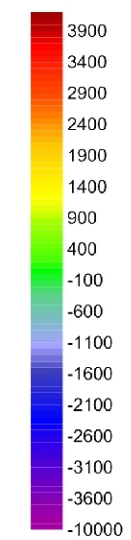


PINE GROVE SITE

FIGURE 3

RESULTS OF EM PROFILE LINES

LOCATION OF BURIED UTILITY



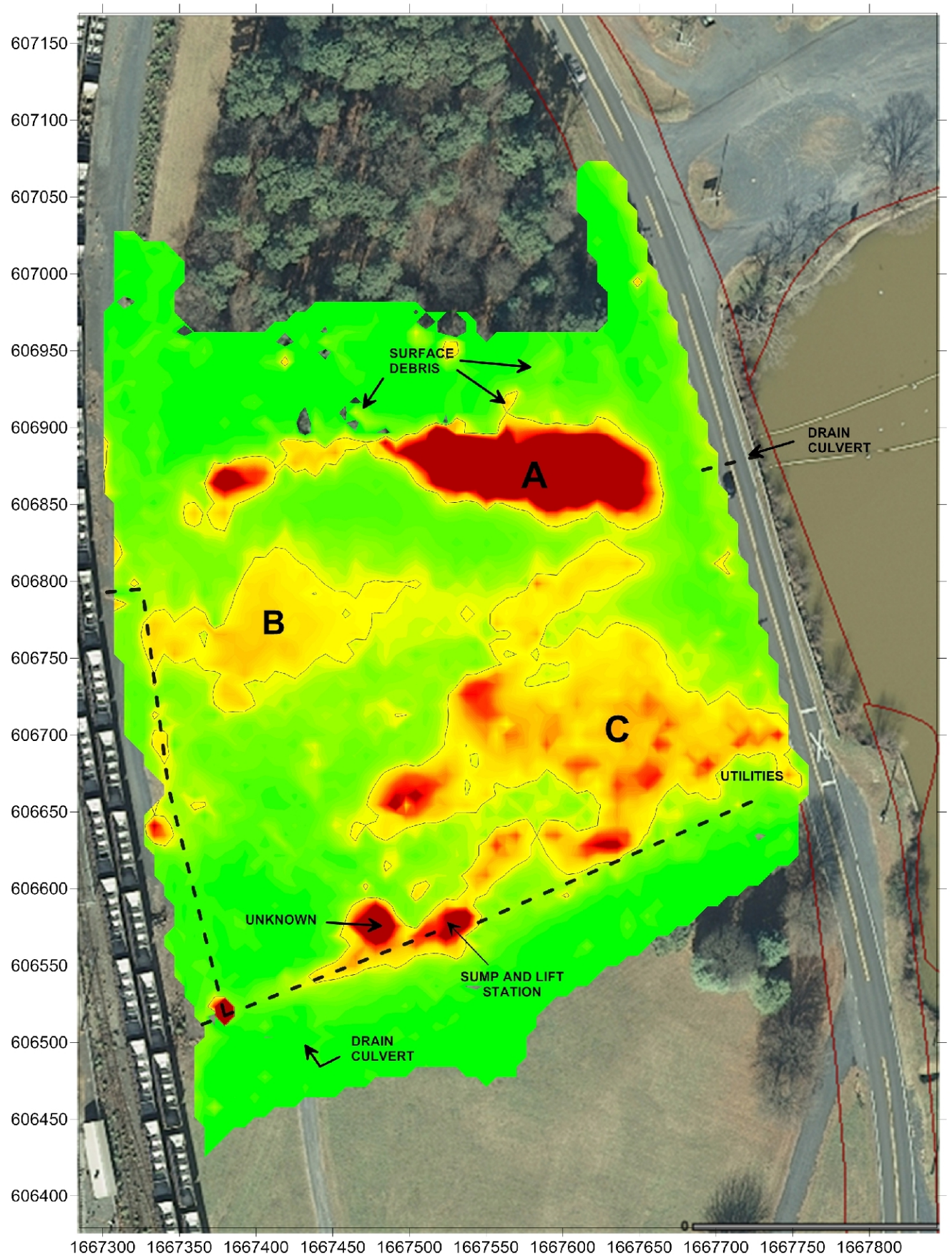
IN-PHASE DATA
11070 Hz
(PPM)

EM PROFILE LINES COMPLETED EVERY 3 TO 5 FEET WITH DATA POINTS EVERY 0.5 FT ALONG EACH PROFILE LINE

ALCOA-BADIN WORKS
BADIN, NORTH CAROLINA

0 100
SCALE IN FEET

Geo Solutions Ltd.



PINE GROVE SITE

FIGURE 4

RESULTS OF EM PROFILE LINES

LOCATION OF BURIED UTILITY

875
700
525
350
175
0

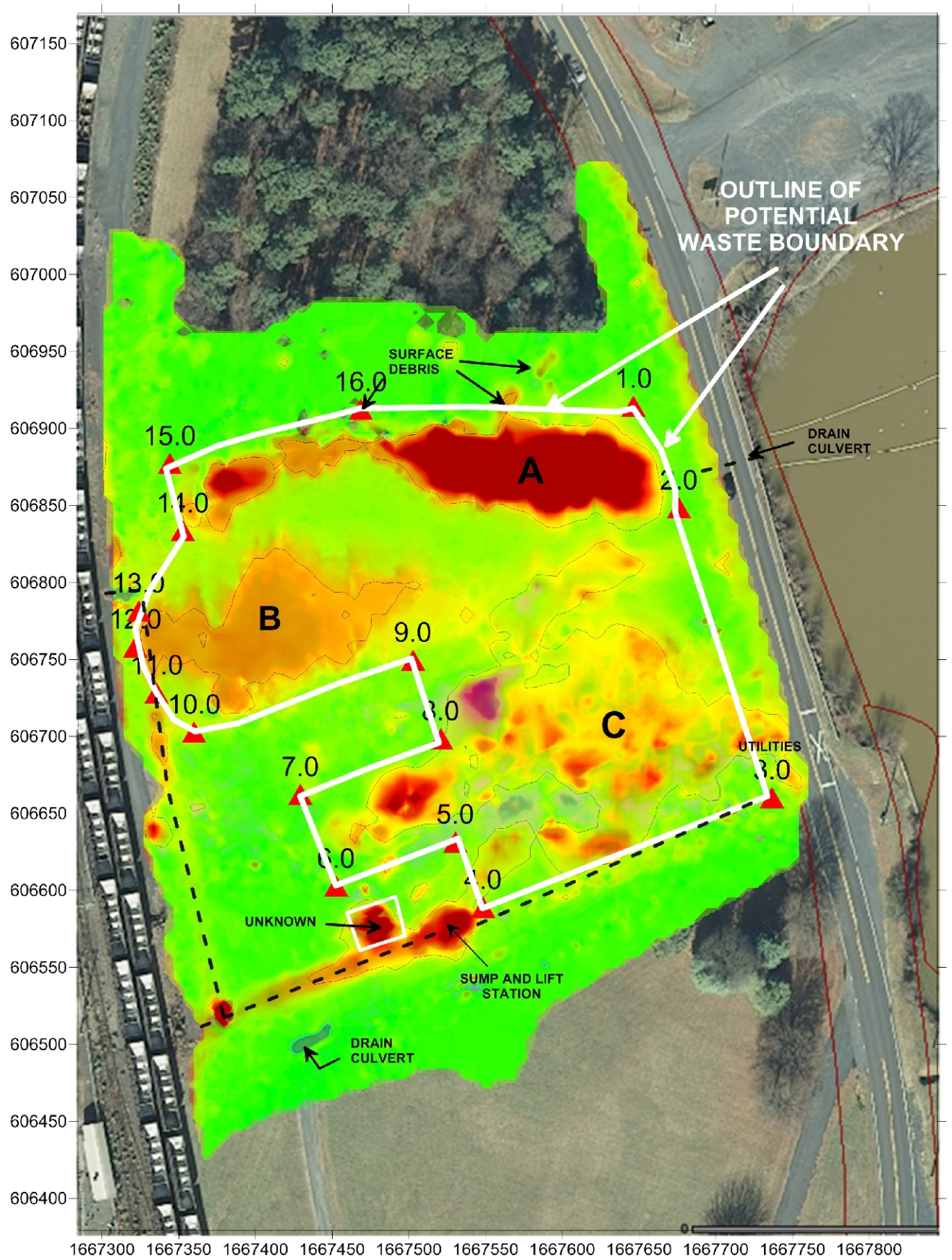
APPARENT CONDUCTIVITY DATA AVERAGE VALUE (mS/M)

EM PROFILE LINES COMPLETED EVERY 3 TO 5 FEET WITH DATA POINTS EVERY 0.5 FT ALONG EACH PROFILE LINE

ALCOA-BADIN WORKS
BADIN, NORTH CAROLINA

0 100
SCALE IN FEET

Geo Solutions Ltd.



PINE TREE GROVE SITE
SWMU NO. 44

FIGURE 5

RESULTS OF EM PROFILE LINES

LOCATION OF BURIED UTILITY

LOCATION OF SURVEY POINT

875
700
525
350
175
0

COMBINED IN-PHASE AND APPARENT CONDUCTIVITY VALUES

EM PROFILE LINES COMPLETED EVERY 3 TO 5 FEET WITH DATA POINTS EVERY 0.5 FT ALONG EACH PROFILE LINE

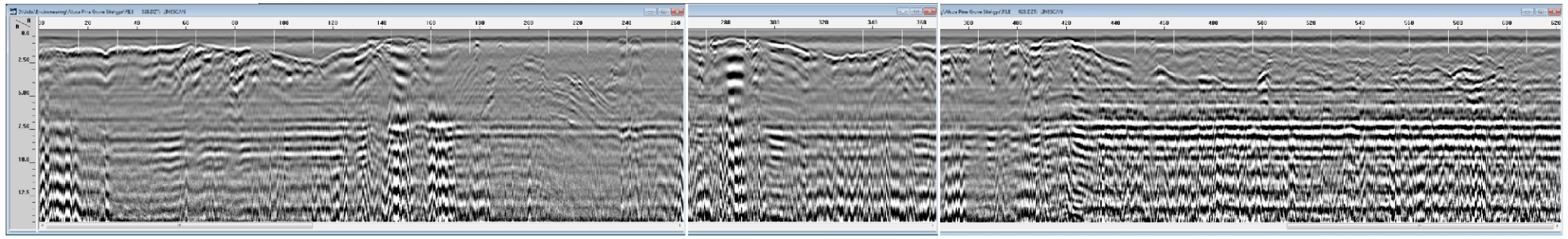
ALCOA-BADIN WORKS
BADIN, NORTH CAROLINA

0 100
SCALE IN FEET

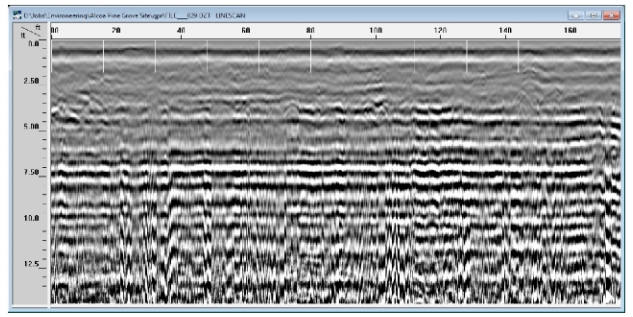
Geo Solutions Ltd.

FIGURE 6

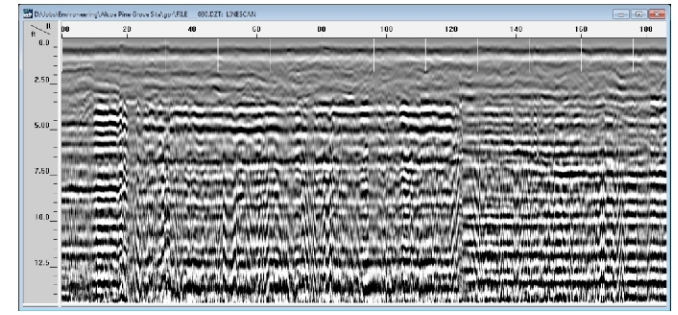
GPR-28



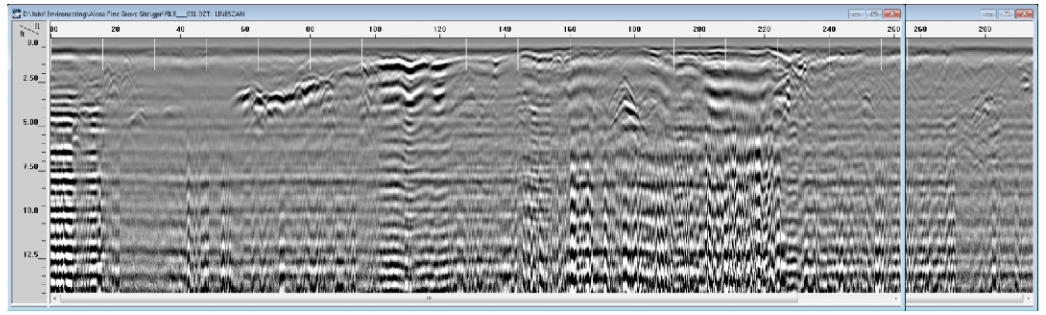
GPR-29



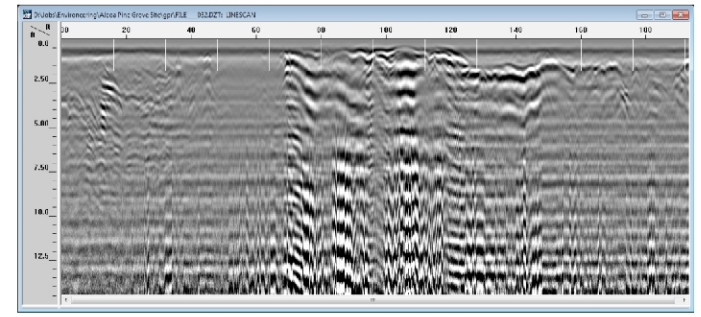
GPR-30



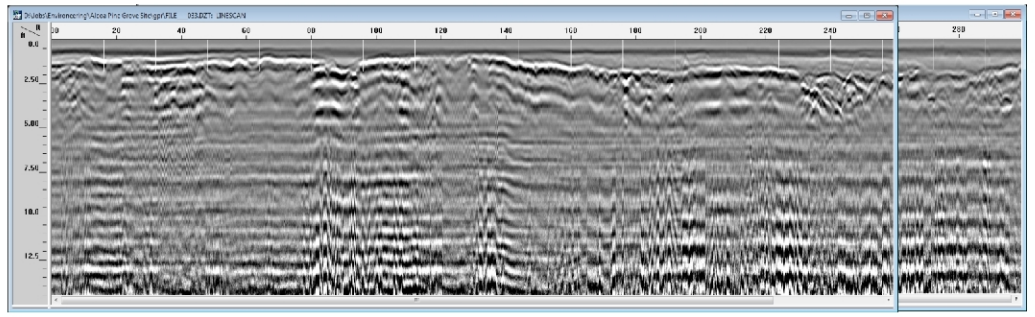
GPR-31



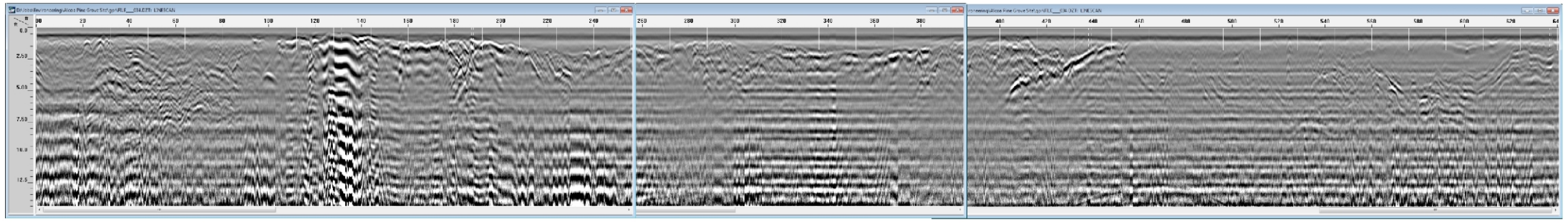
GPR-32



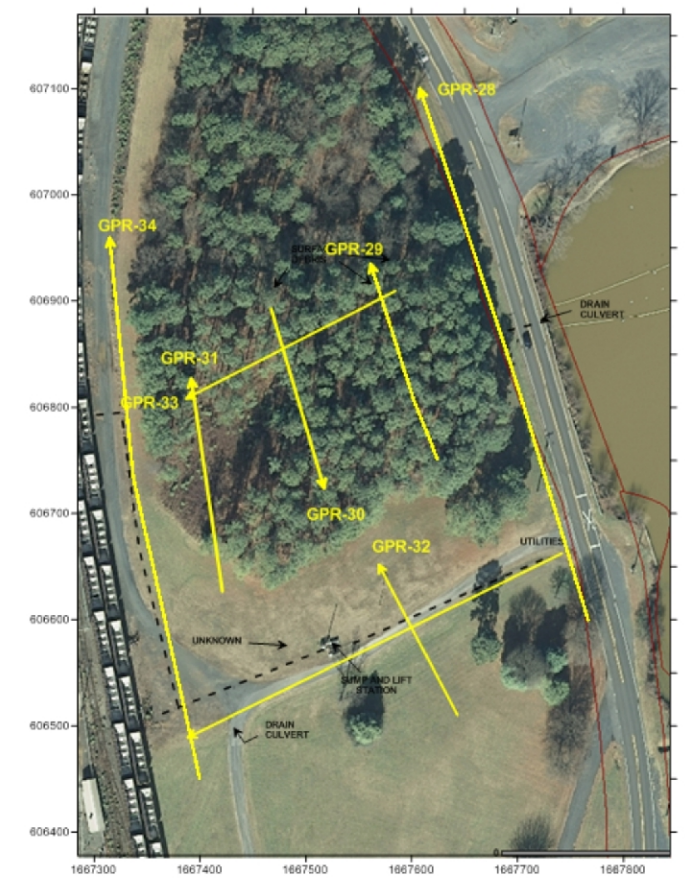
GPR-33



GPR-34



PINE TREE GROVE SITE
SWMU NO. 44



0 50 100

SCALE IN FEET

LOCATION OF SEISMIC
REFRACTION PROFILE LINES

ALCOA-BADIN WORKS
BADIN, NORTH CAROLINA

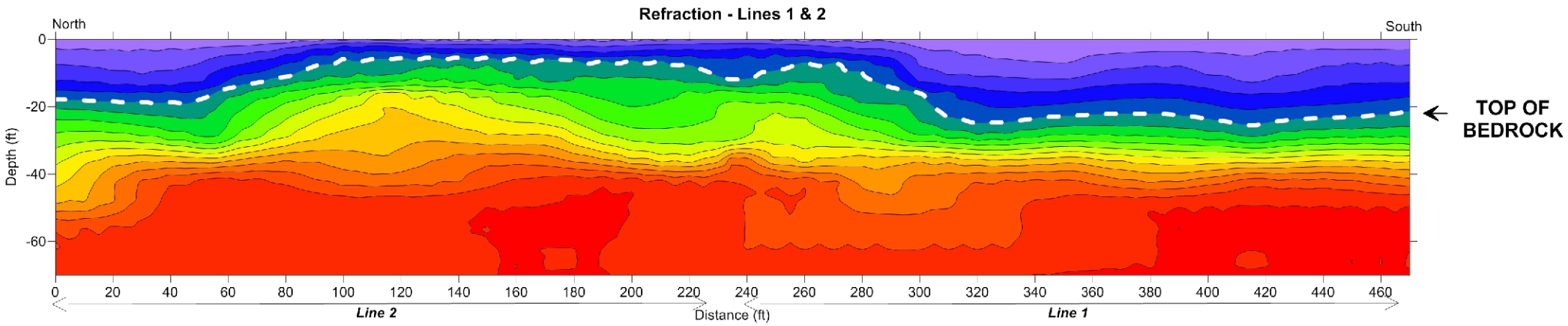
Geo Solutions Ltd.

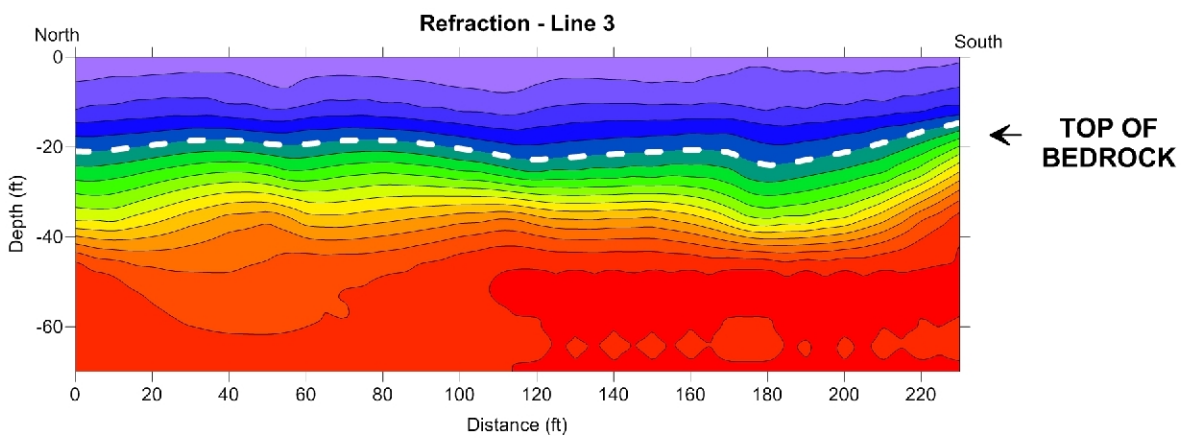
FIGURE 7

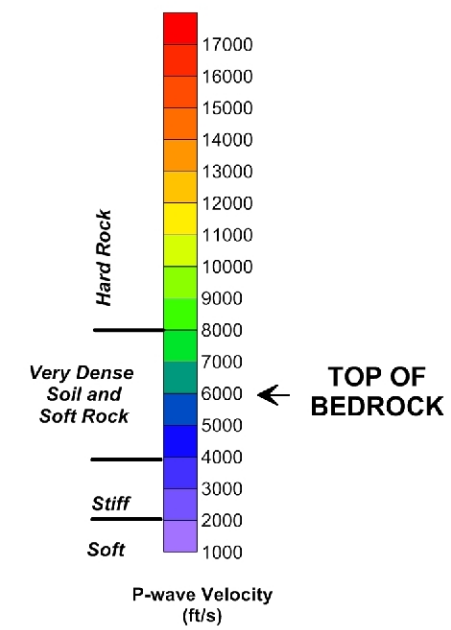
PINE TREE GROVE SITE
SWMU NO. 44

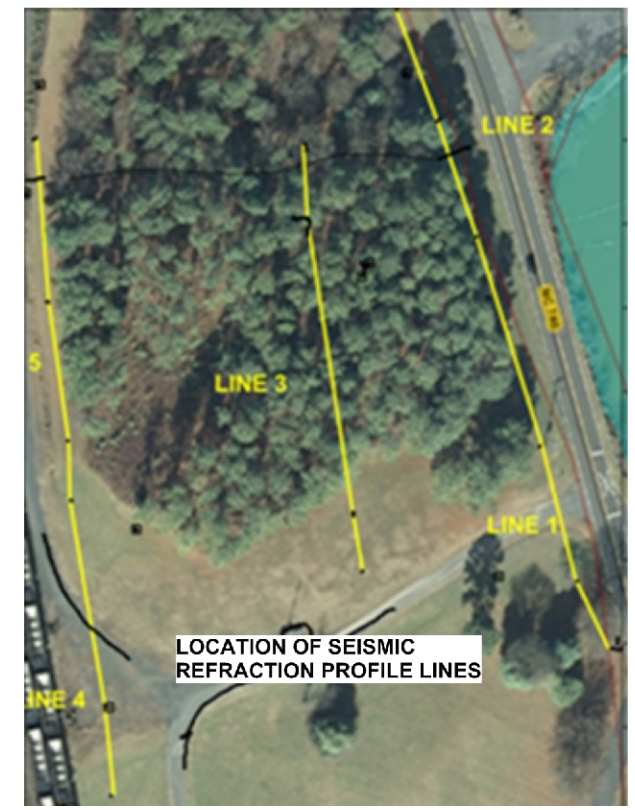
LEGEND

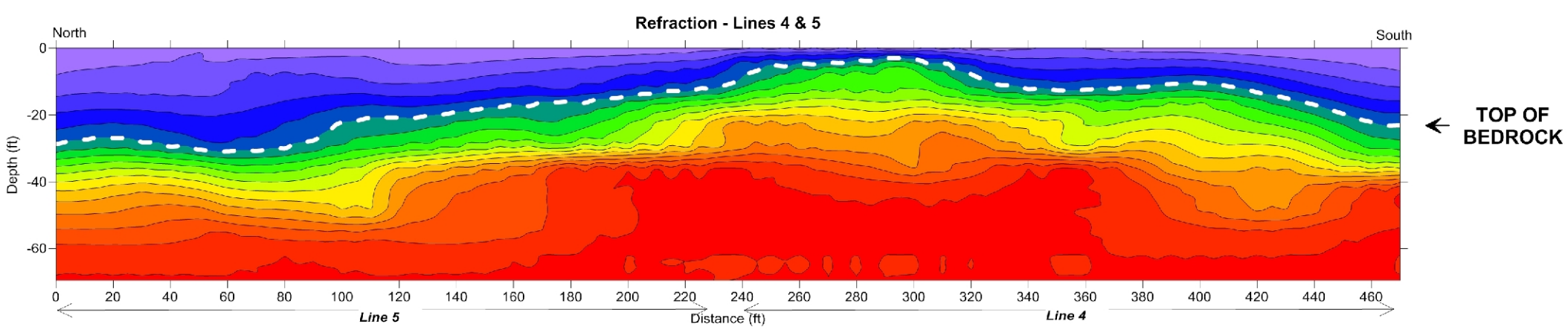
SRA SEISMIC RESULTS
LINES 1, 2, 3, 4 AND 5











0 30 60

SCALE IN FEET

ALCOA-BADIN WORKS
BADIN, NORTH CAROLINA

Geo Solutions Ltd.

APPENDIX D

ALCOA BADIN WORKS PLANT – PINE TREE GROVE AREA
BORING LOGS

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S44-B1

CLIENT:	Alcoa	GROUND SURFACE ELEVATION AND DATUM:	
PROJECT:	PTGA - SWMU No. 44	DATE COMPLETED:	9/1/11
PROJECT LOCATION:	Badin, NC	TOTAL DEPTH (ft.): 20'	BOREHOLE DIAMETER: 3.25"
DRILLING COMPANY:	Mad Dawg Drilling	CASING: N/A	SLOT SIZE: N/A
DRILLER:	W. Kicker	SCREEN INTERVAL (ft.):	N/A
DRILLING METHOD:	Geoprobe; Dual Tube	GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Organic material/mulch/wood debris, moist, loose		
1			FILL: Red brown silty clay, moist, medium stiff		
			FILL: Light tan gravelly sand, dry, loose		
2			FILL: Red brown silty clay, moist, medium stiff		
3					
4					
5					
6					
7					
8			FILL: Dark gray to light gray fine sand, wet, loose		
9			FILL: Dark gray to black granular material, wet to saturated, loose; Minor aluminum, carbonaceous, and white brick fragments up to 1.5"		
10					
11					
12					
13					
14					
15					
16					
17					
18					
19			FILL: Organic material/mulch/wood debris, saturated, loose		
20			SOIL: Light gray silty clay with minor wood fragments, saturated to moist, soft		
21			SOIL: Blue gray saprolite (slatey parent material)		
22			REFUSAL: Weathered rock		

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S44-B2

CLIENT:	Alcoa	GROUND SURFACE ELEVATION AND DATUM:	
PROJECT:	PTGA - SWMU No. 44	DATE COMPLETED:	9/1/11
PROJECT LOCATION:	Badin, NC	TOTAL DEPTH (ft.): 20'	BOREHOLE DIAMETER: 3.25"
DRILLING COMPANY:	Mad Dawg Drilling	CASING: N/A	SLOT SIZE: N/A
DRILLER:	W. Kicker	SCREEN INTERVAL (ft.):	N/A
DRILLING METHOD:	Geoprobe; Dual Tube	GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0–1			FILL: Organic material/mulch/wood debris, moist, loose; Minor red brown silty clay		
1–6			FILL: Red brown to orange brown silty clay, dry, medium stiff; few saprolite fragments <0.5"		
6–8			FILL: Dark red brown sandy clay, moist to wet, medium stiff; few rounded pebbles (7-8' bls)		
8–9			FILL: Dark gray clayey fine sand, wet to saturated, loose		
9–14			FILL: Red brick fragments, minor dark gray to black granular material, saturated, loose		
14–16			FILL: Dark gray sandy clay, saturated, soft		
16–17			SOIL: Orange brown sandy clay, saturated, soft		
17–18			SOIL: Orange brown silty clay, moist, medium stiff		
18–19			SOIL: Blue gray saprolite (slatey parent material), dry		
19			REFUSAL: Weathered rock		

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S44-B3

CLIENT:	Alcoa	GROUND SURFACE ELEVATION AND DATUM:	
PROJECT:	PTGA - SWMU No. 44	DATE COMPLETED:	9/1/11
PROJECT LOCATION:	Badin, NC	TOTAL DEPTH (ft.): 20'	BOREHOLE DIAMETER: 3.25"
DRILLING COMPANY:	Mad Dawg Drilling	CASING: N/A	SLOT SIZE: N/A
DRILLER:	W. Kicker	SCREEN INTERVAL (ft.):	N/A
DRILLING METHOD:	Geoprobe; Dual Tube	GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Organic material/mulch/wood debris, moist, loose		
1, 2, 3, 4, 5, 6, 7			FILL: Red brown to orange brown silty clay, dry, medium stiff; few saprolite fragments		
7–8			FILL: Olive green silt, dry to moist, medium stiff		
8–9			FILL: Dark gray to black granular material with silty sand, moist, loose; Minor white brick fragments		
10, 11, 12, 13, 14, 15			FILL: Tan brown concrete fragments with minor sand, wet to saturated, loose; Red brick and gravel from 10-15' bls, minor silt		
15–16			SOIL: Medium gray silty clay with minor organic fragments, decay odor, saturated, soft		
16–17			SOIL: Orange brown silty clay, saturated, soft		
17–19			SOIL: Orange brown silty clay, moist, medium stiff		
19–21			SOIL: Orange brown and tan white mottled saprolite, moist to dry		
21–22			REFUSAL: Weathered rock		

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S44-B4

CLIENT:	Alcoa	GROUND SURFACE ELEVATION AND DATUM:	
PROJECT:	PTGA - SWMU No. 44	DATE COMPLETED:	9/1/11
PROJECT LOCATION:	Badin, NC	TOTAL DEPTH (ft.): 20'	BOREHOLE DIAMETER: 3.25"
DRILLING COMPANY:	Mad Dawg Drilling	CASING: N/A	SLOT SIZE: N/A
DRILLER:	W. Kicker	SCREEN INTERVAL (ft.):	N/A
DRILLING METHOD:	Geoprobe; Dual Tube	GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Organic material/mulch/wood debris, moist, loose		
1, 2, 3			FILL: Red brown silty clay, dry, medium stiff; few saprolite fragments		
4			FILL: Light to medium gray silty sand with minor gravel and concrete fragments, dry to moist, medium dense		
5			FILL: Dark gray to black granular material with minor concrete fragments, moist, loose		
6, 7, 8, 9, 10, 11, 12, 13, 14, 15			FILL: Tan brown concrete and red brick, moist to saturated (9'), loose; Wood fragments 14-15' bls		
16			SOIL: Orange brown silty clay with minor rounded pebbles, moist, medium stiff		
17, 18			SOIL: Orange brown clay, moist, medium to very stiff		
19			SOIL: Blue gray saprolite, moist to dry		
			REFUSAL: Weathered rock		
20, 21, 22					

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S44-B5

CLIENT:	Alcoa
GROUND SURFACE ELEVATION AND DATUM:	
PROJECT:	PTGA - SWMU No. 44
DATE COMPLETED:	9/1/11
PROJECT LOCATION:	Badin, NC
TOTAL DEPTH (ft.):	20'
BOREHOLE DIAMETER:	3.25"
DRILLING COMPANY:	Mad Dawg Drilling
CASING:	N/A
SLOT SIZE:	N/A
DRILLER:	W. Kicker
SCREEN INTERVAL (ft.):	N/A
DRILLING METHOD:	Geoprobe; Dual Tube
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Grass and topsoil, dry		
1			FILL: Orange brown silty clay with minor sand, dry, medium stiff; occasional gravel		
2					
3			FILL: Red brown to orange brown silty clay, dry, medium stiff		
4			FILL: Light gray silty sandy with gravel, dry, medium dense		
5			FILL: Medium to dark gray sand, dry to saturated (7'); 4" tan brown sand seam at 5.5' bls		
6					
7					
8			SOIL: Orange brown silty clay, saturated, soft		
9			SOIL: Blue gray saprolite to soft weathered rock, moist to dry		
10					
11			SOIL: Red brown saprolite, dry		
12			REFUSAL: Weathered rock		
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S44-B6

CLIENT:	Alcoa
PROJECT:	PTGA - SWMU No. 44
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	Mad Dawg Drilling
DRILLER:	W. Kicker
DRILLING METHOD:	Geoprobe; Dual Tube
GROUND SURFACE ELEVATION AND DATUM:	
DATE COMPLETED:	9/1/11
TOTAL DEPTH (ft.):	15'
BOREHOLE DIAMETER:	3.25"
CASING:	N/A
SLOT SIZE:	N/A
SCREEN INTERVAL (ft.):	N/A
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Grass and topsoil, dry to moist		
1			FILL: Red brown silty clay, moist, medium stiff		
			FILL: Light gray silty sand with minor clay, moist, medium dense		
2			FILL: Dark gray to black silty sand, moist, medium dense		
3			FILL: Red brick and concrete fragments, minor loamy matrix, moist, medium dense		
4					
5					
6			FILL: Dark gray to black granular material with minor brick and concrete fragments, moist to saturated (7.5' bls), loose		
7					
8					
9					
10					
11			SOIL: Red brown and orange brown mottled silty clay, dry to moist, medium stiff		
12			SOIL: Olive brown silty clay, dry to moist, medium stiff		
13			SOIL: Red brown, orange brown, and tan brown mottled saprolite, dry to moist		
			REFUSAL: Weathered rock		
14					
15					
16					
17					
18					
19					
20					
21					
22					

APPENDIX E

ALCOA BADIN WORKS PLANT – PINE TREE GROVE AREA
SOIL ANALYTICAL REPORTS AND
CHAIN OF CUSTODY DOCUMENTATION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-72039-1
Client Project/Site: PTGA (S44)/137-155

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
09/16/2011 04:23:36 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Results relate only to the items tested and the sample(s) as received by the laboratory. The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Chain of Custody 20
Certification Summary 23

Job ID: 680-72039-1

Laboratory: TestAmerica Savannah

Narrative

Job Narrative
680-72039-1

Comments.0
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

General Chemistry
Method(s) SM 4500 F C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 214902 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) SM 4500 F C: Due to the high concentration of fluoride, the matrix spike / matrix spike duplicate (MS/MSD) for batch 214902 could not be evaluated for accuracy and precision. The associated laboratory control sample and duplicate (LCS/LCSD) met acceptance criteria.

No other analytical or quality issues were noted.

Sample Summary

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-72039-1	S44-B1 (9-10)	Solid	09/01/11 09:30	09/02/11 09:37
680-72039-2	S44-B1 (14-15)	Solid	09/01/11 09:40	09/02/11 09:37
680-72039-3	S44-B1 (20-21)	Solid	09/01/11 09:50	09/02/11 09:37
680-72039-4	S44-B2 (4-5)	Solid	09/01/11 10:20	09/02/11 09:37
680-72039-5	S44-B2 (8.5-9.5)	Solid	09/01/11 10:30	09/02/11 09:37
680-72039-6	S44-B2 (15-16)	Solid	09/01/11 10:40	09/02/11 09:37
680-72039-7	S44-B3 (4-5)	Solid	09/01/11 11:20	09/02/11 09:37
680-72039-8	S44-B3 (8.5-9.5)	Solid	09/01/11 11:30	09/02/11 09:37
680-72039-9	S44-B3 (14-15)	Solid	09/01/11 11:40	09/02/11 09:37
680-72039-10	S44-B4 (4-4.7)	Solid	09/01/11 13:00	09/02/11 09:37
680-72039-11	S44-B4 (9-10)	Solid	09/01/11 13:20	09/02/11 09:37
680-72039-12	S44-B4 (15-15.5)	Solid	09/01/11 13:30	09/02/11 09:37
680-72039-13	S44-B5 (3.5-4.5)	Solid	09/01/11 14:00	09/02/11 09:37
680-72039-14	S44-B5 (6.5-7.5)	Solid	09/01/11 14:10	09/02/11 09:37
680-72039-15	S44-B6 (2-2.5)	Solid	09/01/11 14:50	09/02/11 09:37
680-72039-16	S44-B6 (9-10)	Solid	09/01/11 15:00	09/02/11 09:37
680-72039-17	EB-1	Water	09/01/11 15:20	09/02/11 09:37
680-72039-18	TB-1	Water	08/31/11 22:00	09/02/11 09:37
680-72039-19	S44-DC1	Solid	09/01/11 16:00	09/02/11 09:37

Method Summary

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	MCAWW	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV
SM 4500 F C	Fluoride	SM	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Definitions/Glossary

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit (Dioxin)
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or method detection limit if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: S44-B1 (9-10)

Lab Sample ID: 680-72039-1
Date Collected: 09/01/11 09:30
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 73.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.66		0.66		mg/Kg	☼	09/12/11 11:34	09/13/11 08:59	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1400		27		mg/Kg	☼		09/16/11 09:40	5

Client Sample ID: S44-B1 (14-15)

Lab Sample ID: 680-72039-2
Date Collected: 09/01/11 09:40
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 75.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	80		16		mg/Kg	☼	09/12/11 11:34	09/13/11 09:35	25

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	290		5.3		mg/Kg	☼		09/16/11 09:40	1

Client Sample ID: S44-B1 (20-21)

Lab Sample ID: 680-72039-3
Date Collected: 09/01/11 09:50
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 42.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	39		5.6		mg/Kg	☼	09/12/11 11:34	09/13/11 09:23	5

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	190		9.3		mg/Kg	☼		09/16/11 09:40	1

Client Sample ID: S44-B2 (4-5)

Lab Sample ID: 680-72039-4
Date Collected: 09/01/11 10:20
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 84.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.57		0.57		mg/Kg	☼	09/12/11 11:34	09/13/11 09:04	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<4.7		4.7		mg/Kg	☼		09/16/11 09:40	1

Client Sample Results

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: S44-B2 (8.5-9.5)

Lab Sample ID: 680-72039-5
Date Collected: 09/01/11 10:30
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 76.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	1.5		0.65		mg/Kg	☼	09/12/11 11:34	09/13/11 09:06	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	360		5.3		mg/Kg	☼		09/16/11 09:40	1

Client Sample ID: S44-B2 (15-16)

Lab Sample ID: 680-72039-6
Date Collected: 09/01/11 10:40
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 81.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	14		3.0		mg/Kg	☼	09/12/11 11:34	09/13/11 09:26	5

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	280		4.8		mg/Kg	☼		09/16/11 09:40	1

Client Sample ID: S44-B3 (4-5)

Lab Sample ID: 680-72039-7
Date Collected: 09/01/11 11:20
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 84.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.58		0.58		mg/Kg	☼	09/12/11 11:34	09/13/11 09:08	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<4.7		4.7		mg/Kg	☼		09/16/11 09:40	1

Client Sample ID: S44-B3 (8.5-9.5)

Lab Sample ID: 680-72039-8
Date Collected: 09/01/11 11:30
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 81.2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	18		2.9		mg/Kg	☼	09/12/11 11:34	09/13/11 09:27	5

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	350		4.9		mg/Kg	☼		09/16/11 09:40	1

Client Sample Results

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: S44-B3 (14-15)

Lab Sample ID: 680-72039-9
Date Collected: 09/01/11 11:40
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 77.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	11		3.0		mg/Kg	☼	09/12/11 11:34	09/13/11 09:28	5

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	230		5.2		mg/Kg	☼		09/16/11 09:40	1

Client Sample ID: S44-B4 (4-4.7)

Lab Sample ID: 680-72039-10
Date Collected: 09/01/11 13:00
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 89.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.64		0.56		mg/Kg	☼	09/12/11 11:34	09/13/11 09:11	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	98		4.5		mg/Kg	☼		09/16/11 09:40	1

Client Sample ID: S44-B4 (9-10)

Lab Sample ID: 680-72039-11
Date Collected: 09/01/11 13:20
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 70.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	53		6.9		mg/Kg	☼	09/12/11 11:34	09/13/11 09:38	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	150		5.7		mg/Kg	☼		09/16/11 09:40	1

Client Sample ID: S44-B4 (15-15.5)

Lab Sample ID: 680-72039-12
Date Collected: 09/01/11 13:30
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 82.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	8.4		1.2		mg/Kg	☼	09/12/11 11:34	09/13/11 09:30	2

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	62		4.8		mg/Kg	☼		09/16/11 09:40	1

Client Sample Results

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: S44-B5 (3.5-4.5)

Lab Sample ID: 680-72039-13
Date Collected: 09/01/11 14:00
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 89.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	41		5.3		mg/Kg	☼	09/12/11 11:34	09/13/11 09:39	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	260		4.5		mg/Kg	☼		09/16/11 09:40	1

Client Sample ID: S44-B5 (6.5-7.5)

Lab Sample ID: 680-72039-14
Date Collected: 09/01/11 14:10
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 83.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	27		3.0		mg/Kg	☼	09/12/11 11:34	09/13/11 09:33	5

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	440		9.5		mg/Kg	☼		09/16/11 09:40	2

Client Sample ID: S44-B6 (2-2.5)

Lab Sample ID: 680-72039-15
Date Collected: 09/01/11 14:50
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 74.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	7.7		0.66		mg/Kg	☼	09/12/11 11:34	09/13/11 09:19	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	3400		54		mg/Kg	☼		09/16/11 09:40	10

Client Sample ID: S44-B6 (9-10)

Lab Sample ID: 680-72039-16
Date Collected: 09/01/11 15:00
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 57.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	27		4.1		mg/Kg	☼	09/12/11 11:34	09/13/11 09:34	5

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	210		6.9		mg/Kg	☼		09/16/11 09:40	1

Client Sample Results

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: EB-1

Lab Sample ID: 680-72039-17

Date Collected: 09/01/11 15:20
Date Received: 09/02/11 09:37

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.010		0.010		mg/L		09/08/11 08:00	09/09/11 08:33	1
Fluoride	<0.20		0.20		mg/L			09/14/11 13:16	1

Client Sample ID: TB-1

Lab Sample ID: 680-72039-18

Date Collected: 08/31/11 22:00
Date Received: 09/02/11 09:37

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.010		0.010		mg/L		09/08/11 08:00	09/09/11 08:34	1
Fluoride	<0.20		0.20		mg/L			09/14/11 13:16	1

Client Sample ID: S44-DC1

Lab Sample ID: 680-72039-19

Date Collected: 09/01/11 16:00
Date Received: 09/02/11 09:37

Matrix: Solid
Percent Solids: 73.4

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	**200**		5.4		mg/Kg	☼		09/16/11 09:40	1

QC Sample Results

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 680-214135/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 214262 — **Prep Batch: 214135**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.010		0.010		mg/L		09/08/11 08:00	09/09/11 08:17	1

Lab Sample ID: HLCS 680-214135/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 214262 — **Prep Batch: 214135**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	% Rec	% Rec. Limits
Cyanide, Total	0.0751	0.0805		mg/L		107	

Lab Sample ID: LCS 680-214135/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 214262 — **Prep Batch: 214135**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Cyanide, Total	0.0301	0.0326		mg/L		108	90 - 110

Lab Sample ID: MB 680-214448/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 214523 — **Prep Batch: 214448**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.50		0.50		mg/Kg		09/12/11 11:34	09/13/11 08:57	1

Lab Sample ID: LCS 680-214448/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 214523 — **Prep Batch: 214448**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Cyanide, Total	5.01	4.70		mg/Kg		94	90 - 110

Lab Sample ID: 680-72039-4 MS — **Client Sample ID: S44-B2 (4-5)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 214523 — **Prep Batch: 214448**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Cyanide, Total	<0.57		5.69	5.28		mg/Kg	☼	93	90 - 110

Lab Sample ID: 680-72039-4 MSD — **Client Sample ID: S44-B2 (4-5)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 214523 — **Prep Batch: 214448**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Cyanide, Total	<0.57		5.69	5.24		mg/Kg	☼	92	90 - 110	1	20

Lab Sample ID: 680-72039-13 DU — **Client Sample ID: S44-B5 (3.5-4.5)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 214523 — **Prep Batch: 214448**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	41		42.8		mg/Kg	☼	4	20

QC Sample Results

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 680-214829/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 214829

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		0.20		mg/L			09/14/11 13:16	1

Lab Sample ID: LCS 680-214829/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 214829

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride			5.11	5.45		mg/L		107	85 - 115		

Lab Sample ID: LCSD 680-214829/3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 214829

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride			5.11	5.48		mg/L		107	85 - 115	1	30

Lab Sample ID: 680-72039-18 MS — **Client Sample ID: TB-1**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 214829

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride	<0.20		1.00	0.980		mg/L		98	85 - 115		

Lab Sample ID: 680-72039-18 MSD — **Client Sample ID: TB-1**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 214829

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	<0.20		1.00	1.02		mg/L		102	85 - 115	4	30

Lab Sample ID: MB 680-214826/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 214902

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<4.0		4.0		mg/Kg			09/16/11 09:40	1

Lab Sample ID: LCS 680-214826/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 214902

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride			20.0	19.6		mg/Kg		98	75 - 125		

Lab Sample ID: LCSD 680-214826/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 214902

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride			20.0	19.8		mg/Kg		99	75 - 125	1	30

Method: SM 4500 F C - Fluoride (Continued)

Lab Sample ID: 680-72039-1 MS — **Client Sample ID: S44-B1 (9-10)**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 214902

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride	1400		27.2	1190	4	mg/Kg	☼	-705	75 - 125		

Lab Sample ID: 680-72039-1 MSD — **Client Sample ID: S44-B1 (9-10)**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 214902

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	1400		26.9	1000	4	mg/Kg	☼	-1406	75 - 125	17	30

Lab Sample ID: 680-72039-15 DU — **Client Sample ID: S44-B6 (2-2.5)**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 214902

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	3400			3370		mg/Kg	☼			1	30

Lab Chronicle

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: S44-B1 (9-10)

Lab Sample ID: 680-72039-1
Date Collected: 09/01/11 09:30
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		1	214523	09/13/11 08:59	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		5	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B1 (14-15)

Lab Sample ID: 680-72039-2
Date Collected: 09/01/11 09:40
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		25	214523	09/13/11 09:35	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B1 (20-21)

Lab Sample ID: 680-72039-3
Date Collected: 09/01/11 09:50
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		5	214523	09/13/11 09:23	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B2 (4-5)

Lab Sample ID: 680-72039-4
Date Collected: 09/01/11 10:20
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		1	214523	09/13/11 09:04	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: S44-B2 (8.5-9.5)

Lab Sample ID: 680-72039-5

Date Collected: 09/01/11 10:30
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		1	214523	09/13/11 09:06	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B2 (15-16)

Lab Sample ID: 680-72039-6

Date Collected: 09/01/11 10:40
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		5	214523	09/13/11 09:26	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B3 (4-5)

Lab Sample ID: 680-72039-7

Date Collected: 09/01/11 11:20
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		1	214523	09/13/11 09:08	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B3 (8.5-9.5)

Lab Sample ID: 680-72039-8

Date Collected: 09/01/11 11:30
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		5	214523	09/13/11 09:27	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: S44-B3 (14-15)

Lab Sample ID: 680-72039-9

Date Collected: 09/01/11 11:40
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		5	214523	09/13/11 09:28	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B4 (4-4.7)

Lab Sample ID: 680-72039-10

Date Collected: 09/01/11 13:00
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		1	214523	09/13/11 09:11	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B4 (9-10)

Lab Sample ID: 680-72039-11

Date Collected: 09/01/11 13:20
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		10	214523	09/13/11 09:38	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B4 (15-15.5)

Lab Sample ID: 680-72039-12

Date Collected: 09/01/11 13:30
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		2	214523	09/13/11 09:30	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: S44-B5 (3.5-4.5)

Lab Sample ID: 680-72039-13

Date Collected: 09/01/11 14:00
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		10	214523	09/13/11 09:39	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B5 (6.5-7.5)

Lab Sample ID: 680-72039-14

Date Collected: 09/01/11 14:10
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		5	214523	09/13/11 09:33	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		2	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B6 (2-2.5)

Lab Sample ID: 680-72039-15

Date Collected: 09/01/11 14:50
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		1	214523	09/13/11 09:19	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		10	214902	09/16/11 09:40	JAL	TAL SAV

Client Sample ID: S44-B6 (9-10)

Lab Sample ID: 680-72039-16

Date Collected: 09/01/11 15:00
Matrix: Solid
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	213769	09/02/11 15:06	FS	TAL SAV
Total/NA	Prep	Distill/CN			214448	09/12/11 11:34	DAM	TAL SAV
Total/NA	Analysis	335.4		5	214523	09/13/11 09:34	DAM	TAL SAV
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Client Sample ID: EB-1

Lab Sample ID: 680-72039-17

Date Collected: 09/01/11 15:20
Matrix: Water
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	Distill/CN			214135	09/08/11 08:00	DAM	TAL SAV
Total/NA	Analysis	335.4		1	214262	09/09/11 08:33	DAM	TAL SAV
Total/NA	Analysis	SM 4500 F C		1	214829	09/14/11 13:16	JAL	TAL SAV

Client Sample ID: TB-1

Lab Sample ID: 680-72039-18

Date Collected: 08/31/11 22:00
Matrix: Water
Date Received: 09/02/11 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	Distill/CN			214135	09/08/11 08:00	DAM	TAL SAV
Total/NA	Analysis	335.4		1	214262	09/09/11 08:34	DAM	TAL SAV
Total/NA	Analysis	SM 4500 F C		1	214829	09/14/11 13:16	JAL	TAL SAV

Client Sample ID: S44-DC1

Lab Sample ID: 680-72039-19

Date Collected: 09/01/11 16:00
Matrix: Solid
Date Received: 09/02/11 09:37
Percent Solids: 73.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			214826	09/15/11 09:30	JAL	TAL SAV
Soluble	Analysis	SM 4500 F C		1	214902	09/16/11 09:40	JAL	TAL SAV

Laboratory References:
TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 016635

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: PTGA (S44)
PROJECT NO: 137-155
PROJECT LOCATION (STATE): NC
TAL (LAB) PROJECT MANAGER: Stoffman
P.O. NUMBER:
CONTRACT NO.:
CLIENT (SITE) PM: M. Worden
CLIENT PHONE: 281 493 9635
CLIENT FAX: 281 493 9637
CLIENT NAME: Environ Engineering Inc
CLIENT E-MAIL: mworden@environengine.com
CLIENT ADDRESS: 810 Hwy 6 South Ste 200 Houston TX 77079
COMPANY CONTRACTING THIS WORK (if applicable):

PAGE 1 OF 2

STANDARD REPORT DELIVERY ☒
DATE DUE
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

REQUIRED ANALYSIS: Chlorate, Fluorate

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT)	Chlorate	Fluorate	REMARKS
9/1/11	930	S44-B1 (9-10)			X			1		
	940	S44-B1 (14-15)			X			1		
	950	S44-B1 (20-21)			X			1		
	1020	S44-B2 (4-5)			X			1		
	1030	S44-B2 (8.5-9.5)			X			1		
	1040	S44-B2 (15-16)			X			1		
	1120	S44-B3 (4-5)			X			1		
	1130	S44-B3 (8.5-9.5)			X			1		
	1140	S44-B3 (14-15)			X			1		
	1300	S44-B4 (4-4.7)			X			1		
	1320	S44-B4 (9-10)			X			1		
	1330	S44-B4 (15-15.5)			X			1		

NUMBER OF CONTAINERS SUBMITTED

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	9/1/11	1915						
RECEIVED BY: (SIGNATURE) FEDEX	DATE 9/1/11	TIME 1915	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	9/2/11	0957	YES ○ NO ○		280-72039	4.4/4.6°C

Serial Number 016634

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

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Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
PTGA (S44)	137-155	NC

TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
S HOFFMAN		

CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
M. WORDEN	281 493 2635	281 493 9027

CLIENT NAME	CLIENT E-MAIL
GEOTHERMEX INC	mworden@geothermex.com

CLIENT ADDRESS: 510 HWY 6 South Ste 200 Houston TX 77079

COMPANY CONTRACTING THIS WORK (if applicable)

PAGE 2 OF 2

STANDARD REPORT DELIVERY ☒

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

MATRIX TYPE (COMPOSITE C OR GRAB G INDICATE): AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID OIL SOLVENT

REQUIRED ANALYSIS: CYANIDE / FLUORIDE / CYANIDE / FLUORIDE

NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Cyanide	Fluoride	Cyanide	Fluoride	REMARKS
9/1/11	1400	S44-B5 (3.5-4.5)	1				
	1410	S44-B5 (6.5-7.5)	1				
	1450	S44-B6 (2-2.5)	1				
	1500	S44-B6 (9-10)	1				
	1520	~~S44~~ EB-1	5		1	1	
8/31/11	2200	~~S44~~ TB-1	2		1	1	
		~~S44~~	2				
		~~S44~~	2				
		~~S44~~	2				
		~~S44~~	2				
		~~S44~~	2				
		~~S44~~	2				
		~~S44~~	2				
		~~S44~~	2				

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
[signature]	9/1/11	1915						

RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME
FEDEX	9/1/11	1915						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	9/2/11	0937	YES ○ NO ○		680-72039	

Serial Number 017041

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: FIGA (S44)-D	PROJECT NO: 137-155	PROJECT LOCATION (STATE): NC	PAGE 1 OF 1
TAL (LAB) PROJECT MANAGER: S. Hoffman	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ☒
CLIENT (SITE) PM: M. Warden	CLIENT PHONE: 281-493-9005	CLIENT FAX: 281-493-9007	~~DATE DUE~~
CLIENT NAME: Environmental Inc	CLIENT E-MAIL: mwarden@environmentalinc.com		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS: 810 Hwy 6 South Ste 200 Houston TX 77079			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	REQUIRED ANALYSIS: DISPOSAL CHARACTERIZATION (8270D TCLP, 1030 Ignit, 9045C pH, 9012B, 9034, 4500-F-C, 9200 TCLP, 6010C-TCLP, 7470A-HG)	REMARKS
9/1/11	1600	S44-DC1			☒			8 containers	

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY (SIGNATURE)	DATE	TIME
[signature]	9/1/11	1915						
RECEIVED BY (SIGNATURE): FEDEX	9/1/11	1915	RECEIVED BY (SIGNATURE)	DATE	TIME	RECEIVED BY (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO	LABORATORY REMARKS
[signature]	9/2/11	0957	YES ○ NO ○		680-72039	

Certification Summary

Client: Environeering Inc
Project/Site: PTGA (S44)/137-155

TestAmerica Job ID: 680-72039-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC Secondary AB	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

APPENDIX F

WEST SPL GEOPHYSICAL SURVEY

GEOPHYSICAL EVALUATION AT THE ALCOA-BADIN WORKS FACILITY
SWMU NO. 46, WEST SPL AREA
BADIN, NORTH CAROLINA

PREPARED FOR ENVIRONEERING, INC.

by

GEO SOLUTIONS LIMITED, INC.
RALEIGH, NORTH CAROLINA

JULY 2012

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1.0 INTRODUCTION

Geo Solutions Limited, Inc. ("*Geo Solutions*") is pleased to submit this report to Environeering, Inc., ("*Environeering*") for a geophysical survey at the Alcoa-Badin Works Facility SWMU No. 46: West SPL Area ("*West SPL Area*"), Badin, North Carolina.

1.1 Background

Environeering requested Geo Solutions complete a multi-phase geophysical evaluation of an identified SWMU at the Alcoa-Badin Works facility in Badin, North Carolina (Figure 1). The purpose of the geophysical survey was to evaluate the extent and nature of buried material.

The site was a suspected waste management area that is designated as SWMU No. 46 in the March 2001 RCRA Facility Investigation Report. In 1998, Alcoa identified this area as potentially receiving fill and waste materials through a review of historical photographs. Based on the photographs, filling activities are believed to have started after March 1964 and ended before April 1977.

In 2003, Alcoa performed maintenance activities at the site to separate surficial soils from contact with stormwater. Alcoa removed all wood and miscellaneous debris, and the surface was smoothed in preparation for placement of a clay-mat and soil cover. The clay-mat was composed of a 1/8 inch layer of bentonite between two layers of geo-textile fabric. The clay-mat was covered with a minimum of six inches of topsoil and seeded for vegetation.

As part of assessment activities, several borings and monitoring wells have been completed to evaluate the potential impact of fill activities in the area. This information, along with the results of this survey, will identify if the fill material is above or below the groundwater at the unit and whether that location of fill material is adversely impacting groundwater quality. This information is essential in determining the best and most efficient way to apply remedial technologies.

1.2 Scope of Work

Geophysical activities at the site consisted of an electromagnetic ("*EM*") profile mapping of the site and immediate surrounding area. An EM survey can be used identify the distribution of buried material containing varying apparent electrical conductivity. Following the completion of the EM survey, Geo Solutions completed a ground-penetrating radar ("*GPR*") survey over most of the area. The purpose of a GPR survey was to evaluate, if possible, the vertical distribution of buried debris. Finally, Geo Solutions completed multiple seismic profiles using the multichannel analysis of surface waves ("MASW") method. A MASW seismic survey can be used to evaluate the elastic condition, or stiffness, of subsurface soils.

1.3 Field Activities

During the week of July 11, 2011, Geo Solutions completed field activities at the site. These activities utilized three geophysical techniques:

1. First, Geo Solutions completed a multifrequency EM survey of site. The EM survey was used to evaluate the extent of buried subsurface debris and the distribution of varying conductivity as it is related to the fill.

2. Second, Geo Solutions completed a mid to low-frequency GPR evaluation of the site. The GPR was completed to evaluate the presence or absence of waste/fill, and may indicate subsurface structures which can be used to evaluate the thickness and distribution of past filling activities.

3. Third, Geo Solutions completed a limited MASW seismic survey at suspected fill boundaries and potential locations of buried material. The MASW seismic survey was used to evaluate the thickness of potential fill material and the depth to bedrock.

1.4 Site Conditions

Geo Solutions arrived on site during the morning of July 11, 2011. According to the local weather reports the site had not received any rainfall during the previous day. As a result the site surface dry, no standing water was observed anywhere on the site. The grass surface of the field area varied in height but generally was less than 1.5 feet in height.

Geo Solutions completed a site inspection over the area to be surveyed. Here we found the surface to be smooth with the exception of a few small depressions less than 6 inches deep and a gravel lined ditch constructed along the edges of the northern 1/3rd of the site. A gravel parking and staging area surrounded the former concrete building foundation on the southern edge of the site.

2.0 GEOPHYSICAL TECHNIQUES

2.1 Multifrequency Electromagnetic Survey

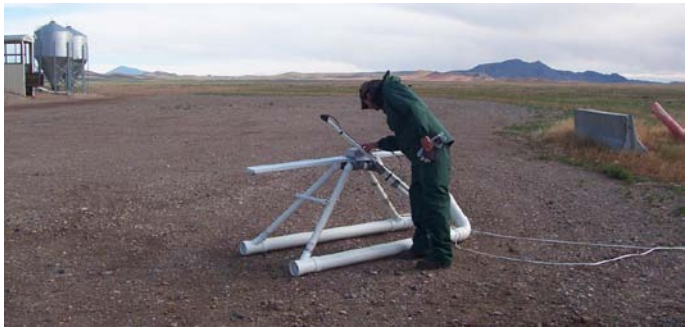
2.1.1 Introduction

The EM Method is a non-contact (uncoupled) geophysical method that utilizes a multiple frequency electromagnetic detector (Geophex Model GEM-2). The EM instrument collects electromagnetic responses in the in-phase (metal detection or magnetic susceptibility mode) and quadrature (conductivity) mode. An object, made partly or wholly of metals or conductive materials, has a characteristic combination of electrical conductivity, magnetic permeability properties, and a geometrical shape and size. When the object is exposed to a low-frequency electromagnetic field, it produces a secondary magnetic field. By measuring the broadband spectrum of the secondary field, it is possible to obtain a distinct spectral signature that may uniquely identify the object. Thus the response spectrum from buried material becomes a clue or a "fingerprint" of the material. This is the basic concept of electromagnetic induction spectroscopy ("*EMIS*") (Won, et. al. 1998).

EMIS technology is useful in characterizing buried material (either metal bearing or conductive). In this case, Geo Solutions was interested in evaluating the distribution of buried material containing electrically highly conductive carbon and metal. Based on our experience with buried carbon debris at an NPL Site located in Tarpon Springs Florida, buried carbon material exhibits very high quadrature (apparent conductivity) values when compared with a non-carbon bearing host material (Benson, et. al., 2004). The high conductivity values are generally exhibited across all EM frequencies. Metal bearing materials (such as steel) tend to have lower conductivity responses and higher in-phase responses. As a result, a comparison of apparent conductivity values with the in-phase (metal detection mode) values provides insight as to the composition and extent of buried material with anomalous high in-phase and apparent conductivity values.

2.1.2 Field Activities

The GEM-2 was operated in remote control configuration while evaluating the site. In this mode the GEM-2 unit is mounted on PVC tubular sled positioned approximately .75 meters from the ground surface. The receiving coil (detector coil) is situated directly above the exposed ground surface. The EM in-phase and conductivity data were collected simultaneously at nine varying frequencies (810 Hz, 2310 Hz, 3870 Hz, 6570 Hz, 11070 Hz, 18750 Hz, 31590 Hz, 53370 Hz, and 90030 Hz).



Photograph showing typical deployment of EM unit mounted on sled, as configured for this evaluation.

Data was collected at the rate of six samples per second. The position of each sample point was measured utilizing a CSI Wireless SERES global positioning system ("*GPS*") with a data update rate of 6 Hz (Crowson et. al. 2007). These data were transferred from the GEM-2 unit to a portable laptop computer that was carried on board a 4WD vehicle (Polaris Ranger with covered cab area). The sample spacing is thus a function of rate of travel of the sled. Here, Geo Solutions collected data along straight survey lines at 1.5 to 2 ft. intervals. The location of the EM data points is presented in Figure 2.

The EM data was transferred from the GEM-2 to a laptop computer using the WinGEM Version 3 software provided by the manufacturer. During the transfer process, the WinGEM software assigns UTM metric coordinates to each data collection station, and calculates the apparent conductivity, sum of conductivity, and magnetic susceptibility for each frequency collected using the system software. These data were then transferred to a Microsoft Excel Spread Sheet and reviewed for data anomalies such as poor GPS confidence levels that would likely result in poor coordinate assignments. These data were used to compile a series of maps illustrating various responses using a simple 3D mapping program (Golden Software's Surfer Mapping System Version 11).

2.1.3 EM In-Phase Survey

The results of the EM data were reviewed across all frequencies for both the in-phase (metal detection) and quadrature (apparent conductivity) modes. Based on this review the nine collection frequencies, the 11,070 Hz frequency in-phase data was selected to identify the location of potentially buried metal debris (Figure 3). The 11,070 Hz frequency was chosen because it is the established EM frequency used by the Geonics EM-31, and it appeared to provide a uniform (low noise level) representation of the overall data base in comparison of the other eight frequencies.

2.1.4 EM Apparent Conductivity Survey

Similarly, Geo Solutions collected EM data over the site for variations in apparent conductivity. Geo Solutions compiled the average of the sum of conductivity across each frequency, which enables the EM data to reflect subtle changes in conductivity while also showing large anomalous conditions.

A map illustrating the results of the average of the sum of all collected conductivity values is presented as Figure 4. In Figure 4, areas of high soil conductivity are generally more widespread than the distribution of suspected buried metal debris. However, zones of strong positive soil conductivity generally coincide with locations of potentially buried very conductive (electrically) debris. These conductive areas may also reflect changes in the overall conductivity of groundwater. However, given the magnitude of the conductivity values it is more likely a result of highly conductive material such as carbon.

2.1.5 Data Quality

The EM data was consistent with the field observations made during the survey. The capped land surface was very regular whereas portions of the site containing gravel/boulder lined ditches was very irregular contributing to a roughness in the data records.

2.1.6 Limitations

The EM depth of detection was not ascertained during this evaluation. However, in general, EM commonly detects to depth in excess of 20 feet (within the limits of the cap and the upper undisturbed saprolite surface).

2.2 Ground-Penetrating Radar

2.2.1 Introduction

GPR is an effective geophysical tool used to establish vertical and horizontal variations of certain electrical properties of soil. GPR is a noninvasive electromagnetic geophysical technique that utilizes radio frequency EM energy to detect various layers in the earth's shallow subsurface. It is widely used in environmental site characterization and landfill construction verification. It may be deployed from the surface by hand or vehicle (sled).

Typical setup of GPR using a hand-pushed cart (left) and the Model 3000 display (right).

GPR has the highest resolution of any geophysical method for imaging the subsurface, with centimeter scale resolution sometimes possible. However, GPR investigations usually are affected by subsurface conditions:

1. Soil composition affects the depth of detection (i.e. higher clay content generally equal lesser depths of penetration of the radar signal and thus the lesser depths of detection).

2. Presence of highly conductive material (i.e., less resistive material) generally equals poorer quality of recovered data and shallower sounding depths. Conductive material enhances the attenuation of the radar signal, thus reducing the depth of penetration.

2.2.2 Field Activities

The GPR data was collected on the GSSI Model 3000 GPR unit equipped with a 400 and 200 MHz antenna, and reviewed in the field for completeness and reliability. The GSSI Model 3000 unit uses a digital survey wheel to determine the distance between each vertical survey GPR sounding. These data are also collected along with the time domain records of the GPR. These data were post-processed using GSSI Radar Radan Version 6 software. In general, the GPR records can detect up to 3 feet for the 400 MHz, and 6 feet for the 200 MHz antennas. The presence of clay capping material generally reduces the depth of penetration for GPR. Geo Solutions anticipated a shallower depth of detection given the presence of clay in surficial soils.

2.2.3 GPR Survey

Because the GPR data was limited to 3 feet of penetration a complete GPR analysis of the site was not attempted. The location of each of the profiles lines for all of the GPR data is presented in Figure 6.

2.2.4 Data Quality

The quality of the GPR data was poor, with a high signal-to-noise ratio to a depth of 3 feet and poorer quality information in very few areas to a depth of 6 feet. The observed data related well to the observed site conditions: very poor records over the reportedly capped site and somewhat less poor records where the cap was not present (i.e., gravel surfaces surrounding the former building foundation).

2.2.5 Limitations

GPR data is limited by the type of soil and the presence or absence of groundwater. Here, a high quantity of clay in the upper units prevented detection to the target depth of 15 feet below land surface ("*bls*"). Therefore, the GPR detection was limited to approximately 3 feet bls.

2.3 MASW Seismic

2.3.1 Introduction

MASW is a seismic geophysical method that uses the dispersive characteristics of seismic surface waves to evaluate the variation of shear-wave (S-wave) velocity with depth. Data are acquired by analyzing seismic surface waves generated by an impulsive source and received by an array of geophones. A dispersion curve is calculated from the data that shows the velocity of the surface waves as a function of frequency. A shear-wave velocity profile (1-D profile of velocity as a function of depth) is then modeled from the dispersion curve.

The resulting shear-wave profiles from multiple locations along a survey line are combined and contoured into a 2-D cross-section of shear-wave velocity. Shear-wave velocity is a function of the elastic properties of the soil and rock and is directly related to the hardness (N-values) and stiffness of the materials. As such, the MASW method permits the characterization of softer waste/fill material and more stiff (uncompact) undisturbed soil and saprolite/bedrock.

2.3.2 Field Activities

Geo Solutions completed three MASW seismic profiles at the site using a 24-channel Geometrics Seismograph setup for MASW data collection and analysis. Acquisition parameters were based on established procedures (Zhang et. al., 2004) and preliminary on-site testing of the equipment by Geo Solutions.

Based on our initial testing the seismic source (weight drop) was located 16 feet from the first geophone in the spread. Each geophone spread consisted of 24 geophones spaced at 4-foot increments along the survey lines for a total spread length of 92 feet. Shots were spaced at 8-foot intervals along the survey lines. For each recorded shot point, the seismic data were stacked (enhanced) five times to improve the signal to noise ratio. There were no filters applied during the recording of the data. The land streamer was deployed along a 94 foot long land streamer.

A typical data collection sequence consisted of: first establishing the land streamer so that all geophones and skids where in good ground contact; next the drop weight was centered over a spot 16-ft from the first geophone; then the weight was dropped 5 times so as to collect 5 stacked seismic records; once the data was determined to be complete. A 40-lb weight drop released from 2-feet above the ground was used as the source of seismic energy.

The location for each of the MASW seismic lines is presented in Figure 7.

2.3.3 MASW Seismic Survey

Data were processed using SurfSeis 2.0 software (Kansas Geological Survey). Dispersion curves for each shot were manually picked by analyzing the phase-velocity of the surface waves as a function of frequency. These dispersion curves were then input into the SurfSeis inversion algorithm to produce 1D profiles of shear-wave velocity.

2.3.4 Data Quality

The SurfSeis 2.0 software has a built in data quality analysis program. The overall data collected here is evaluated as being of good quality. The MASW data provide well-defined dispersion curves with frequencies ranging from as low as 5-Hz up to a maximum of 30-Hz, resulting in a reliable model to a total depth of approximately 100 feet.

2.3.5 Limitations

MASW data is limited by the type of soil and the presence or absence of groundwater. Additionally, high shear strength contrast between the various geologic units typically enhances vertical resolution. Here, the seismic contrast is considered poor in the upper 40 ft section of the MASW record.

3.0 EM INTERPRETATION

Geo Solutions evaluated the EM results of the in-phase and apparent conductivity data from each collected frequency. Based on this review, Geo Solutions selected the 11,070 Hz data to best represent the results of the EM in-phase survey. The following is a summary of the results:

1. In-phase data indicated uniform conditions over nearly the entire site except for a large and strong rectangular shaped anomaly located in the center of the site with weaker, but strong, anomaly that appears to be aligned along a central axis that fans out from the rectangular anomaly. The source of these anomalies is not known, however Environeering indicated that the large anomalies may be associated with a buried concrete pad thought to be present and buried in the area.

2. Apparent conductivity data indicates variable distribution in bulk soil conductivity. The highest conductivity values (shown as red hues) are associated with the large rectangular feature identified in the in-phase data and thought to be a buried concrete pad.

3. The following is a list of coordinates that define the outline the horizontal distribution of the combined in-phase and apparent conductivity data that indicate a distinction between areas containing buried conductive materials and that of the natural background conditions.

Location	Easting	Northing
1	1666570	606176
2	1666576	606151
3	1666561	606130
4	1666568	606107
5	1666549	606078
6	1666531	606063
7	1666469	606020
8	1666451	606014
9	1666439	606021
10	1666441	606049
11	1666461	606088
12	1666471	606112
13	1666474	606148
14	1666467	606161
15	1666474	606184
16	1666499	606189
17	1666511	606181
18	1666534	606181
19	1666551	606184

4.0 GPR INTERPRETATION

Geo Solutions evaluated the GPR results from the profile data collected. The following is a summary of the results:

1. The quality of the GPR data was poor, with a high signal-to-noise ratio to a depth of 3 feet and poorer quality information in very few areas to a depth of 6 feet.

2. GPR data is limited by the type of soil and the presence or absence of groundwater. Here, a high quantity of clay in the upper units prevented detection to the target depth of 15 feet. The observed data related well to the observed site conditions: very poor records over the capped areas and somewhat less poor records where the cap was not present (i.e., gravel surfaces surrounding the former building foundation).

3. GPR analysis of the site was not attempted due to the poor depth response.

5.0 SEISMIC INTERPRETATION

Geo Solutions evaluated the MASW seismic results from the profile data collected. The following is a summary of the results:

1. MASW seismic survey results indicated the depth to unweathered rock as shallow as 20 ft bls and averages approximately 40 feet bls.

2. A shallow zone of soft to stiff soil is recognized from 15 to 30 feet bls, which is overlain by a more stiff 5 to 10 ft thick unit that begins from 7.5 to 17.5 feet bls.

3. Geo Solutions did not discern a relationship between the MASW results and the results of the EM evaluation. As such, we have selected the top of the shallowest stiff material to be the base of potential fill material at the site. MASW profile line 1 transects the EM anomaly and here the depth to the first dense zone varies from 7.5 feet to approximately 15 feet bls and averaging 10.5 feet bls.

6.0 CONCLUSIONS

EM, GPR, and MASW seismic evaluations conducted at the West SPL Area indicate the following:

- EM results indicate a distinct zone of anomalously elevated in-phase and apparent conductivity values coincident with the location of a suspected buried concrete pad. The dominant EM anomaly orientation appears to place a north-south trending anomaly beneath the concrete pad. GPR records indicate that the pad is reinforced with metal which explains the very high in-phase rectangular anomaly associated with the pad.

- Geo Solutions has interpreted the presence of low and probably background EM values for the remainder of the site to indicate no other burial of waste material is likely present elsewhere on the site.

- GPR data was poor due to the high fine silt and clay content of the soil. The depth of penetration of the GPR signal was generally 3 feet over the grassy area and up to 6 feet where the gravel surface was present surrounding the former building foundation. GPR data confirms the presence of metal reinforcement in the buried concrete pad.

- Seismic data confirmed the depth to unweathered bedrock at the site. The depth to bedrock averaged approximately 40 feet bls. MASW data also identified a very stiff layer at a depth of 7.5 to 17.5 ft and averaging 10.5 feet bls. This layer may represent the basal layer where fill material may have been placed. As such, the general depth of fill is likely to average 10 feet bls.

7.0 REFERENCES

Benson, R. C., Heckathorne, J. R., 2004, Geophysical Studies Report, Stauffer Chemical Company, Superfund Site, Tarpon Springs, Florida.

I.J. Won, D.A. Keiswetter, and E. Novikova, 1998, Electromagnetic induction spectroscopy, *Journal of Environmental and Engineering Geophysics*, v. 3, Issue 1, pp. 27-40.

Crowson, R. A., Allen, R. C., 2007, Use of Multi-frequency Electromagnetic Profiling in a Remedial Investigation at Camp Kohler, McClellan Air Force Base, Sacramento, California. SAGEEP 2007 Conference.

Zhang, S.X., Chan, L.S., and Xia, J., 2004, The selection of field acquisition parameters for dispersion images from multichannel surface wave data: Pure and Applied Geophysics, 161,185–201.

Figure 1. Location of at the Alcoa-Badin Works Facility SWMU No. 46: West SPL Area (outlined in yellow).

FIGURE 2

WEST SPL AREA
SWMU NO. 46

LOCATION OF EM PROFILE LINES

EM PROFILE LINES COMPLETED EVERY 3 TO 5 FEET WITH DATA POINTS EVERY 0.5 FT ALONG EACH PROFILE LINE

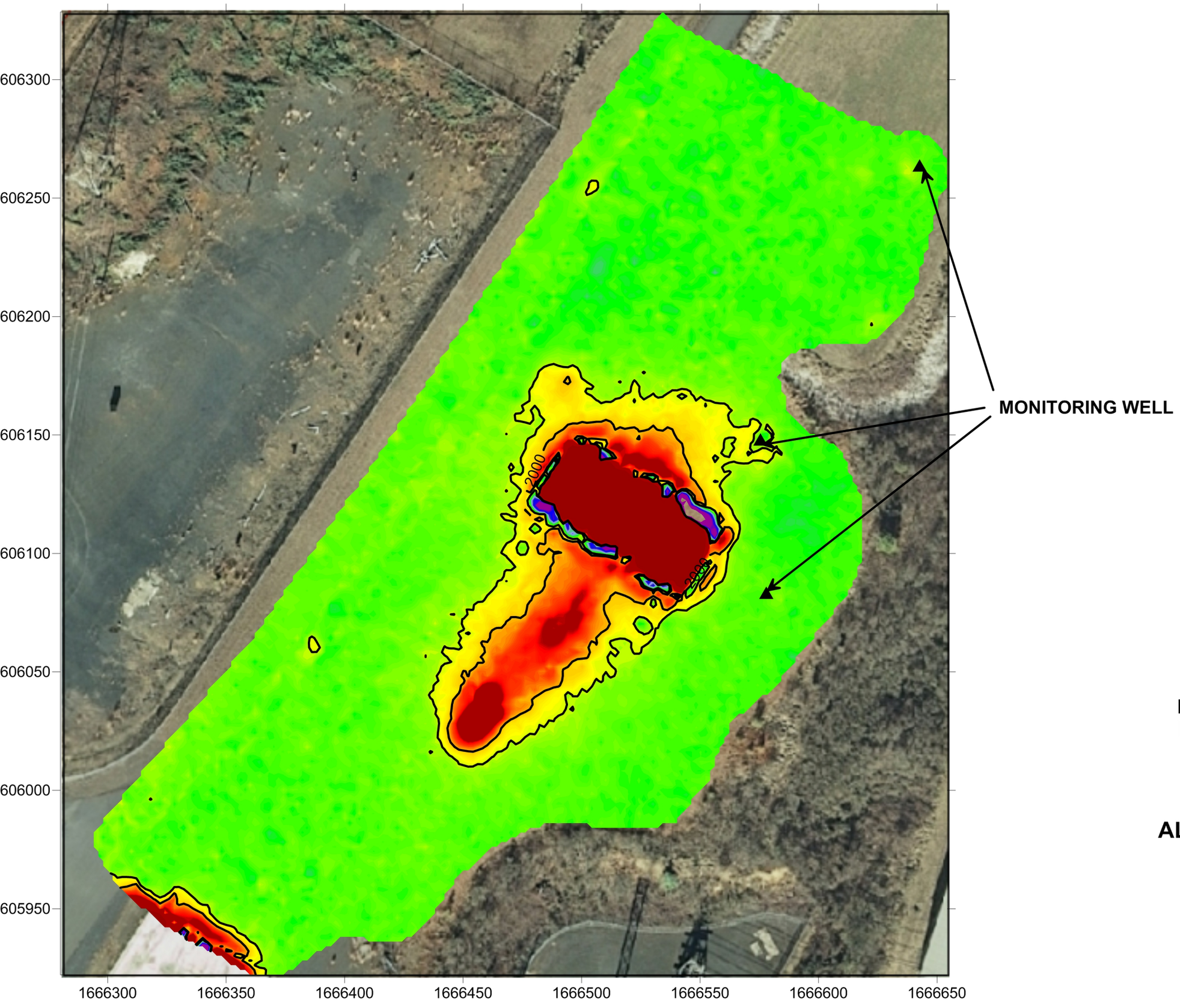
ALCOA-BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

0 100
SCALE IN FEET

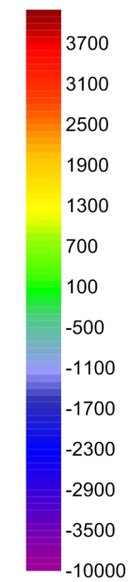
Geo Solutions Ltd.

FIGURE 3

WEST SPL AREA
SWMU NO. 46



RESULTS OF EM PROFILE LINES



IN-PHASE DATA
11,070 Hz (PPM)

EM PROFILE LINES COMPLETED EVERY 3 TO 5 FEET WITH DATA POINTS EVERY 0.5 FT ALONG EACH PROFILE LINE

ALCOA-BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

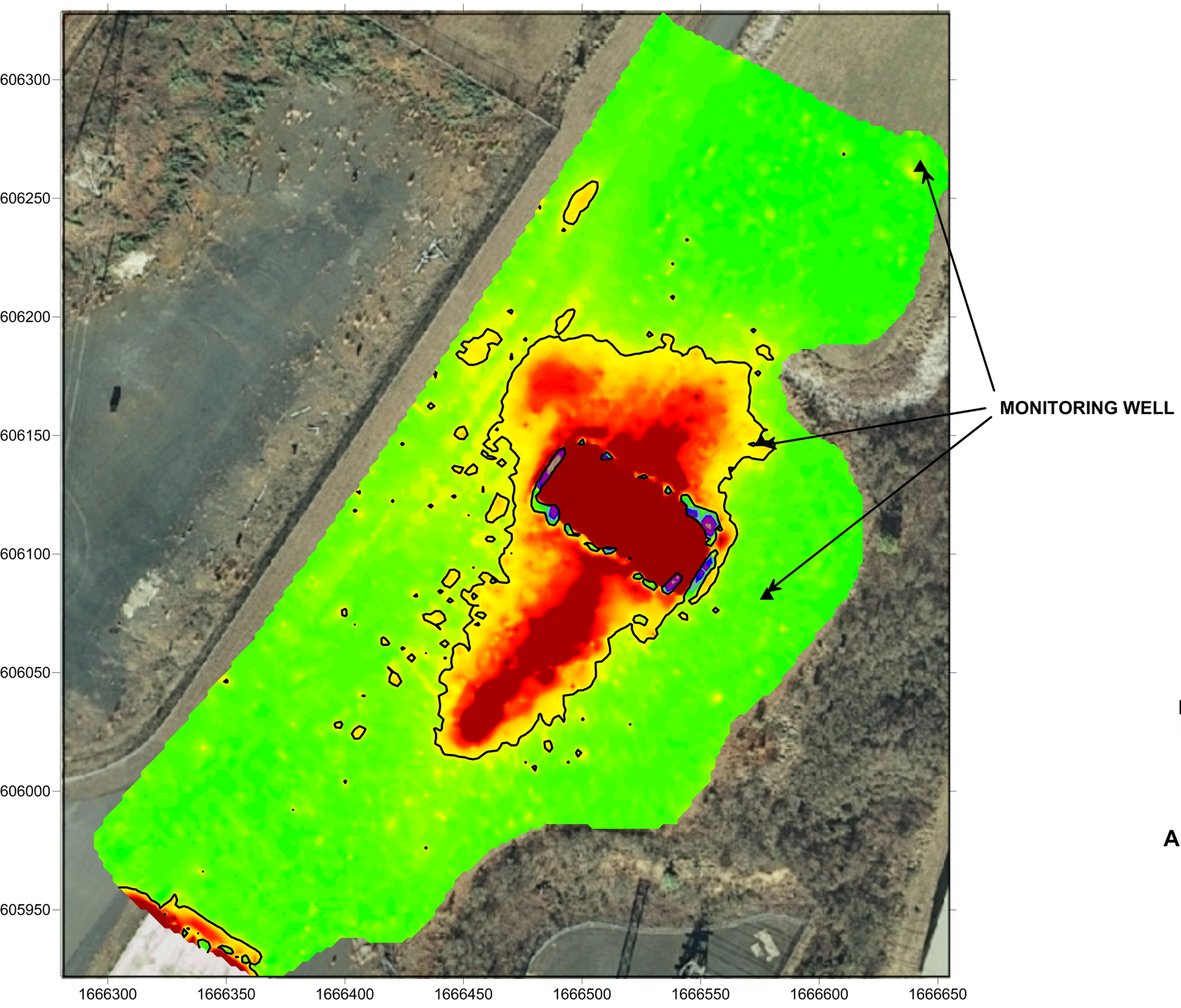
0 100

SCALE IN FEET

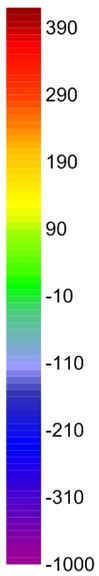
Geo Solutions Ltd.

FIGURE 4

WEST SPL AREA
SWMU NO. 46



RESULTS OF EM PROFILE LINES



APPARENT CONDUCTIVITY DATA AVERAGE VALUE (mS/M)

EM PROFILE LINES COMPLETED EVERY 3 TO 5 FEET WITH DATA POINTS EVERY 0.5 FT ALONG EACH PROFILE LINE

ALCOA-BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

0 100

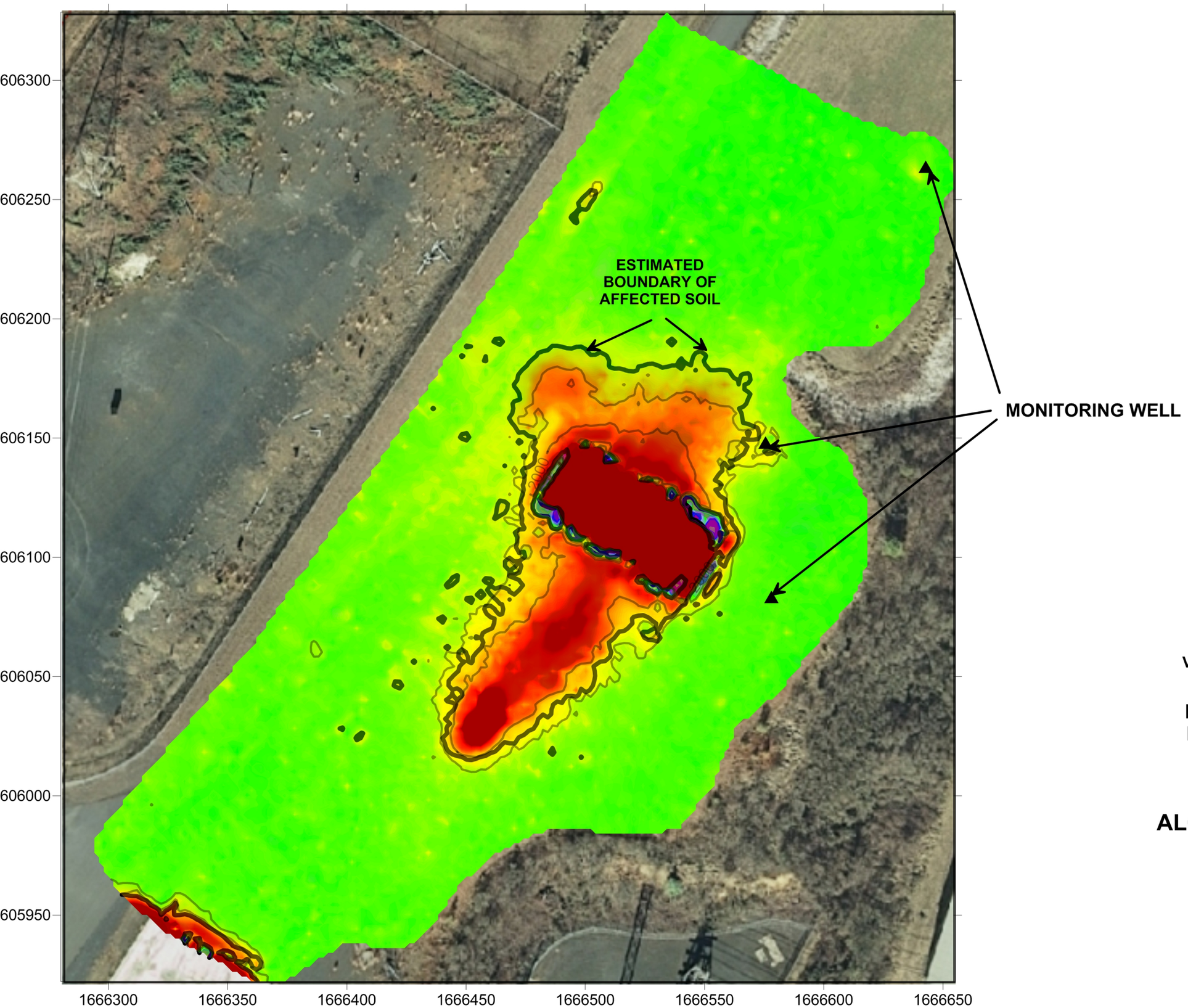
SCALE IN FEET

Geo Solutions Ltd.

FIGURE 5

WEST SPL AREA
SWMU NO. 46

RESULTS OF EM PROFILE LINES



No.	X	Y
1	1666570	606176
2	1666576	606151
3	1666561	606130
4	1666568	606107
5	1666549	606078
6	1666531	606063
7	1666469	606020
8	1666451	606014
9	1666439	606021
10	1666441	606049
11	1666461	606088
12	1666471	606112
13	1666474	606148
14	1666467	606161
15	1666474	606184
16	1666499	606189
17	1666511	606181
18	1666534	606181
19	1666551	606184

COMBINED IN-PHASE AND APPARENT CONDUCTIVITY VALUES WITH ESTIMATED BOUNDARY

EM PROFILE LINES COMPLETED EVERY 3 TO 5 FEET WITH DATA POINTS EVERY 0.5 FT ALONG EACH PROFILE LINE

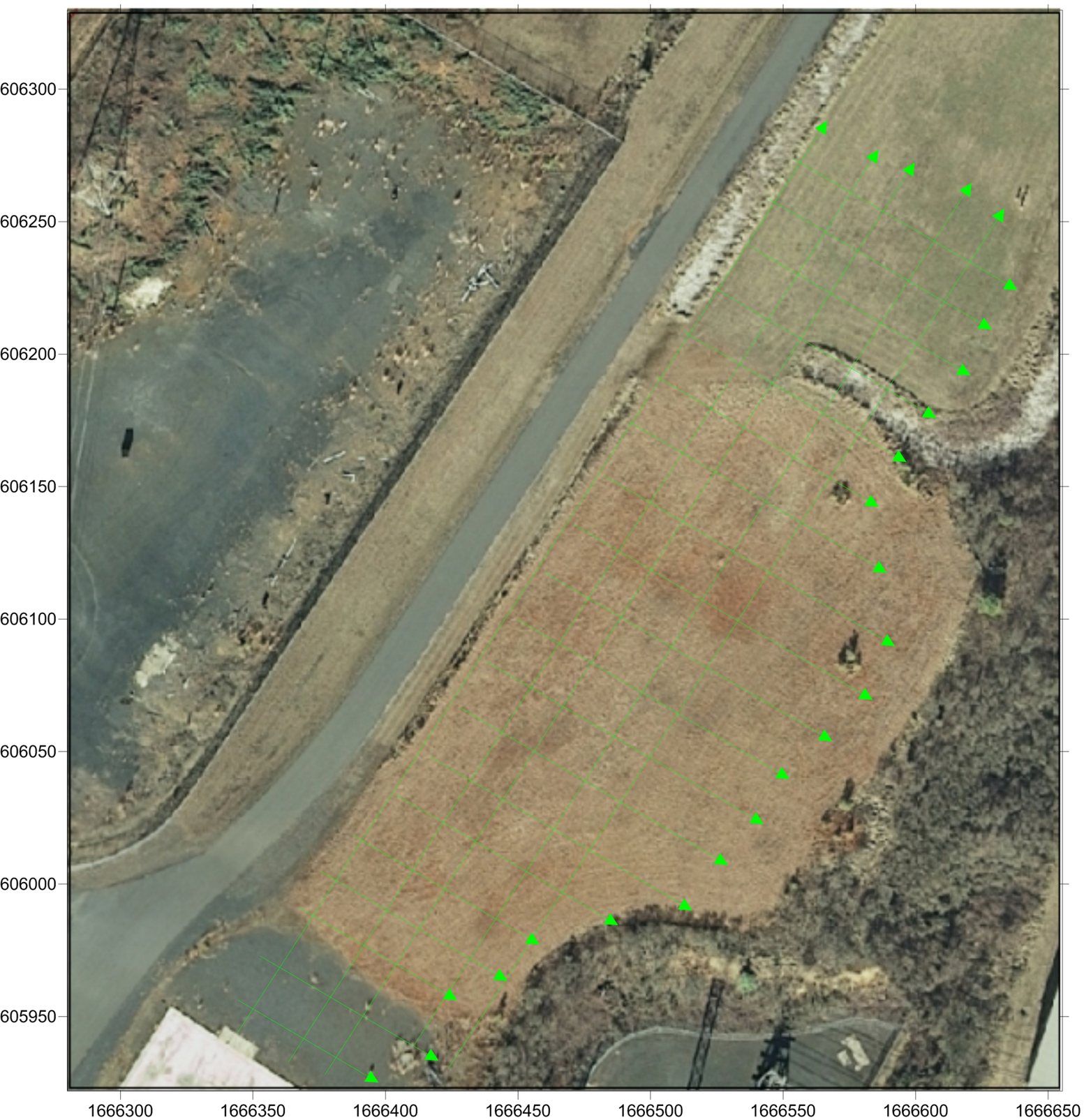
ALCOA-BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

0 100

SCALE IN FEET

Geo Solutions Ltd.

FIGURE 6



WEST SPL AREA
SWMU NO. 46

LOCATION OF GROUND-PENETRATING RADAR PROFILES

LOCATION AND DIRECTION
OF COLLECTION OF GPR LINES

ALCOA-BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

0 100

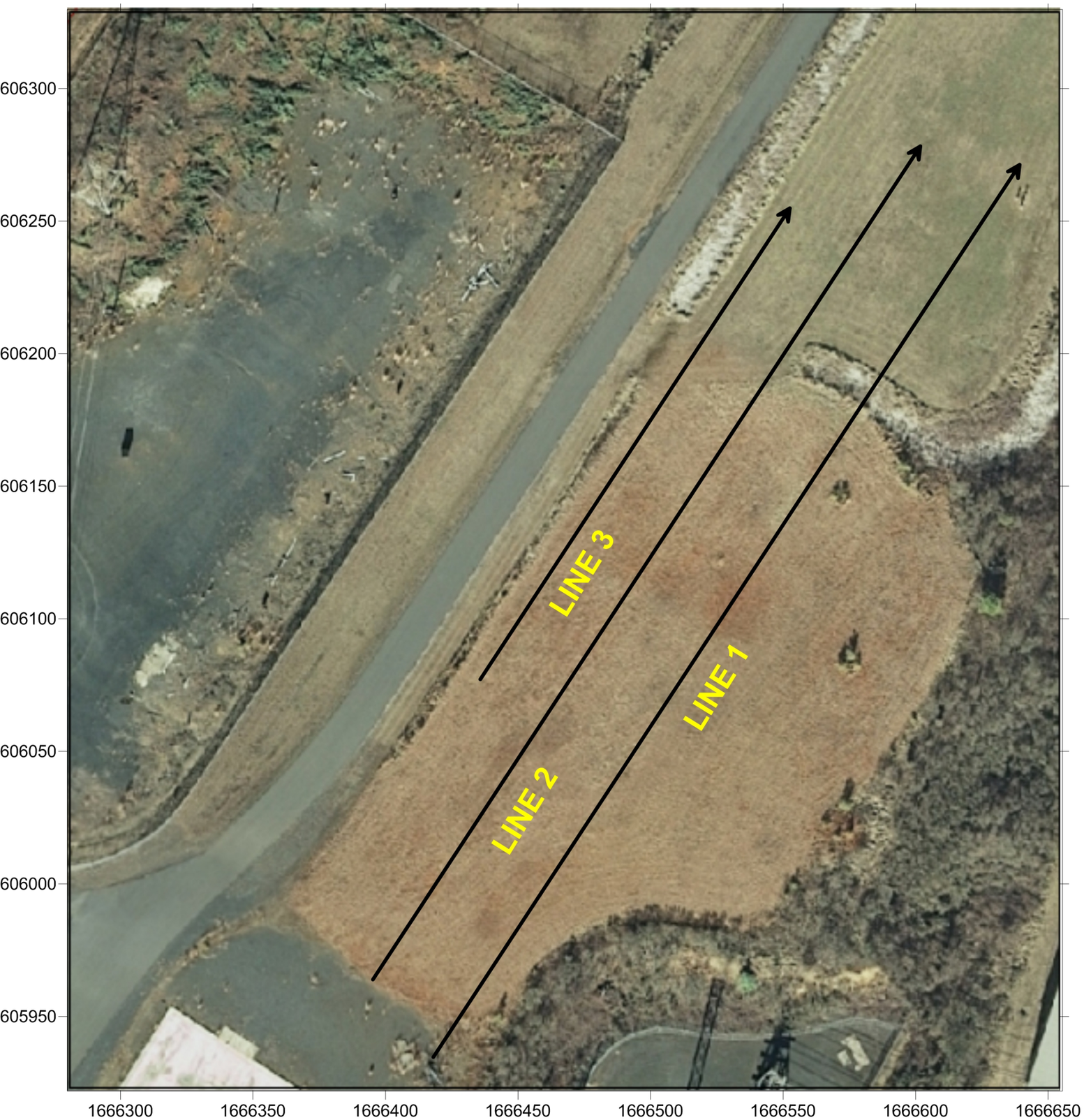
SCALE IN FEET

Geo Solutions Ltd.

FIGURE 7

WEST SPL AREA
SWMU NO. 46

LOCATION OF MULTI-CHANNEL ANALYSIS OF SURFACE WAVES PROFILE LINES



MASW SEISMIC LINES CONSTRUCTED WITH 16 FT LEED SAMPLING EVERY 16 FEET AND A GEOPHONE SPACING OF 4 FT

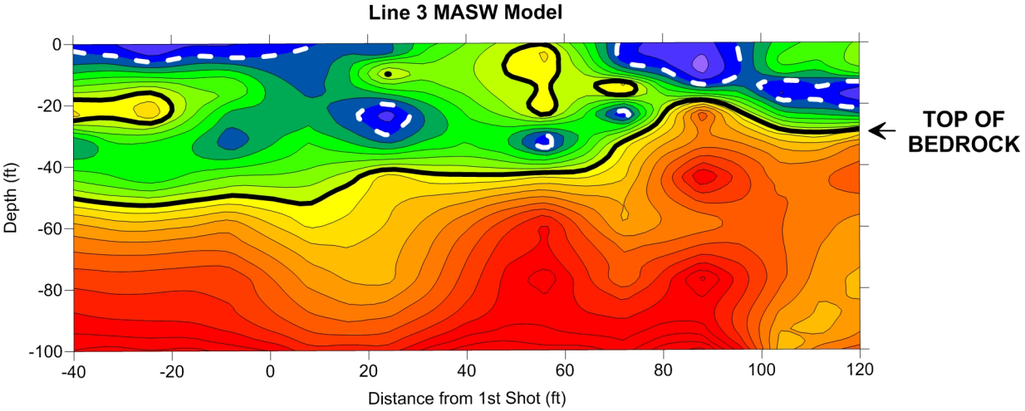
ALCOA-BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

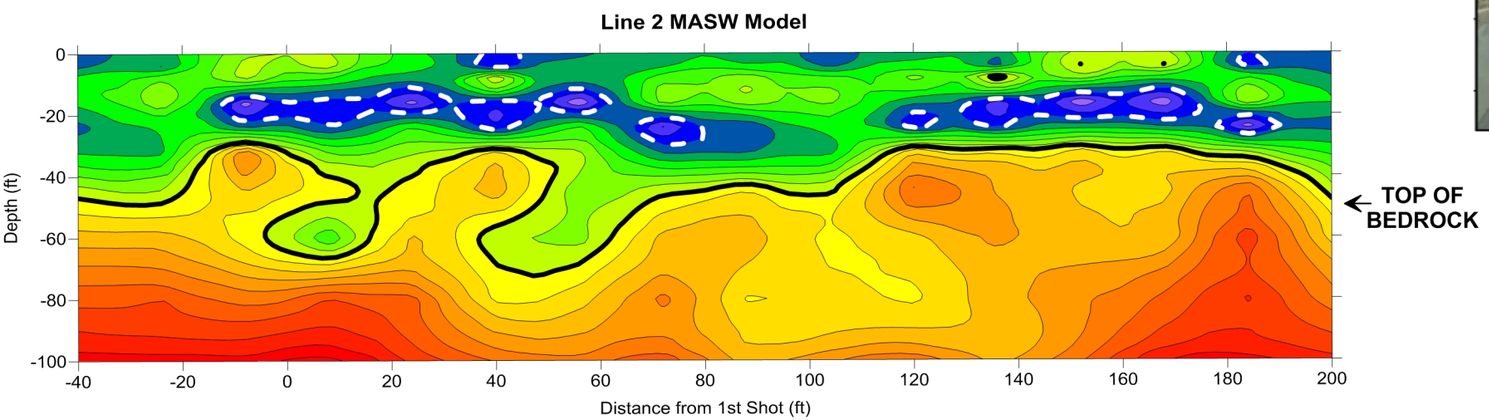
0 100

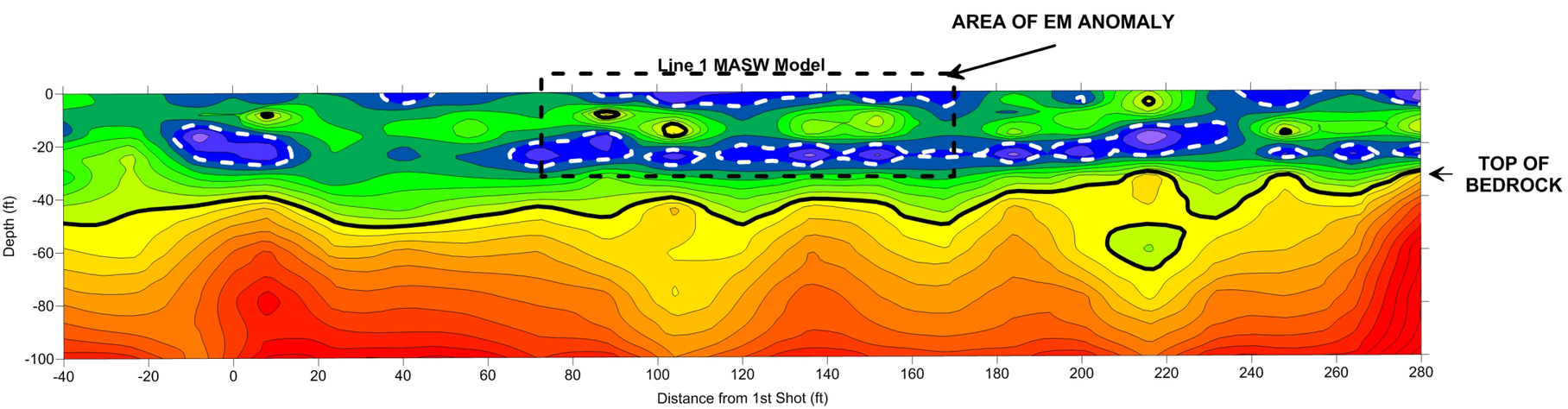
SCALE IN FEET

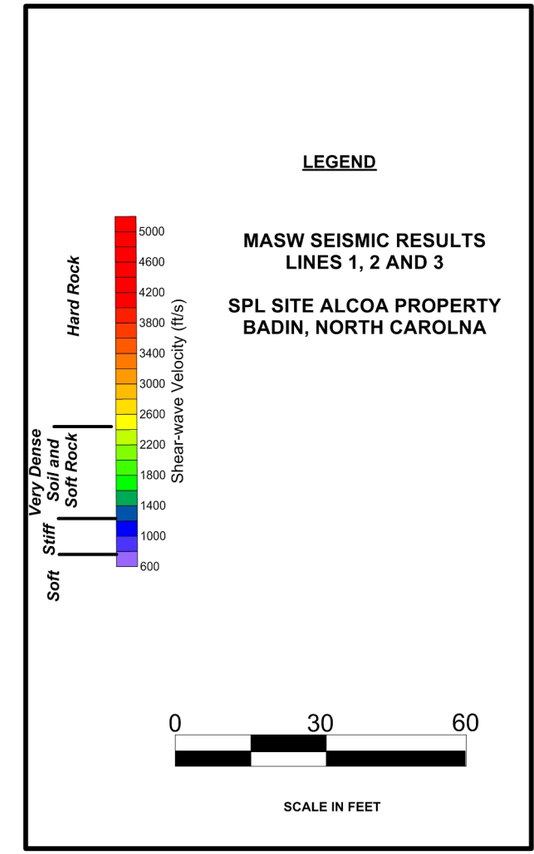
Geo Solutions Ltd.

FIGURE 8









WEST SPL AREA
SWMU NO. 46

ALCOA-BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

Geo Solutions Ltd.

APPENDIX G

WEST SPL BORING LOGS

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S46-B1

CLIENT:	Alcoa
PROJECT:	West SPL - SWMU No. 46
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	Mad Dawg Drilling
DRILLER:	W. Kicker
DRILLING METHOD:	Geoprobe; Dual Tube
GROUND SURFACE ELEVATION AND DATUM:	
DATE COMPLETED:	8/18/11
TOTAL DEPTH (ft.):	20'
BOREHOLE DIAMETER:	3.25"
CASING:	N/A
SLOT SIZE:	N/A
SCREEN INTERVAL (ft.):	N/A
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0–1.5			FILL: Red brown silty clay fill, moist, medium stiff		
1.5–2			FILL: Blue-gray bentonite clay mat, moist, soft		
2–4			FILL: Gravel with minor silt/sand, dry, loose		
4–4.5			FILL: Red brown silty clay fill, moist, medium stiff		
4.5–11			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, moist to dry, medium stiff		
11–11.5			FILL: Dark gray to black carbonaceous granular fill, wet, loose		
11.5–12			FILL: Tan-brown silty clay; wet, soft		
12–19			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		
19–20			SAPROLITE: Red brown saprolite, dry, very stiff to hard		

ENVIRONEERING, INC. HOUSTON, TEXAS	Log of : S46-B2	
CLIENT: Alcoa	GROUND SURFACE ELEVATION AND DATUM:	
PROJECT: West SPL - SWMU No. 46	DATE COMPLETED: 8/18/11	
PROJECT LOCATION: Badin, NC	TOTAL DEPTH (ft.): 20'	BOREHOLE DIAMETER: 3.25"
DRILLING COMPANY: Mad Dawg Drilling	CASING: N/A	SLOT SIZE: N/A
DRILLER: W. Kicker	SCREEN INTERVAL (ft.): N/A	
DRILLING METHOD: Geoprobe; Dual Tube	GEOLOGIST: M. Worden	

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Red brown silty clay fill, moist, medium stiff		
1					
			FILL: Blue-gray bentonite clay mat, moist, soft		
2			FILL: Gravel with minor silt/sand, dry, loose		
			FILL: Red brown silty clay fill, moist, medium stiff		
3					
4					
5					
6					
7			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, 1" dark gray to black carbonaceous granular fill seam at 7' bls and 8' bls, moist to dry, medium stiff		
8					
9					
10					
11					
12					
13			FILL: Dark gray to black carbonaceous granular fill, wet, loose		
			FILL: Tan-brown silty clay; wet, soft		
14					
15					
16					
17			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, soft to 17', medium stiff to very stiff to 20'		
18					
19					
20					

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S46-B3

CLIENT:	Alcoa
PROJECT:	West SPL - SWMU No. 46
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	Mad Dawg Drilling
DRILLER:	W. Kicker
DRILLING METHOD:	Geoprobe; Dual Tube
GROUND SURFACE ELEVATION AND DATUM:	
DATE COMPLETED:	8/18/11
TOTAL DEPTH (ft.):	20'
BOREHOLE DIAMETER:	3.25"
CASING:	N/A
SLOT SIZE:	N/A
SCREEN INTERVAL (ft.):	N/A
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0–1.5			FILL: Red brown silty clay fill, moist, medium stiff		
1.5–2			FILL: Blue-gray bentonite clay mat, moist, soft		
2–2.5			FILL: Gravel with minor silt/sand, dry, loose		
2.5–3			FILL: Red brown silty clay fill, moist, medium stiff		
3–12			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, moist to dry, medium stiff		
12–13			FILL: Gravel with minor silt/sand, dry, loose		
13–14			FILL: Dark gray to black carbonaceous granular fill, wet, loose		
14–15			FILL: Tan-brown silty clay; wet, soft		
15–19			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		
19–20			SAPROLITE: Red brown saprolite, dry, very stiff to hard		

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S46-B4

CLIENT:	Alcoa	GROUND SURFACE ELEVATION AND DATUM:	
PROJECT:	West SPL - SWMU No. 46	DATE COMPLETED:	8/18/11
PROJECT LOCATION:	Badin, NC	TOTAL DEPTH (ft.): 20'	BOREHOLE DIAMETER: 3.25"
DRILLING COMPANY:	Mad Dawg Drilling	CASING: N/A	SLOT SIZE: N/A
DRILLER:	W. Kicker	SCREEN INTERVAL (ft.):	N/A
DRILLING METHOD:	Geoprobe; Dual Tube	GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, moist to dry, medium stiff		
14			FILL: Red brown silty clay fill, moist, medium stiff		
			FILL: Blue-gray bentonite clay mat, moist, soft		
15			FILL: Gravel with minor silt/sand, dry, loose		
			FILL: Red brown silty clay fill, moist, medium stiff		
16			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, 1" dark gray to black carbonaceous granular fill seam at 7.5' bls, 3" dark gray to black carbonaceous granular fill seam at 11' bls, moist to dry, medium stiff		
17			FILL: Dark gray to black carbonaceous granular fill, one 1" glassy porous fragment, wet, loose		
18			FILL: Tan-brown silty clay; wet, soft		
19			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		
20					

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S46-B5

CLIENT:	Alcoa
PROJECT:	West SPL - SWMU No. 46
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	Mad Dawg Drilling
DRILLER:	W. Kicker
DRILLING METHOD:	Geoprobe; Dual Tube
GROUND SURFACE ELEVATION AND DATUM:	
DATE COMPLETED:	8/18/11
TOTAL DEPTH (ft.):	20'
BOREHOLE DIAMETER:	3.25"
CASING:	N/A
SLOT SIZE:	N/A
SCREEN INTERVAL (ft.):	N/A
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0–1.5			FILL: Red brown silty clay fill, moist, medium stiff		
1.5–1.7			FILL: Blue-gray bentonite clay mat, moist, soft		
1.7–2.0			FILL: Gravel with minor silt/sand, dry, loose		
2.0–3.0			FILL: Red brown silty clay fill, moist, medium stiff		
3.0–14.0			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, 1" dark gray to black carbonaceous granular fill seam at 11' bls, moist to dry, medium stiff		
14.0–15.0			FILL: Tan-brown silty clay; wet, soft		
15.0–20.0			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		

ENVIRONEERING, INC. HOUSTON, TEXAS	Log of : S46-B6	
CLIENT: Alcoa	GROUND SURFACE ELEVATION AND DATUM:	
PROJECT: West SPL - SWMU No. 46	DATE COMPLETED: 8/19/11	
PROJECT LOCATION: Badin, NC	TOTAL DEPTH (ft.): 15'	BOREHOLE DIAMETER: 3.25"
DRILLING COMPANY: Mad Dawg Drilling	CASING: N/A	SLOT SIZE: N/A
DRILLER: W. Kicker	SCREEN INTERVAL (ft.): N/A	
DRILLING METHOD: Geoprobe; Dual Tube	GEOLOGIST: M. Worden	

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Red brown silty clay fill, moist, medium stiff		
1					
			FILL: Blue-gray bentonite clay mat, moist, soft		
2			FILL: Sandy gravel with minor silt/sand, dry, loose		
			FILL: Red brown silty clay fill, moist, medium stiff		
3					
4					
5					
6					
7					
8			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel (7.5-8' bls), decreased silt from 4-4.5' bls, moist to dry, medium stiff		
9					
10					
11					
12					
13					
14			FILL: Tan-brown silty clay; wet, soft		
15			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		
16					
17					
18					
19					
20					

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S46-B7

CLIENT:	Alcoa
GROUND SURFACE ELEVATION AND DATUM:	
PROJECT:	West SPL - SWMU No. 46
DATE COMPLETED:	8/18/11
PROJECT LOCATION:	Badin, NC
TOTAL DEPTH (ft.):	15'
BOREHOLE DIAMETER:	3.25"
DRILLING COMPANY:	Mad Dawg Drilling
CASING:	N/A
SLOT SIZE:	N/A
DRILLER:	W. Kicker
SCREEN INTERVAL (ft.):	N/A
DRILLING METHOD:	Geoprobe; Dual Tube
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0–1.5			FILL: Red brown silty clay fill, moist, medium stiff		
1.5–2			FILL: Blue-gray bentonite clay mat, moist, soft		
2–3			FILL: Gravel with minor silt/sand, dry, loose		
3–6.5			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, moist to dry, medium stiff		
6.5–7.5			FILL: Red brown clay fill, moist, medium stiff		
7.5–8.5			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, moist to dry, medium stiff		
8.5–9.5			FILL: Red brown clay fill, moist, medium stiff		
9.5–14			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, moist to dry, medium stiff		
14–15			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S46-B8

CLIENT:	Alcoa
PROJECT:	West SPL - SWMU No. 46
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	Mad Dawg Drilling
DRILLER:	W. Kicker
DRILLING METHOD:	Geoprobe; Dual Tube
GROUND SURFACE ELEVATION AND DATUM:	
DATE COMPLETED:	8/19/11
TOTAL DEPTH (ft.):	20'
BOREHOLE DIAMETER:	3.25"
CASING:	N/A
SLOT SIZE:	N/A
SCREEN INTERVAL (ft.):	N/A
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0–1			FILL: Red brown silty clay fill, moist, medium stiff		
2			FILL: Blue-gray bentonite clay mat, moist, soft		
2–3			FILL: Red brown silty clay fill, moist, medium stiff		
3–8			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, 1" dark gray to black carbonaceous granular fill seam at 8' bls, moist to dry, medium stiff		
8–10			FILL: Tan-brown clay; wet, soft		
10–14			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		
14–20			SAPROLITE: Olive tan saprolite, dry, very stiff to hard		

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S46-B9

CLIENT:	Alcoa
GROUND SURFACE ELEVATION AND DATUM:	
PROJECT:	West SPL - SWMU No. 46
DATE COMPLETED:	8/19/11
PROJECT LOCATION:	Badin, NC
TOTAL DEPTH (ft.):	20'
BOREHOLE DIAMETER:	3.25"
DRILLING COMPANY:	Mad Dawg Drilling
CASING:	N/A
SLOT SIZE:	N/A
DRILLER:	W. Kicker
SCREEN INTERVAL (ft.):	N/A
DRILLING METHOD:	Geoprobe; Dual Tube
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Red brown silty clay fill, moist, medium stiff		
1			FILL: Blue-gray bentonite clay mat, moist, soft		
			FILL: Gravel with minor silt/sand, dry, loose		
2			FILL: Red brown sandy silty clay to sandy clayey silt fill, moist, medium stiff		
3			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor basal gravel, moist to dry, medium stiff		
4					
5					
6					
7					
8					
9					
10			FILL: Tan-brown silty clay; wet, soft		
11					
12			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		
13					
14					
15			SAPROLITE: Red brown saprolite, dry, very stiff to hard		
16					
17					
18					
19					
20					

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S46-B10

CLIENT:	Alcoa
PROJECT:	West SPL - SWMU No. 46
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	Mad Dawg Drilling
DRILLER:	W. Kicker
DRILLING METHOD:	Geoprobe; Dual Tube

GROUND SURFACE ELEVATION AND DATUM:			
DATE COMPLETED:	8/18/11		
TOTAL DEPTH (ft.):	20'	BOREHOLE DIAMETER:	3.25"
CASING:	N/A	SLOT SIZE:	N/A
SCREEN INTERVAL (ft.):	N/A		
GEOLOGIST:	M. Worden		

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Red brown silty clay fill, moist, medium stiff		
1			FILL: Blue-gray bentonite clay mat, moist, soft		
			FILL: Gravel with minor silt/sand, dry, loose		
2			FILL: Red brown silty clay fill, moist, medium stiff		
3			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, moist to dry, medium stiff		
4					
5					
6					
7					
8					
9					
10					
11					
12			FILL: Tan-brown silty clay; wet, soft		
13					
14			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		
15					
16					
17					
18			SAPROLITE: Red brown saprolite, dry, very stiff to hard		
19					
20					

ENVIRONEERING, INC.
HOUSTON, TEXAS

Log of : S46-B11

CLIENT:	Alcoa
PROJECT:	West SPL - SWMU No. 46
PROJECT LOCATION:	Badin, NC
DRILLING COMPANY:	Mad Dawg Drilling
DRILLER:	W. Kicker
DRILLING METHOD:	Geoprobe; Dual Tube
GROUND SURFACE ELEVATION AND DATUM:	
DATE COMPLETED:	8/18/11
TOTAL DEPTH (ft.):	15'
BOREHOLE DIAMETER:	3.25"
CASING:	N/A
SLOT SIZE:	N/A
SCREEN INTERVAL (ft.):	N/A
GEOLOGIST:	M. Worden

DEPTH (feet)	OVM Reading	VISUAL LOG	DESCRIPTION	USCS Symbol	TOC Elevation: WELL CONSTRUCTION
0			FILL: Red brown silty clay fill, moist, medium stiff		
			FILL: Blue-gray bentonite clay mat, moist, soft		
1			FILL: Gravel with minor silt/sand, dry, loose		
2			FILL: Red brown silty clay fill, moist, medium stiff		
3			FILL: Orange brown silty clay fill with mottled saprolite fragments and minor gravel, 3" dark gray organic seam at 7.5' bls, moist to dry, medium stiff		
4					
5					
6					
7					
8					
9			FILL: Tan-brown silty clay; wet, soft		
10					
11			SOIL: Orange brown to red brown silty clay, minor rounded pebbles, dry to moist, stiff		
12					
13					
14					
15					
16					
17					
18					
19					
20					

APPENDIX H

WEST SPL SOIL ANALYTICAL REPORTS AND CHAIN OF CUSTODY DOCUMENTATION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-71611-1
Client Project/Site: Environeering 137-155 West SPL (S46)

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
08/30/2011 05:38:45 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Results relate only to the items tested and the sample(s) as received by the laboratory. The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Case Narrative

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Job ID: 680-71611-1

Laboratory: TestAmerica Savannah

Narrative

Job Narrative
680-71611-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

General Chemistry
Method(s) 335.4: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 212997 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) SM 4500 F C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 212542 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Sample Summary

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-71611-1	S46-B1 (2-3)	Solid	08/18/11 12:20	08/20/11 09:59
680-71611-2	S46-B1 (6-7)	Solid	08/18/11 13:00	08/20/11 09:59
680-71611-3	S46-B1 (11-12)	Solid	08/18/11 13:30	08/20/11 09:59
680-71611-4	S46-B2 (2-3)	Solid	08/18/11 15:00	08/20/11 09:59
680-71611-5	S46-B2 (6-7)	Solid	08/18/11 15:03	08/20/11 09:59
680-71611-6	S46-B2 (13-14)	Solid	08/18/11 15:05	08/20/11 09:59
680-71611-7	S46-B3 (2-3)	Solid	08/18/11 15:10	08/20/11 09:59
680-71611-8	S46-B3 (6-7)	Solid	08/18/11 15:12	08/20/11 09:59
680-71611-9	S46-B3 (14-15)	Solid	08/18/11 15:25	08/20/11 09:59
680-71611-10	S46-B4 (2-3)	Solid	08/18/11 15:35	08/20/11 09:59
680-71611-11	S46-B4 (6-7)	Solid	08/18/11 15:37	08/20/11 09:59
680-71611-12	S46-B4 (15-16)	Solid	08/18/11 15:45	08/20/11 09:59
680-71611-13	S46-B5 (2-3)	Solid	08/18/11 15:55	08/20/11 09:59
680-71611-14	S46-B5 (6-7)	Solid	08/18/11 16:00	08/20/11 09:59
680-71611-15	S46-B5 (14-15)	Solid	08/18/11 16:05	08/20/11 09:59
680-71611-16	S46-B7 (2-3)	Solid	08/18/11 16:10	08/20/11 09:59
680-71611-17	S46-B7 (6-7)	Solid	08/18/11 16:15	08/20/11 09:59
680-71611-18	S46-B7 (13-14)	Solid	08/18/11 16:20	08/20/11 09:59
680-71611-19	S46-B10 (2-3)	Solid	08/18/11 16:30	08/20/11 09:59
680-71611-20	S46-B10 (6-7)	Solid	08/18/11 16:35	08/20/11 09:59
680-71611-21	S46-B10 (11-12)	Solid	08/18/11 16:40	08/20/11 09:59
680-71611-22	S46-B11 (1.5-2.5)	Solid	08/18/11 16:50	08/20/11 09:59
680-71611-23	S46-B11 (4-5)	Solid	08/18/11 16:55	08/20/11 09:59
680-71611-24	S46-B11 (8-9)	Solid	08/18/11 17:00	08/20/11 09:59
680-71611-25	S46-B6 (2-3)	Solid	08/19/11 08:10	08/20/11 09:59
680-71611-26	S46-B6 (6-7)	Solid	08/19/11 08:15	08/20/11 09:59
680-71611-27	S46-B6 (12.5-13.5)	Solid	08/19/11 08:20	08/20/11 09:59
680-71611-28	S46-B8 (2-3)	Solid	08/19/11 07:40	08/20/11 09:59
680-71611-29	S46-B8 (5-6)	Solid	08/19/11 07:45	08/20/11 09:59
680-71611-30	S46-B8 (7.5-8.5)	Solid	08/19/11 07:50	08/20/11 09:59
680-71611-31	S46-B9 (2-3)	Solid	08/19/11 07:55	08/20/11 09:59
680-71611-32	S46-B9 (5-6)	Solid	08/19/11 08:00	08/20/11 09:59
680-71611-33	S46-B9 (9-10)	Solid	08/19/11 08:05	08/20/11 09:59
680-71611-34	EB-1	Water	08/19/11 09:00	08/20/11 09:59
680-71611-35	TB-1	Water	08/17/11 22:00	08/20/11 09:59

Method Summary

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	MCAWW	TAL SAV
Moisture	Percent Moisture	EPA	TAL SAV
SM 4500 F C	Fluoride	SM	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Definitions/Glossary

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
F	RPD of the MS and MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit (Dioxin)
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or method detection limit if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Client Sample ID: S46-B1 (2-3)

Lab Sample ID: 680-71611-1
Date Collected: 08/18/11 12:20
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 74.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.28		0.66	0.28	mg/Kg	☼	08/25/11 08:10	08/26/11 08:49	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<2.7		5.4	2.7	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B1 (6-7)

Lab Sample ID: 680-71611-2
Date Collected: 08/18/11 13:00
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 85.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	70		5.7	2.4	mg/Kg	☼	08/25/11 08:10	08/26/11 09:47	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	12		4.7	2.4	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B1 (11-12)

Lab Sample ID: 680-71611-3
Date Collected: 08/18/11 13:30
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 80.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	53		5.9	2.5	mg/Kg	☼	08/25/11 08:10	08/26/11 09:45	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1000		4.9	2.5	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B2 (2-3)

Lab Sample ID: 680-71611-4
Date Collected: 08/18/11 15:00
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 89.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.23		0.55	0.23	mg/Kg	☼	08/25/11 08:10	08/26/11 08:52	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	9.1		4.4	2.2	mg/Kg	☼		08/22/11 14:48	1

Client Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Client Sample ID: S46-B2 (6-7)

Lab Sample ID: 680-71611-5
Date Collected: 08/18/11 15:03
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 79.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	45		6.1	2.6	mg/Kg	☼	08/25/11 08:10	08/26/11 09:46	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	450		5.0	2.5	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B2 (13-14)

Lab Sample ID: 680-71611-6
Date Collected: 08/18/11 15:05
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 82.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	78		12	4.8	mg/Kg	☼	08/25/11 08:10	08/26/11 10:09	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	660		4.8	2.4	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B3 (2-3)

Lab Sample ID: 680-71611-7
Date Collected: 08/18/11 15:10
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 83.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.25		0.58	0.25	mg/Kg	☼	08/25/11 08:10	08/26/11 08:55	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	5.5		4.8	2.4	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B3 (6-7)

Lab Sample ID: 680-71611-8
Date Collected: 08/18/11 15:12
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 79.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	6.1		0.63	0.26	mg/Kg	☼	08/25/11 08:10	08/26/11 08:58	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	55		5.1	2.5	mg/Kg	☼		08/22/11 14:48	1

Client Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Client Sample ID: S46-B3 (14-15)

Lab Sample ID: 680-71611-9
Date Collected: 08/18/11 15:25
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 84.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	100		11	4.8	mg/Kg	☼	08/25/11 08:10	08/26/11 09:48	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1400		4.7	2.4	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B4 (2-3)

Lab Sample ID: 680-71611-10
Date Collected: 08/18/11 15:35
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 93.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.21		0.51	0.21	mg/Kg	☼	08/25/11 08:10	08/26/11 09:02	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	16		4.3	2.1	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B4 (6-7)

Lab Sample ID: 680-71611-11
Date Collected: 08/18/11 15:37
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 86.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	4.1		0.55	0.23	mg/Kg	☼	08/25/11 08:10	08/26/11 09:03	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	27		4.6	2.3	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B4 (15-16)

Lab Sample ID: 680-71611-12
Date Collected: 08/18/11 15:45
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 76.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	12		6.5	2.7	mg/Kg	☼	08/25/11 08:10	08/26/11 09:51	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	390		5.2	2.6	mg/Kg	☼		08/22/11 14:48	1

Client Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Client Sample ID: S46-B5 (2-3)

Lab Sample ID: 680-71611-13
Date Collected: 08/18/11 15:55
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 85.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.24		0.58	0.24	mg/Kg	☼	08/25/11 08:10	08/26/11 09:05	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	3.0	J	4.7	2.3	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B5 (6-7)

Lab Sample ID: 680-71611-14
Date Collected: 08/18/11 16:00
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 84.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.24		0.56	0.24	mg/Kg	☼	08/25/11 08:10	08/26/11 09:06	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<2.4		4.7	2.4	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B5 (14-15)

Lab Sample ID: 680-71611-15
Date Collected: 08/18/11 16:05
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 78.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	75		12	5.2	mg/Kg	☼	08/25/11 08:10	08/26/11 09:52	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	110		5.1	2.6	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B7 (2-3)

Lab Sample ID: 680-71611-16
Date Collected: 08/18/11 16:10
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 78.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	7.0		0.61	0.26	mg/Kg	☼	08/25/11 08:10	08/26/11 09:10	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	43		5.1	2.6	mg/Kg	☼		08/22/11 14:48	1

Client Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Client Sample ID: S46-B7 (6-7)

Lab Sample ID: 680-71611-17
Date Collected: 08/18/11 16:15
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 83.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	94		12	4.8	mg/Kg	☼	08/25/11 08:10	08/26/11 09:53	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	180		4.8	2.4	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B7 (13-14)

Lab Sample ID: 680-71611-18
Date Collected: 08/18/11 16:20
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 82.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	66		12	5.0	mg/Kg	☼	08/25/11 08:10	08/26/11 09:53	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	69		4.9	2.4	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B10 (2-3)

Lab Sample ID: 680-71611-19
Date Collected: 08/18/11 16:30
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 77.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	2.9		0.63	0.27	mg/Kg	☼	08/25/11 08:10	08/26/11 09:14	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	120		5.2	2.6	mg/Kg	☼		08/22/11 14:48	1

Client Sample ID: S46-B10 (6-7)

Lab Sample ID: 680-71611-20
Date Collected: 08/18/11 16:35
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 79.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	74		12	5.2	mg/Kg	☼	08/25/11 08:10	08/26/11 09:56	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	190		5.0	2.5	mg/Kg	☼		08/22/11 14:48	1

Client Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Client Sample ID: S46-B10 (11-12)

Lab Sample ID: 680-71611-21
Date Collected: 08/18/11 16:40
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 78.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	95		12	5.1	mg/Kg	☼	08/25/11 10:13	08/26/11 09:57	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	290		5.1	2.5	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: S46-B11 (1.5-2.5)

Lab Sample ID: 680-71611-22
Date Collected: 08/18/11 16:50
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 79.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	1.8		0.60	0.25	mg/Kg	☼	08/25/11 10:13	08/26/11 09:18	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	250		5.0	2.5	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: S46-B11 (4-5)

Lab Sample ID: 680-71611-23
Date Collected: 08/18/11 16:55
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 84.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	15		5.9	2.5	mg/Kg	☼	08/25/11 10:13	08/26/11 09:58	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	860		4.8	2.4	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: S46-B11 (8-9)

Lab Sample ID: 680-71611-24
Date Collected: 08/18/11 17:00
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 78.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	85		12	5.1	mg/Kg	☼	08/25/11 10:13	08/26/11 10:01	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	100		5.1	2.5	mg/Kg	☼		08/21/11 14:39	1

Client Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Client Sample ID: S46-B6 (2-3)

Lab Sample ID: 680-71611-25
Date Collected: 08/19/11 08:10
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 83.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.49	J	0.60	0.25	mg/Kg	☼	08/25/11 10:13	08/26/11 09:25	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	100		4.8	2.4	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: S46-B6 (6-7)

Lab Sample ID: 680-71611-26
Date Collected: 08/19/11 08:15
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 80.2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.26		0.62	0.26	mg/Kg	☼	08/25/11 10:13	08/26/11 09:26	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<2.5		5.0	2.5	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: S46-B6 (12.5-13.5)

Lab Sample ID: 680-71611-27
Date Collected: 08/19/11 08:20
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 78.2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	4.9		0.61	0.26	mg/Kg	☼	08/25/11 10:13	08/26/11 09:27	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	180		5.1	2.6	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: S46-B8 (2-3)

Lab Sample ID: 680-71611-28
Date Collected: 08/19/11 07:40
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 80.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	5.6		0.60	0.25	mg/Kg	☼	08/25/11 10:13	08/26/11 09:28	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	100		5.0	2.5	mg/Kg	☼		08/21/11 14:39	1

Client Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Client Sample ID: S46-B8 (5-6)

Lab Sample ID: 680-71611-29
Date Collected: 08/19/11 07:45
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 74.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	140		13	5.5	mg/Kg	☼	08/25/11 10:13	08/26/11 10:02	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	160		5.4	2.7	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: S46-B8 (7.5-8.5)

Lab Sample ID: 680-71611-30
Date Collected: 08/19/11 07:50
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 80.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	32		12	5.1	mg/Kg	☼	08/25/11 10:13	08/26/11 10:03	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	210		4.9	2.5	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: S46-B9 (2-3)

Lab Sample ID: 680-71611-31
Date Collected: 08/19/11 07:55
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 83.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	5.2		0.58	0.24	mg/Kg	☼	08/25/11 10:13	08/26/11 09:33	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	100		4.8	2.4	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: S46-B9 (5-6)

Lab Sample ID: 680-71611-32
Date Collected: 08/19/11 08:00
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 76.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	45		13	5.4	mg/Kg	☼	08/25/11 10:13	08/26/11 10:04	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1700		5.2	2.6	mg/Kg	☼		08/21/11 14:39	1

Client Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Client Sample ID: S46-B9 (9-10)

Lab Sample ID: 680-71611-33
Date Collected: 08/19/11 08:05
Matrix: Solid
Date Received: 08/20/11 09:59
Percent Solids: 87.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	24		11	4.6	mg/Kg	☼	08/25/11 10:13	08/26/11 10:05	20

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	370		4.6	2.3	mg/Kg	☼		08/21/11 14:39	1

Client Sample ID: EB-1

Lab Sample ID: 680-71611-34
Date Collected: 08/19/11 09:00
Matrix: Water
Date Received: 08/20/11 09:59

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0025		0.010	0.0025	mg/L		08/28/11 09:00	08/29/11 05:41	1
Fluoride	<0.050		0.20	0.050	mg/L			08/22/11 17:25	1

Client Sample ID: TB-1

Lab Sample ID: 680-71611-35
Date Collected: 08/17/11 22:00
Matrix: Water
Date Received: 08/20/11 09:59

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0025		0.010	0.0025	mg/L		08/28/11 09:00	08/29/11 05:42	1
Fluoride	<0.050		0.20	0.050	mg/L			08/22/11 17:40	1

QC Sample Results

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 680-212856/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 212997 — **Prep Batch: 212856**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.21		0.50	0.21	mg/Kg		08/25/11 08:10	08/26/11 08:47	1

Lab Sample ID: LCS 680-212856/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 212997 — **Prep Batch: 212856**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Cyanide, Total	5.01	4.69		mg/Kg		94	90 - 110

Lab Sample ID: 680-71611-9 MS — **Client Sample ID: S46-B3 (14-15)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 212997 — **Prep Batch: 212856**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Cyanide, Total	100		5.63	106	4	mg/Kg	☼	45	90 - 110

Lab Sample ID: 680-71611-9 MSD — **Client Sample ID: S46-B3 (14-15)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 212997 — **Prep Batch: 212856**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Cyanide, Total	100		5.63	100	4	mg/Kg	☼	-65	90 - 110	6	20

Lab Sample ID: 680-71611-16 DU — **Client Sample ID: S46-B7 (2-3)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 212997 — **Prep Batch: 212856**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	7.0		7.14		mg/Kg	☼	2	20

Lab Sample ID: MB 680-212880/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 212997 — **Prep Batch: 212880**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.21		0.50	0.21	mg/Kg		08/25/11 10:13	08/26/11 09:16	1

Lab Sample ID: LCS 680-212880/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 212997 — **Prep Batch: 212880**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Cyanide, Total	5.01	4.66		mg/Kg		93	90 - 110

Lab Sample ID: 680-71611-23 MS — **Client Sample ID: S46-B11 (4-5)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 212997 — **Prep Batch: 212880**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Cyanide, Total	15		5.90	14.8	F	mg/Kg	☼	-8	90 - 110

Method: 335.4 - Cyanide, Total (Continued)

Lab Sample ID: 680-71611-23 MSD — **Client Sample ID: S46-B11 (4-5)**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 212997 — **Prep Batch: 212880**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Cyanide, Total	15		5.90	13.1	F	mg/Kg	☼	-37	90 - 110	12	20

Lab Sample ID: MB 680-213129/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 213138 — **Prep Batch: 213129**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0025		0.010	0.0025	mg/L		08/28/11 09:00	08/29/11 05:38	1

Lab Sample ID: LCS 680-213129/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 213138 — **Prep Batch: 213129**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Cyanide, Total	0.0301	0.0278		mg/L		93	90 - 110

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 680-212582/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 212582

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.050		0.20	0.050	mg/L			08/22/11 17:12	1

Lab Sample ID: LCS 680-212582/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 212582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	5.11	5.16		mg/L		101	85 - 115

Lab Sample ID: LCSD 680-212582/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 212582

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	5.11	5.40		mg/L		106	85 - 115	5	30

Lab Sample ID: 680-71611-35 MS — **Client Sample ID: TB-1**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 212582

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	<0.050		1.00	0.920		mg/L		92	85 - 115

Method: SM 4500 F C - Fluoride (Continued)

Lab Sample ID: 680-71611-35 MSD — **Client Sample ID: TB-1**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 212582

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	<0.050		1.00	1.03		mg/L		103	85 - 115	11	30

Lab Sample ID: 680-71611-34 DU — **Client Sample ID: EB-1**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 212582

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	<0.050			<0.050		mg/L				NC	30

Lab Sample ID: MB 680-212438/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212536

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<2.0		4.0	2.0	mg/Kg			08/22/11 14:48	1

Lab Sample ID: LCS 680-212438/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212536

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride			20.0	18.4		mg/Kg		92	75 - 125		

Lab Sample ID: LCSD 680-212438/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212536

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride			20.0	18.4		mg/Kg		92	75 - 125	0	30

Lab Sample ID: 680-71611-13 MS — **Client Sample ID: S46-B5 (2-3)**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212536

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride	3.0	J	23.5	20.6		mg/Kg	☼	75	75 - 125		

Lab Sample ID: 680-71611-13 MSD — **Client Sample ID: S46-B5 (2-3)**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212536

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	3.0	J	23.5	20.6		mg/Kg	☼	75	75 - 125	0	30

Lab Sample ID: 680-71611-6 DU — **Client Sample ID: S46-B2 (13-14)**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212536

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	660			487		mg/Kg	☼			30	30

Method: SM 4500 F C - Fluoride (Continued)

Lab Sample ID: MB 680-212442/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<2.0		4.0	2.0	mg/Kg			08/21/11 14:39	1

Lab Sample ID: LCS 680-212442/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212542

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride			20.0	18.0		mg/Kg		90	75 - 125		

Lab Sample ID: LCSD 680-212442/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212542

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride			20.0	18.2		mg/Kg		91	75 - 125	1	30

Lab Sample ID: 680-71611-33 MS — **Client Sample ID: S46-B9 (9-10)**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212542

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride	370		23.0	484	4	mg/Kg	☼	494	75 - 125		

Lab Sample ID: 680-71611-33 MSD — **Client Sample ID: S46-B9 (9-10)**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212542

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	370		23.0	834	4 F	mg/Kg	☼	2016	75 - 125	53	30

Lab Sample ID: 680-71611-26 DU — **Client Sample ID: S46-B6 (6-7)**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 212542

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	<2.5			<2.5		mg/Kg	☼			NC	30

QC Association Summary

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

TestAmerica Job ID: 680-71611-1

General Chemistry

Analysis Batch: 212423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-1	S46-B1 (2-3)	Total/NA	Solid	Moisture	
680-71611-2	S46-B1 (6-7)	Total/NA	Solid	Moisture	
680-71611-3	S46-B1 (11-12)	Total/NA	Solid	Moisture	
680-71611-4	S46-B2 (2-3)	Total/NA	Solid	Moisture	
680-71611-5	S46-B2 (6-7)	Total/NA	Solid	Moisture	
680-71611-6	S46-B2 (13-14)	Total/NA	Solid	Moisture	
680-71611-7	S46-B3 (2-3)	Total/NA	Solid	Moisture	
680-71611-8	S46-B3 (6-7)	Total/NA	Solid	Moisture	
680-71611-9	S46-B3 (14-15)	Total/NA	Solid	Moisture	
680-71611-10	S46-B4 (2-3)	Total/NA	Solid	Moisture	
680-71611-11	S46-B4 (6-7)	Total/NA	Solid	Moisture	
680-71611-12	S46-B4 (15-16)	Total/NA	Solid	Moisture	
680-71611-13	S46-B5 (2-3)	Total/NA	Solid	Moisture	
680-71611-14	S46-B5 (6-7)	Total/NA	Solid	Moisture	
680-71611-15	S46-B5 (14-15)	Total/NA	Solid	Moisture	
680-71611-16	S46-B7 (2-3)	Total/NA	Solid	Moisture	
680-71611-17	S46-B7 (6-7)	Total/NA	Solid	Moisture	
680-71611-18	S46-B7 (13-14)	Total/NA	Solid	Moisture	
680-71611-19	S46-B10 (2-3)	Total/NA	Solid	Moisture	
680-71611-20	S46-B10 (6-7)	Total/NA	Solid	Moisture	
680-71611-21	S46-B10 (11-12)	Total/NA	Solid	Moisture	
680-71611-22	S46-B11 (1.5-2.5)	Total/NA	Solid	Moisture	
680-71611-23	S46-B11 (4-5)	Total/NA	Solid	Moisture	
680-71611-24	S46-B11 (8-9)	Total/NA	Solid	Moisture	
680-71611-25	S46-B6 (2-3)	Total/NA	Solid	Moisture	
680-71611-26	S46-B6 (6-7)	Total/NA	Solid	Moisture	
680-71611-27	S46-B6 (12.5-13.5)	Total/NA	Solid	Moisture	
680-71611-28	S46-B8 (2-3)	Total/NA	Solid	Moisture	
680-71611-29	S46-B8 (5-6)	Total/NA	Solid	Moisture	
680-71611-30	S46-B8 (7.5-8.5)	Total/NA	Solid	Moisture	
680-71611-31	S46-B9 (2-3)	Total/NA	Solid	Moisture	
680-71611-32	S46-B9 (5-6)	Total/NA	Solid	Moisture	
680-71611-33	S46-B9 (9-10)	Total/NA	Solid	Moisture	

Leach Batch: 212438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-1	S46-B1 (2-3)	Soluble	Solid	DI Leach	
680-71611-2	S46-B1 (6-7)	Soluble	Solid	DI Leach	
680-71611-3	S46-B1 (11-12)	Soluble	Solid	DI Leach	
680-71611-4	S46-B2 (2-3)	Soluble	Solid	DI Leach	
680-71611-5	S46-B2 (6-7)	Soluble	Solid	DI Leach	
680-71611-6	S46-B2 (13-14)	Soluble	Solid	DI Leach	
680-71611-6 DU	S46-B2 (13-14)	Soluble	Solid	DI Leach	
680-71611-7	S46-B3 (2-3)	Soluble	Solid	DI Leach	
680-71611-8	S46-B3 (6-7)	Soluble	Solid	DI Leach	
680-71611-9	S46-B3 (14-15)	Soluble	Solid	DI Leach	
680-71611-10	S46-B4 (2-3)	Soluble	Solid	DI Leach	
680-71611-11	S46-B4 (6-7)	Soluble	Solid	DI Leach	
680-71611-12	S46-B4 (15-16)	Soluble	Solid	DI Leach	
680-71611-13	S46-B5 (2-3)	Soluble	Solid	DI Leach	
680-71611-13 MS	S46-B5 (2-3)	Soluble	Solid	DI Leach	
680-71611-13 MSD	S46-B5 (2-3)	Soluble	Solid	DI Leach	

General Chemistry (Continued)

Leach Batch: 212438 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-14	S46-B5 (6-7)	Soluble	Solid	DI Leach	
680-71611-15	S46-B5 (14-15)	Soluble	Solid	DI Leach	
680-71611-16	S46-B7 (2-3)	Soluble	Solid	DI Leach	
680-71611-17	S46-B7 (6-7)	Soluble	Solid	DI Leach	
680-71611-18	S46-B7 (13-14)	Soluble	Solid	DI Leach	
680-71611-19	S46-B10 (2-3)	Soluble	Solid	DI Leach	
680-71611-20	S46-B10 (6-7)	Soluble	Solid	DI Leach	
LCS 680-212438/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 680-212438/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
MB 680-212438/1-A	Method Blank	Soluble	Solid	DI Leach	

Leach Batch: 212442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-21	S46-B10 (11-12)	Soluble	Solid	DI Leach	
680-71611-22	S46-B11 (1.5-2.5)	Soluble	Solid	DI Leach	
680-71611-23	S46-B11 (4-5)	Soluble	Solid	DI Leach	
680-71611-24	S46-B11 (8-9)	Soluble	Solid	DI Leach	
680-71611-25	S46-B6 (2-3)	Soluble	Solid	DI Leach	
680-71611-26	S46-B6 (6-7)	Soluble	Solid	DI Leach	
680-71611-26 DU	S46-B6 (6-7)	Soluble	Solid	DI Leach	
680-71611-27	S46-B6 (12.5-13.5)	Soluble	Solid	DI Leach	
680-71611-28	S46-B8 (2-3)	Soluble	Solid	DI Leach	
680-71611-29	S46-B8 (5-6)	Soluble	Solid	DI Leach	
680-71611-30	S46-B8 (7.5-8.5)	Soluble	Solid	DI Leach	
680-71611-31	S46-B9 (2-3)	Soluble	Solid	DI Leach	
680-71611-32	S46-B9 (5-6)	Soluble	Solid	DI Leach	
680-71611-33	S46-B9 (9-10)	Soluble	Solid	DI Leach	
680-71611-33 MS	S46-B9 (9-10)	Soluble	Solid	DI Leach	
680-71611-33 MSD	S46-B9 (9-10)	Soluble	Solid	DI Leach	
LCS 680-212442/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 680-212442/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
MB 680-212442/1-A	Method Blank	Soluble	Solid	DI Leach	

Analysis Batch: 212536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-1	S46-B1 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-2	S46-B1 (6-7)	Soluble	Solid	SM 4500 F C	
680-71611-3	S46-B1 (11-12)	Soluble	Solid	SM 4500 F C	
680-71611-4	S46-B2 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-5	S46-B2 (6-7)	Soluble	Solid	SM 4500 F C	
680-71611-6	S46-B2 (13-14)	Soluble	Solid	SM 4500 F C	
680-71611-6 DU	S46-B2 (13-14)	Soluble	Solid	SM 4500 F C	
680-71611-7	S46-B3 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-8	S46-B3 (6-7)	Soluble	Solid	SM 4500 F C	
680-71611-9	S46-B3 (14-15)	Soluble	Solid	SM 4500 F C	
680-71611-10	S46-B4 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-11	S46-B4 (6-7)	Soluble	Solid	SM 4500 F C	
680-71611-12	S46-B4 (15-16)	Soluble	Solid	SM 4500 F C	
680-71611-13	S46-B5 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-13 MS	S46-B5 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-13 MSD	S46-B5 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-14	S46-B5 (6-7)	Soluble	Solid	SM 4500 F C	

General Chemistry (Continued)

Analysis Batch: 212536 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-15	S46-B5 (14-15)	Soluble	Solid	SM 4500 F C	
680-71611-16	S46-B7 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-17	S46-B7 (6-7)	Soluble	Solid	SM 4500 F C	
680-71611-18	S46-B7 (13-14)	Soluble	Solid	SM 4500 F C	
680-71611-19	S46-B10 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-20	S46-B10 (6-7)	Soluble	Solid	SM 4500 F C	
LCS 680-212438/2-A	Lab Control Sample	Soluble	Solid	SM 4500 F C	
LCSD 680-212438/3-A	Lab Control Sample Dup	Soluble	Solid	SM 4500 F C	
MB 680-212438/1-A	Method Blank	Soluble	Solid	SM 4500 F C	

Analysis Batch: 212542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-21	S46-B10 (11-12)	Soluble	Solid	SM 4500 F C	
680-71611-22	S46-B11 (1.5-2.5)	Soluble	Solid	SM 4500 F C	
680-71611-23	S46-B11 (4-5)	Soluble	Solid	SM 4500 F C	
680-71611-24	S46-B11 (8-9)	Soluble	Solid	SM 4500 F C	
680-71611-25	S46-B6 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-26	S46-B6 (6-7)	Soluble	Solid	SM 4500 F C	
680-71611-26 DU	S46-B6 (6-7)	Soluble	Solid	SM 4500 F C	
680-71611-27	S46-B6 (12.5-13.5)	Soluble	Solid	SM 4500 F C	
680-71611-28	S46-B8 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-29	S46-B8 (5-6)	Soluble	Solid	SM 4500 F C	
680-71611-30	S46-B8 (7.5-8.5)	Soluble	Solid	SM 4500 F C	
680-71611-31	S46-B9 (2-3)	Soluble	Solid	SM 4500 F C	
680-71611-32	S46-B9 (5-6)	Soluble	Solid	SM 4500 F C	
680-71611-33	S46-B9 (9-10)	Soluble	Solid	SM 4500 F C	
680-71611-33 MS	S46-B9 (9-10)	Soluble	Solid	SM 4500 F C	
680-71611-33 MSD	S46-B9 (9-10)	Soluble	Solid	SM 4500 F C	
LCS 680-212442/2-A	Lab Control Sample	Soluble	Solid	SM 4500 F C	
LCSD 680-212442/3-A	Lab Control Sample Dup	Soluble	Solid	SM 4500 F C	
MB 680-212442/1-A	Method Blank	Soluble	Solid	SM 4500 F C	

Analysis Batch: 212582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-34	EB-1	Total/NA	Water	SM 4500 F C	
680-71611-34 DU	EB-1	Total/NA	Water	SM 4500 F C	
680-71611-35	TB-1	Total/NA	Water	SM 4500 F C	
680-71611-35 MS	TB-1	Total/NA	Water	SM 4500 F C	
680-71611-35 MSD	TB-1	Total/NA	Water	SM 4500 F C	
LCS 680-212582/5	Lab Control Sample	Total/NA	Water	SM 4500 F C	
LCSD 680-212582/6	Lab Control Sample Dup	Total/NA	Water	SM 4500 F C	
MB 680-212582/4	Method Blank	Total/NA	Water	SM 4500 F C	

Prep Batch: 212856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-1	S46-B1 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-2	S46-B1 (6-7)	Total/NA	Solid	Distill/CN	
680-71611-3	S46-B1 (11-12)	Total/NA	Solid	Distill/CN	
680-71611-4	S46-B2 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-5	S46-B2 (6-7)	Total/NA	Solid	Distill/CN	
680-71611-6	S46-B2 (13-14)	Total/NA	Solid	Distill/CN	
680-71611-7	S46-B3 (2-3)	Total/NA	Solid	Distill/CN	

General Chemistry (Continued)

Prep Batch: 212856 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-8	S46-B3 (6-7)	Total/NA	Solid	Distill/CN	
680-71611-9	S46-B3 (14-15)	Total/NA	Solid	Distill/CN	
680-71611-9 MS	S46-B3 (14-15)	Total/NA	Solid	Distill/CN	
680-71611-9 MSD	S46-B3 (14-15)	Total/NA	Solid	Distill/CN	
680-71611-10	S46-B4 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-11	S46-B4 (6-7)	Total/NA	Solid	Distill/CN	
680-71611-12	S46-B4 (15-16)	Total/NA	Solid	Distill/CN	
680-71611-13	S46-B5 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-14	S46-B5 (6-7)	Total/NA	Solid	Distill/CN	
680-71611-15	S46-B5 (14-15)	Total/NA	Solid	Distill/CN	
680-71611-16	S46-B7 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-16 DU	S46-B7 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-17	S46-B7 (6-7)	Total/NA	Solid	Distill/CN	
680-71611-18	S46-B7 (13-14)	Total/NA	Solid	Distill/CN	
680-71611-19	S46-B10 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-20	S46-B10 (6-7)	Total/NA	Solid	Distill/CN	
LCS 680-212856/2-A	Lab Control Sample	Total/NA	Solid	Distill/CN	
MB 680-212856/1-A	Method Blank	Total/NA	Solid	Distill/CN	

Prep Batch: 212880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-21	S46-B10 (11-12)	Total/NA	Solid	Distill/CN	
680-71611-22	S46-B11 (1.5-2.5)	Total/NA	Solid	Distill/CN	
680-71611-23	S46-B11 (4-5)	Total/NA	Solid	Distill/CN	
680-71611-23 MS	S46-B11 (4-5)	Total/NA	Solid	Distill/CN	
680-71611-23 MSD	S46-B11 (4-5)	Total/NA	Solid	Distill/CN	
680-71611-24	S46-B11 (8-9)	Total/NA	Solid	Distill/CN	
680-71611-25	S46-B6 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-26	S46-B6 (6-7)	Total/NA	Solid	Distill/CN	
680-71611-27	S46-B6 (12.5-13.5)	Total/NA	Solid	Distill/CN	
680-71611-28	S46-B8 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-29	S46-B8 (5-6)	Total/NA	Solid	Distill/CN	
680-71611-30	S46-B8 (7.5-8.5)	Total/NA	Solid	Distill/CN	
680-71611-31	S46-B9 (2-3)	Total/NA	Solid	Distill/CN	
680-71611-32	S46-B9 (5-6)	Total/NA	Solid	Distill/CN	
680-71611-33	S46-B9 (9-10)	Total/NA	Solid	Distill/CN	
LCS 680-212880/2-A	Lab Control Sample	Total/NA	Solid	Distill/CN	
MB 680-212880/1-A	Method Blank	Total/NA	Solid	Distill/CN	

Analysis Batch: 212997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-1	S46-B1 (2-3)	Total/NA	Solid	335.4	212856
680-71611-2	S46-B1 (6-7)	Total/NA	Solid	335.4	212856
680-71611-3	S46-B1 (11-12)	Total/NA	Solid	335.4	212856
680-71611-4	S46-B2 (2-3)	Total/NA	Solid	335.4	212856
680-71611-5	S46-B2 (6-7)	Total/NA	Solid	335.4	212856
680-71611-6	S46-B2 (13-14)	Total/NA	Solid	335.4	212856
680-71611-7	S46-B3 (2-3)	Total/NA	Solid	335.4	212856
680-71611-8	S46-B3 (6-7)	Total/NA	Solid	335.4	212856
680-71611-9	S46-B3 (14-15)	Total/NA	Solid	335.4	212856
680-71611-9 MS	S46-B3 (14-15)	Total/NA	Solid	335.4	212856
680-71611-9 MSD	S46-B3 (14-15)	Total/NA	Solid	335.4	212856

General Chemistry (Continued)

Analysis Batch: 212997 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-10	S46-B4 (2-3)	Total/NA	Solid	335.4	212856
680-71611-11	S46-B4 (6-7)	Total/NA	Solid	335.4	212856
680-71611-12	S46-B4 (15-16)	Total/NA	Solid	335.4	212856
680-71611-13	S46-B5 (2-3)	Total/NA	Solid	335.4	212856
680-71611-14	S46-B5 (6-7)	Total/NA	Solid	335.4	212856
680-71611-15	S46-B5 (14-15)	Total/NA	Solid	335.4	212856
680-71611-16	S46-B7 (2-3)	Total/NA	Solid	335.4	212856
680-71611-16 DU	S46-B7 (2-3)	Total/NA	Solid	335.4	212856
680-71611-17	S46-B7 (6-7)	Total/NA	Solid	335.4	212856
680-71611-18	S46-B7 (13-14)	Total/NA	Solid	335.4	212856
680-71611-19	S46-B10 (2-3)	Total/NA	Solid	335.4	212856
680-71611-20	S46-B10 (6-7)	Total/NA	Solid	335.4	212856
680-71611-21	S46-B10 (11-12)	Total/NA	Solid	335.4	212880
680-71611-22	S46-B11 (1.5-2.5)	Total/NA	Solid	335.4	212880
680-71611-23	S46-B11 (4-5)	Total/NA	Solid	335.4	212880
680-71611-23 MS	S46-B11 (4-5)	Total/NA	Solid	335.4	212880
680-71611-23 MSD	S46-B11 (4-5)	Total/NA	Solid	335.4	212880
680-71611-24	S46-B11 (8-9)	Total/NA	Solid	335.4	212880
680-71611-25	S46-B6 (2-3)	Total/NA	Solid	335.4	212880
680-71611-26	S46-B6 (6-7)	Total/NA	Solid	335.4	212880
680-71611-27	S46-B6 (12.5-13.5)	Total/NA	Solid	335.4	212880
680-71611-28	S46-B8 (2-3)	Total/NA	Solid	335.4	212880
680-71611-29	S46-B8 (5-6)	Total/NA	Solid	335.4	212880
680-71611-30	S46-B8 (7.5-8.5)	Total/NA	Solid	335.4	212880
680-71611-31	S46-B9 (2-3)	Total/NA	Solid	335.4	212880
680-71611-32	S46-B9 (5-6)	Total/NA	Solid	335.4	212880
680-71611-33	S46-B9 (9-10)	Total/NA	Solid	335.4	212880
LCS 680-212856/2-A	Lab Control Sample	Total/NA	Solid	335.4	212856
LCS 680-212880/2-A	Lab Control Sample	Total/NA	Solid	335.4	212880
MB 680-212856/1-A	Method Blank	Total/NA	Solid	335.4	212856
MB 680-212880/1-A	Method Blank	Total/NA	Solid	335.4	212880

Prep Batch: 213129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-34	EB-1	Total/NA	Water	Distill/CN	
680-71611-35	TB-1	Total/NA	Water	Distill/CN	
LCS 680-213129/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
MB 680-213129/1-A	Method Blank	Total/NA	Water	Distill/CN	

Analysis Batch: 213138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-71611-34	EB-1	Total/NA	Water	335.4	213129
680-71611-35	TB-1	Total/NA	Water	335.4	213129
LCS 680-213129/2-A	Lab Control Sample	Total/NA	Water	335.4	213129
MB 680-213129/1-A	Method Blank	Total/NA	Water	335.4	213129

Serial Number 043967

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: WEST SPL (S46)	PROJECT NO: 137-155	PROJECT LOCATION (STATE): NC	PAGE 1 OF 3
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ☒
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814939805	CLIENT FAX: 2814939027	DATE DUE
CLIENT NAME: ENVIRONMENTAL INC	CLIENT E-MAIL: mworden@environmentalinc.com		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079			DATE DUE 2
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

REQUIRED ANALYSIS: Cyanide, Fluoride

PRESERVATIVE: I, I

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
8/18/11	1220	S46-B1 (2-3)			X			1	
	1300	S46-B1 (6-7)			X			1	
	1330	S46-B1 (11-12)			X			1	
	1500	S46-B2 (2-3)			X			1	
	1503	S46-B2 (6-7)			X			1	
	1505	S46-B2 (13-14)			X			1	
	1510	S46-B3 (2-3)			X			1	
	1512	S46-B3 (6-7)			X			1	
	1525	S46-B3 (14-15)			X			1	
	1535	S46-B4 (2-3)			X			1	
	1537	S46-B4 (6-7)			X			1	
	1545	S46-B4 (15-16)			X			1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	8/19/11	1715						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
[signature]	8/19/11	1715						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth A Daughtry	08/20/11	0959	YES ○ NO ○		71611	Temp 2.8°C, 4.6°C

Serial Number 040496

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
WEST SPL (S46)	137-155	NC

TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
S HUFFMAN		

CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
M. WORDEN	281 4939805	281 4939807

CLIENT NAME	CLIENT E-MAIL
ENVIRONMETRENG	mworden@environmetringinc.com

CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079

COMPANY CONTRACTING THIS WORK (if applicable)

PAGE 2 OF 3

STANDARD REPORT DELIVERY ✓

DATE DUE

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 2

REQUIRED ANALYSIS: Chlorate, Perchlorate

PRESERVATIVE: I, I

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED (✓)	REMARKS
8/18/11	1555	S46-B5 (2-3)			X			1	
	1600	S46-B5 (6-7)			X			1	
	1605	S46-B5 (14-15)			X			1	
	1610	S46-B7 (2-3)			X			1	
	1615	S46-B7 (6-7)			X			1	
	1620	S46-B7 (13-14)			X			1	
	1630	S46-B10 (2-3)			X			1	
	1635	S46-B10 (6-7)			X			1	
	1640	S46-B10 (11-12)			X			1	
	1650	S46-B11 (1.5-2.5)			X			1	
	1655	S46-B11 (4-5)			X			1	
	1700	S46-B11 (8-9)			X			1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	8/19/11	1715						

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
FEDEX	8/19/11	1715						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth A Daughtry	08/20/11	0959	YES ○ NO ○		680-71611	Temp 2.8°C, 4.6°C

TAL 8240-680 (1008)

Serial Number 016633

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE: WEST SPL (S46)	PROJECT NO.: 137-155	PROJECT LOCATION (STATE): NC	PAGE 3 OF 3
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ☒ DATE DUE
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814939005	CLIENT FAX: 2814939007	EXPEDITED REPORT DELIVERY (SURCHARGE) ○ DATE DUE
CLIENT NAME: ENVIRONEERING	CLIENT E-MAIL: mworden@environeering.com		
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079			
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 2

REQUIRED ANALYSIS: Cyanide, Fluoride, Cyanide, Fluoride

PRESERVATIVE: 1, 1, NaOH, 1

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	Cyanide	Fluoride	Cyanide	Fluoride	REMARKS
8/19/11	810	S46-B6			X			1			1	
	815	S46-B6			X			1				
	820	S46-B6			X			1				
	740	S46-B8			X			1				
	745	S46-B8			X			1				
	750	S46-B8			X			1				
	755	S46-B9			X			1				
	800	S46-B9			X			1				
	805	S46-B9			X			1				
	900	EB-1		X						1	1	
8/17/11	2200	FB-1		X						1	1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	8/19/11	1715						
RECEIVED BY: (SIGNATURE) FEDEX	DATE 8/19/11	TIME 1715	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth Daughtry	08/20/11	0959	YES ○ NO ○		680-71611	Temp 2.8°C, 4.6°C

TAL8240-680 (1207)

Certification Summary

Client: Environeering Inc
Project/Site: Environeering 137-155 West SPL (S46)

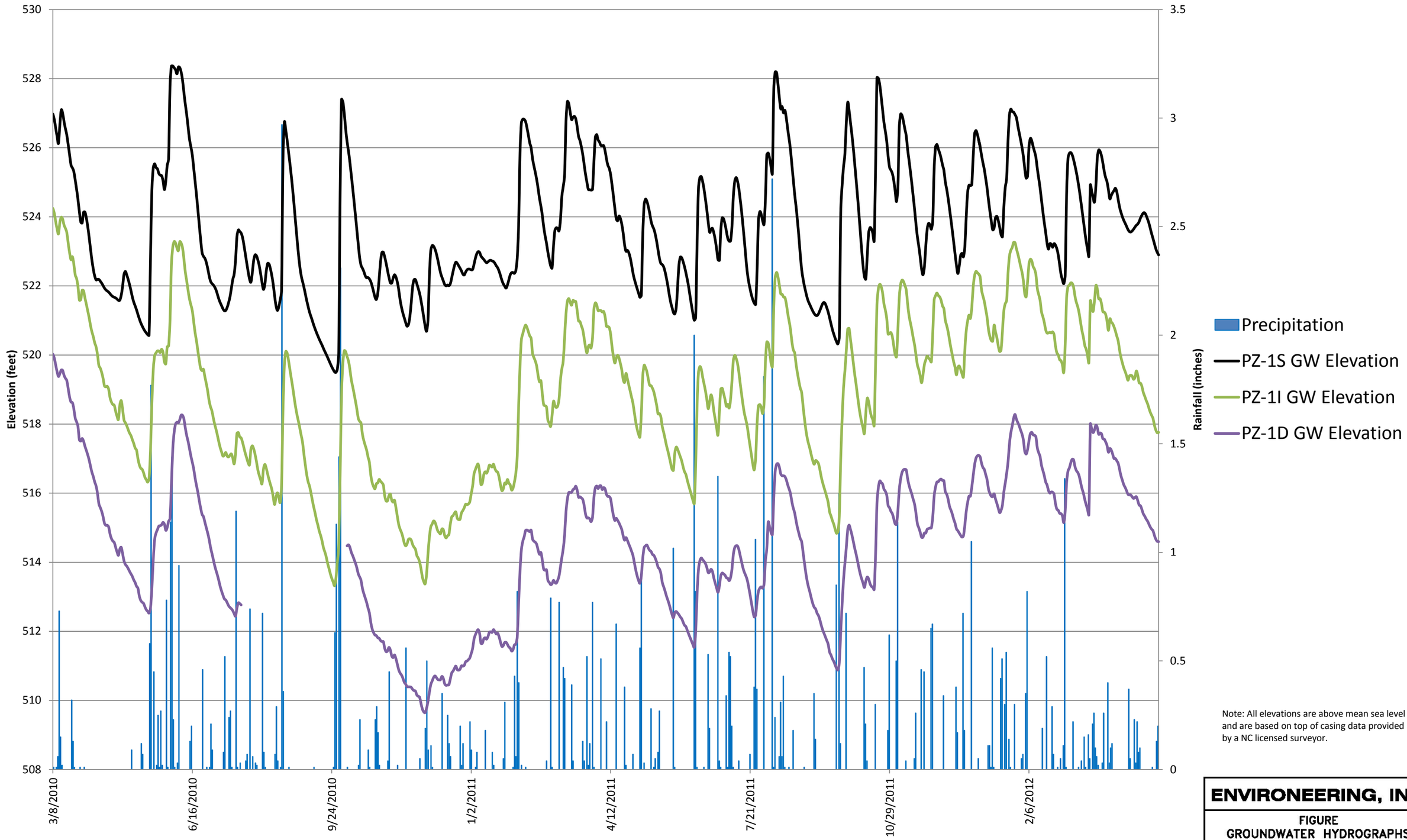
TestAmerica Job ID: 680-71611-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kansas	NELAC	7	E-10322
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	Nevada	State Program	9	GA6
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC Secondary AB	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

APPENDIX I

ABL GROUNDWATER AND RAINFALL HYDROGRAPHS

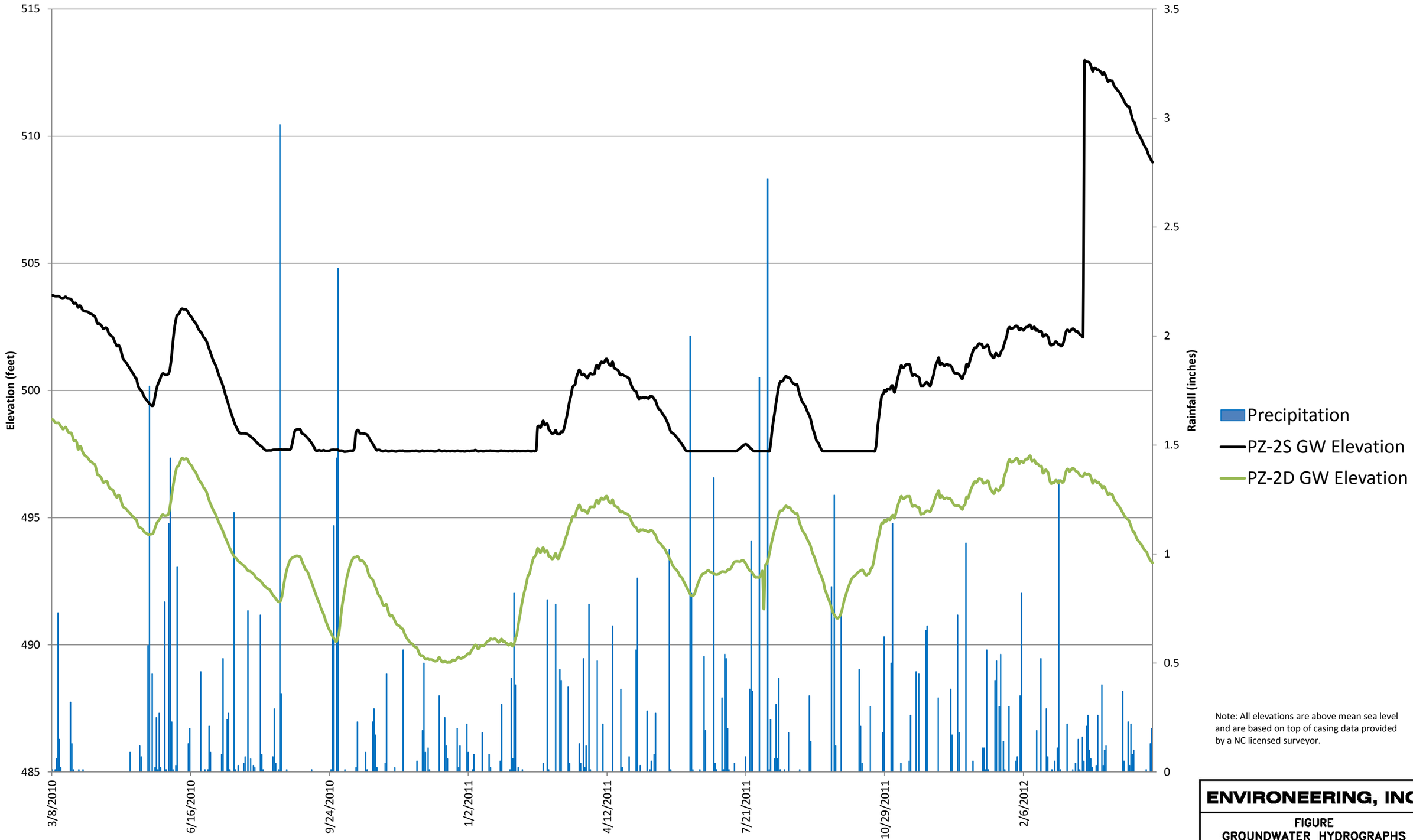


Note: All elevations are above mean sea level and are based on top of casing data provided by a NC licensed surveyor.

ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
BADIN MUNICIPAL LANDFILL
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
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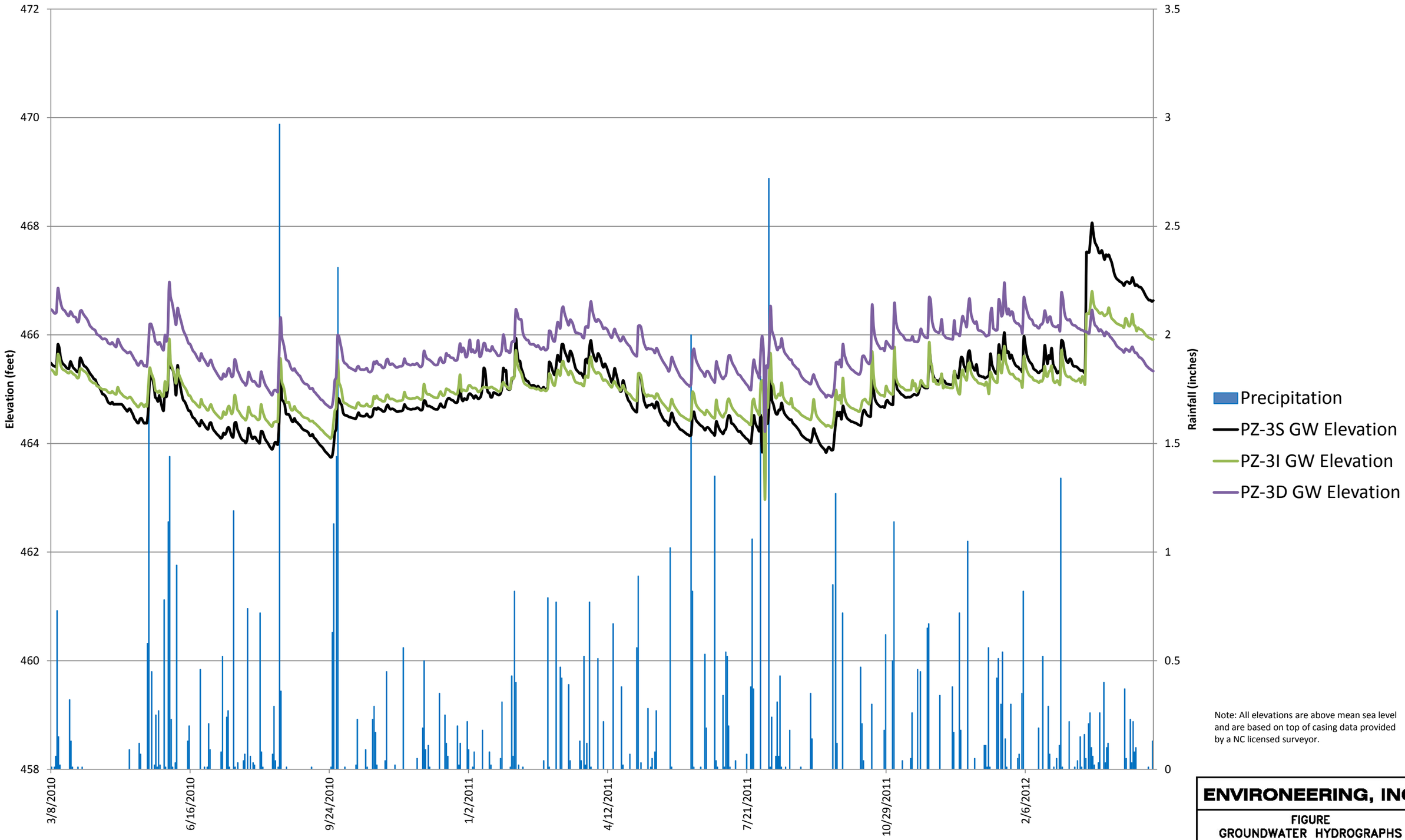
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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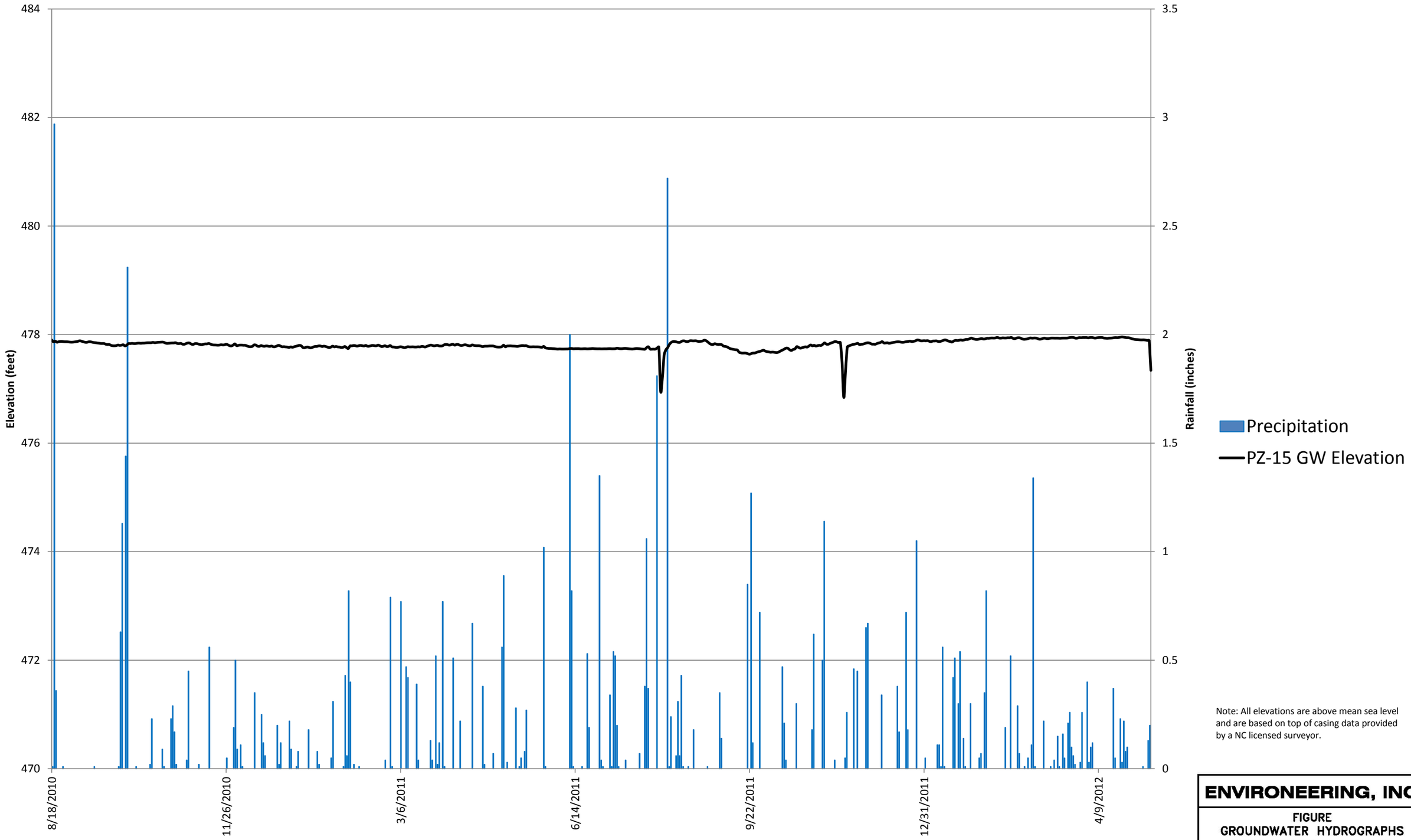
ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
BADIN MUNICIPAL LANDFILL
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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ENVIRONEERING, INC.

FIGURE
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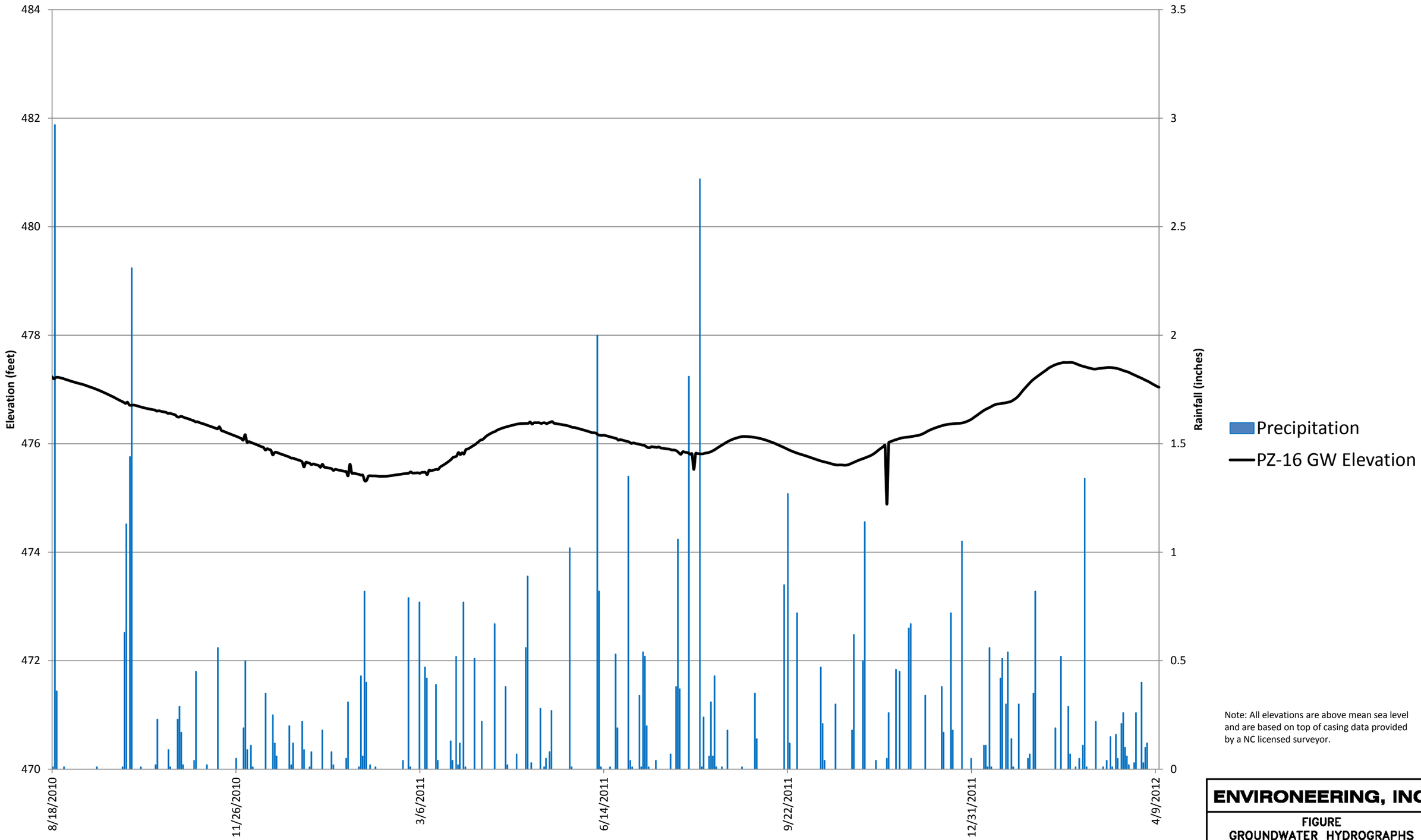
BADIN MUNICIPAL LANDFILL
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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ENVIRONEERING, INC.

FIGURE
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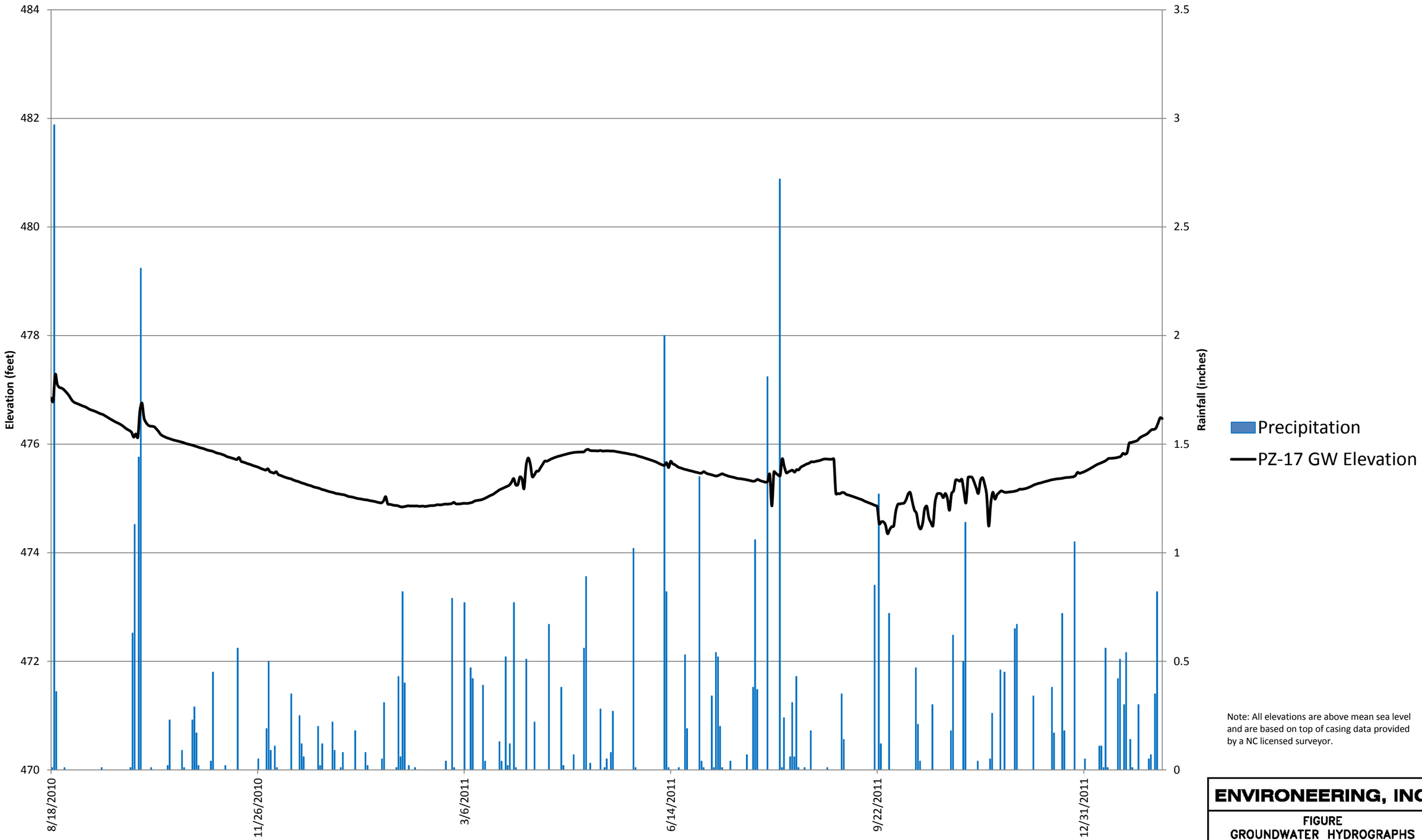
BADIN MUNICIPAL LANDFILL
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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ENVIRONEERING, INC.

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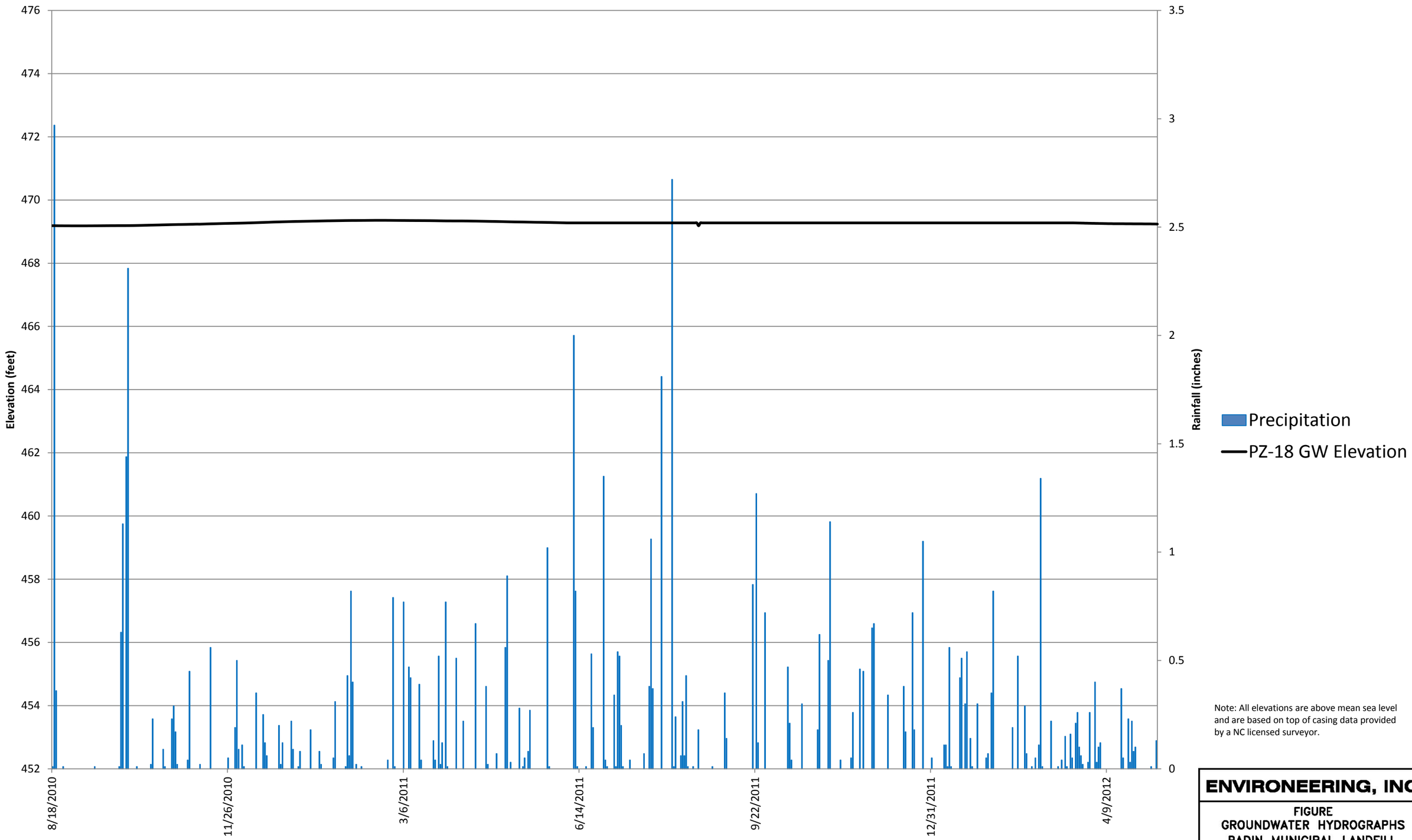
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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ENVIRONEERING, INC.

FIGURE
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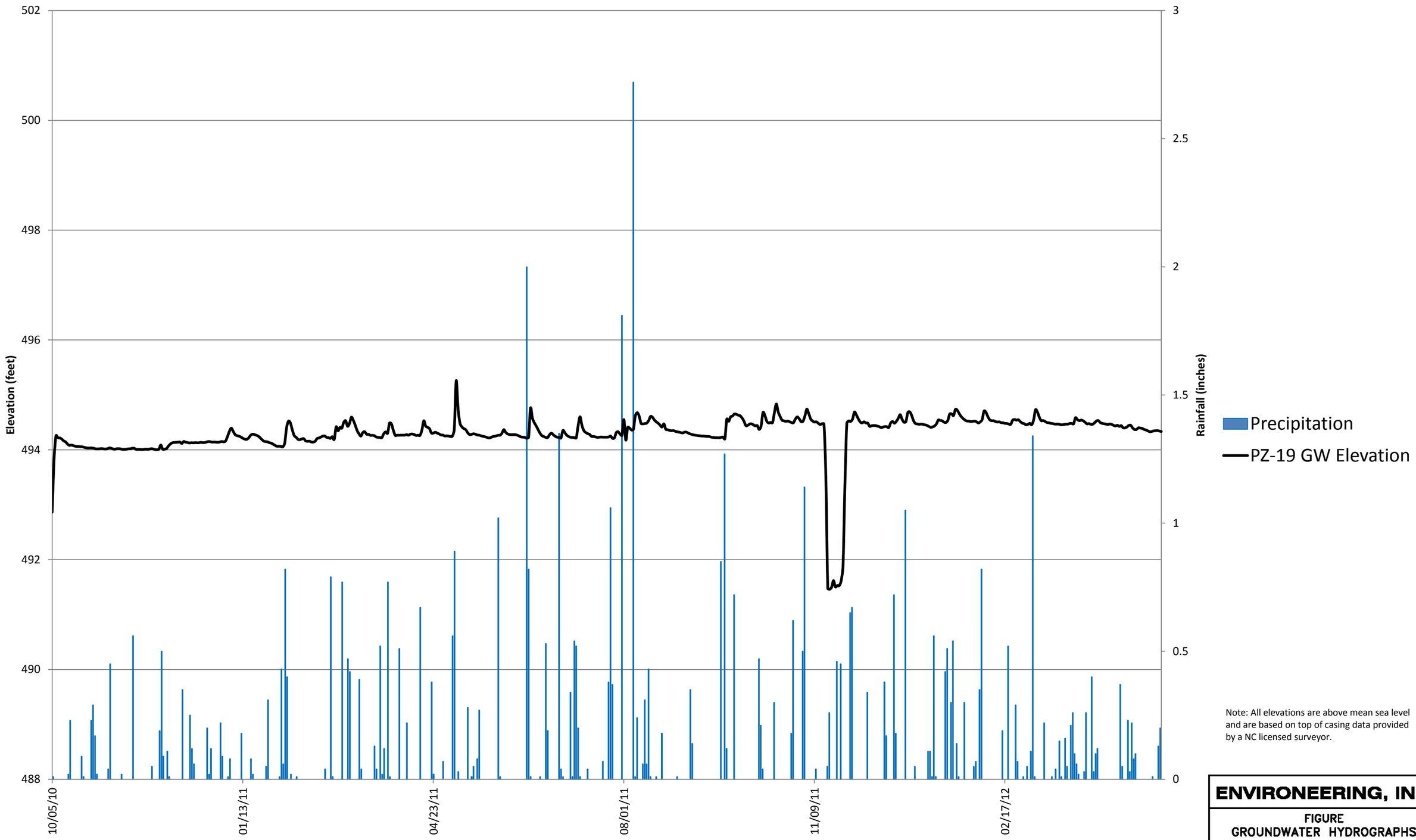
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
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BADIN, NORTH CAROLINA

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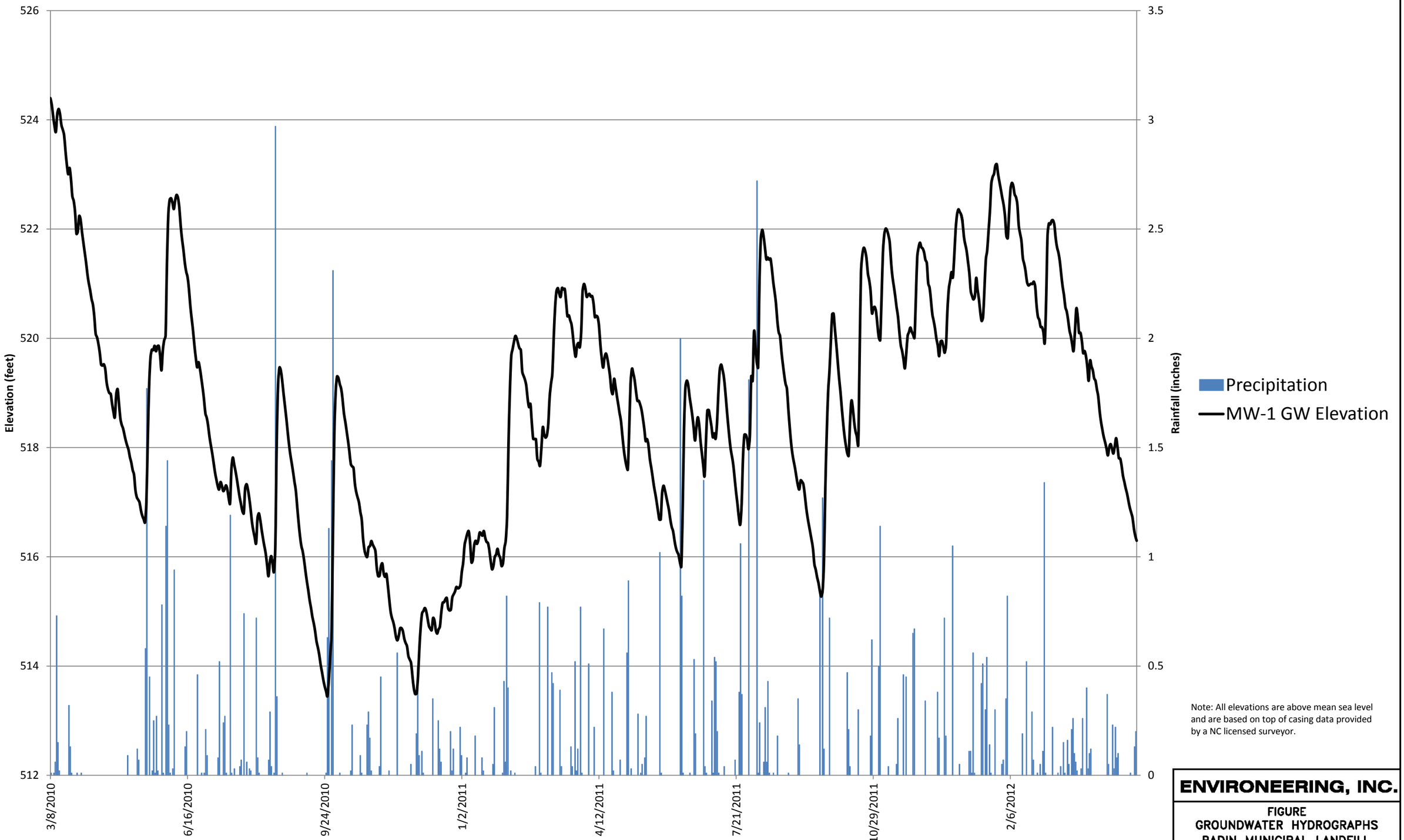

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ENVIRONEERING, INC.

FIGURE
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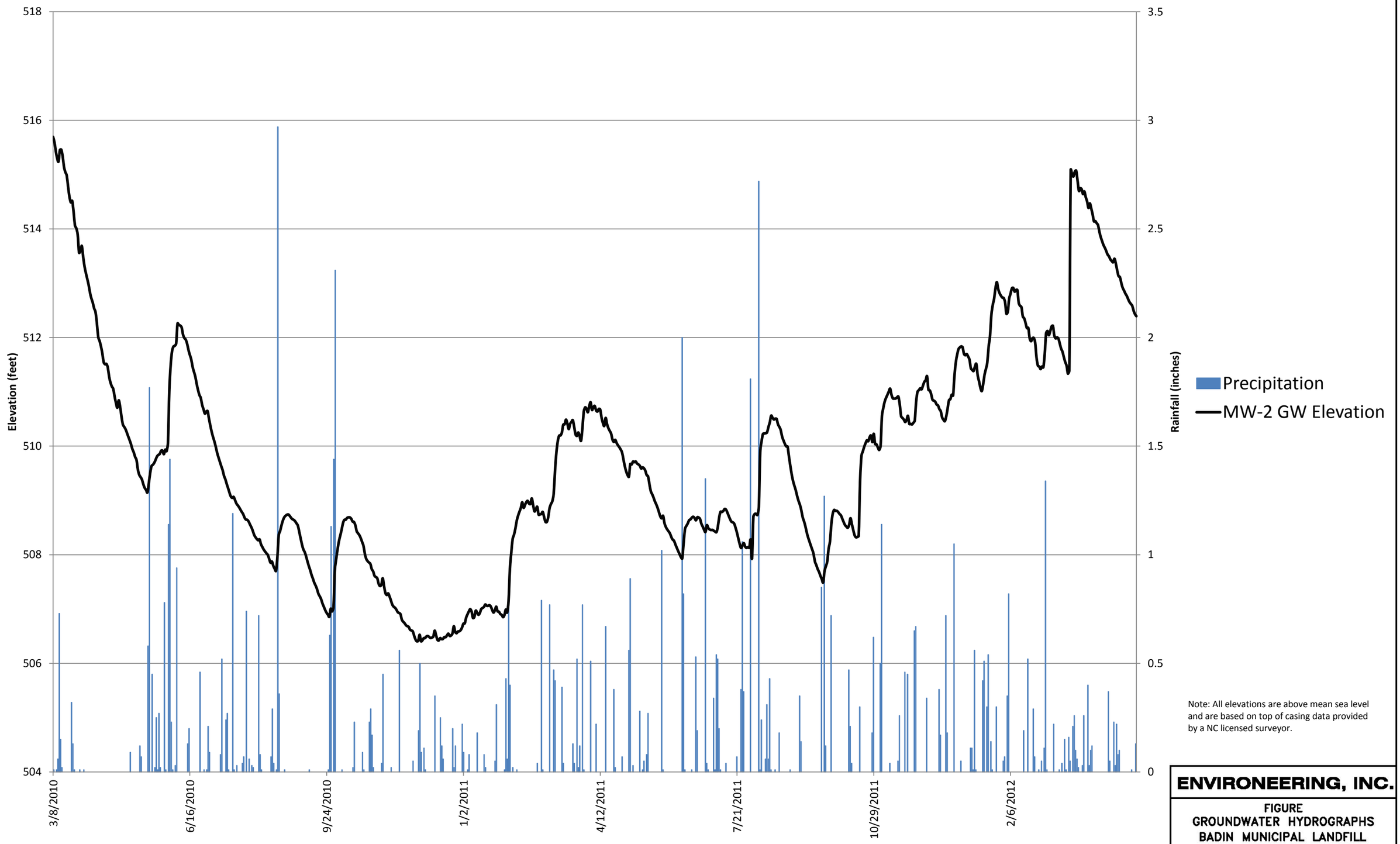
BADIN MUNICIPAL LANDFILL
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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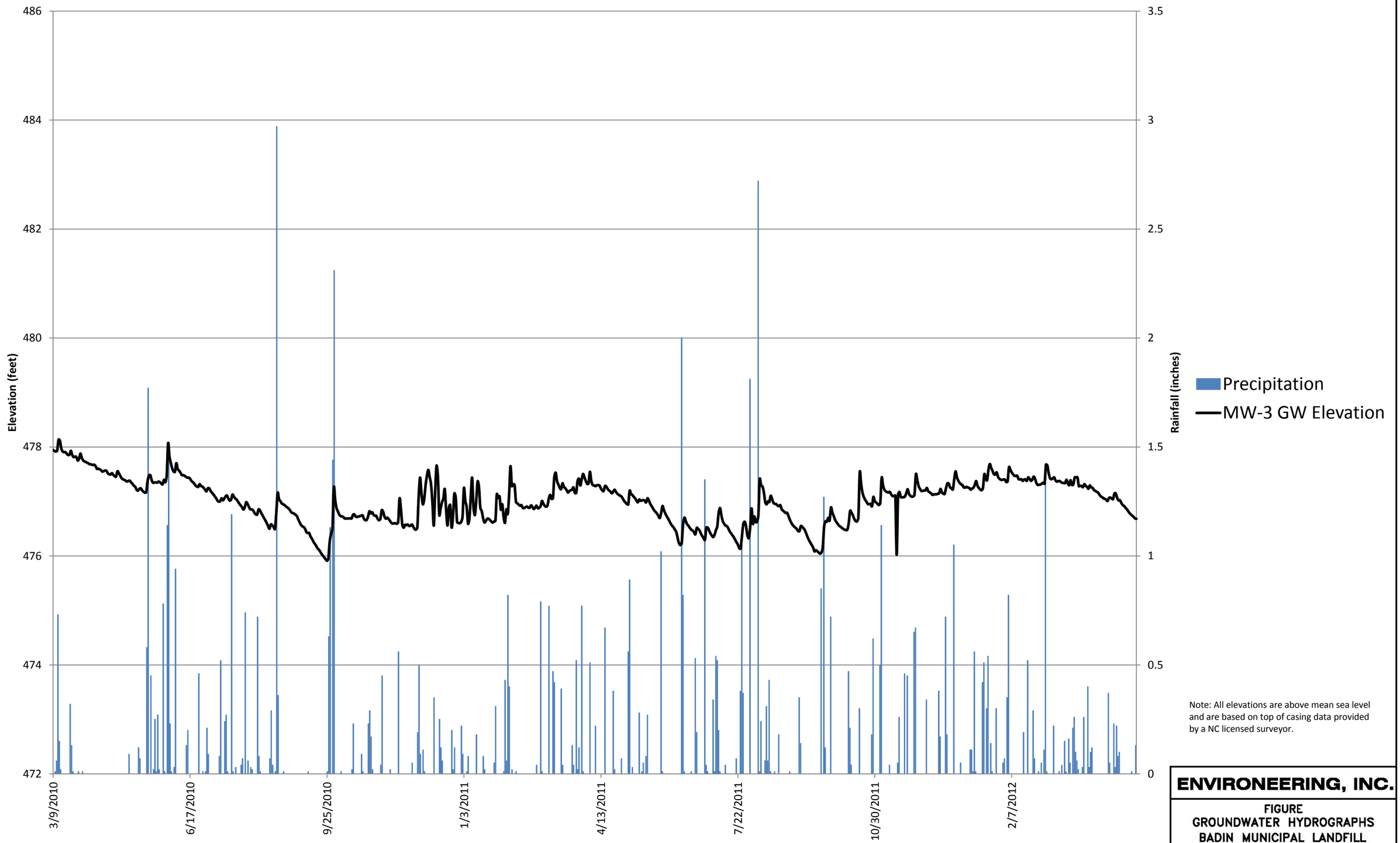
ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
BADIN MUNICIPAL LANDFILL
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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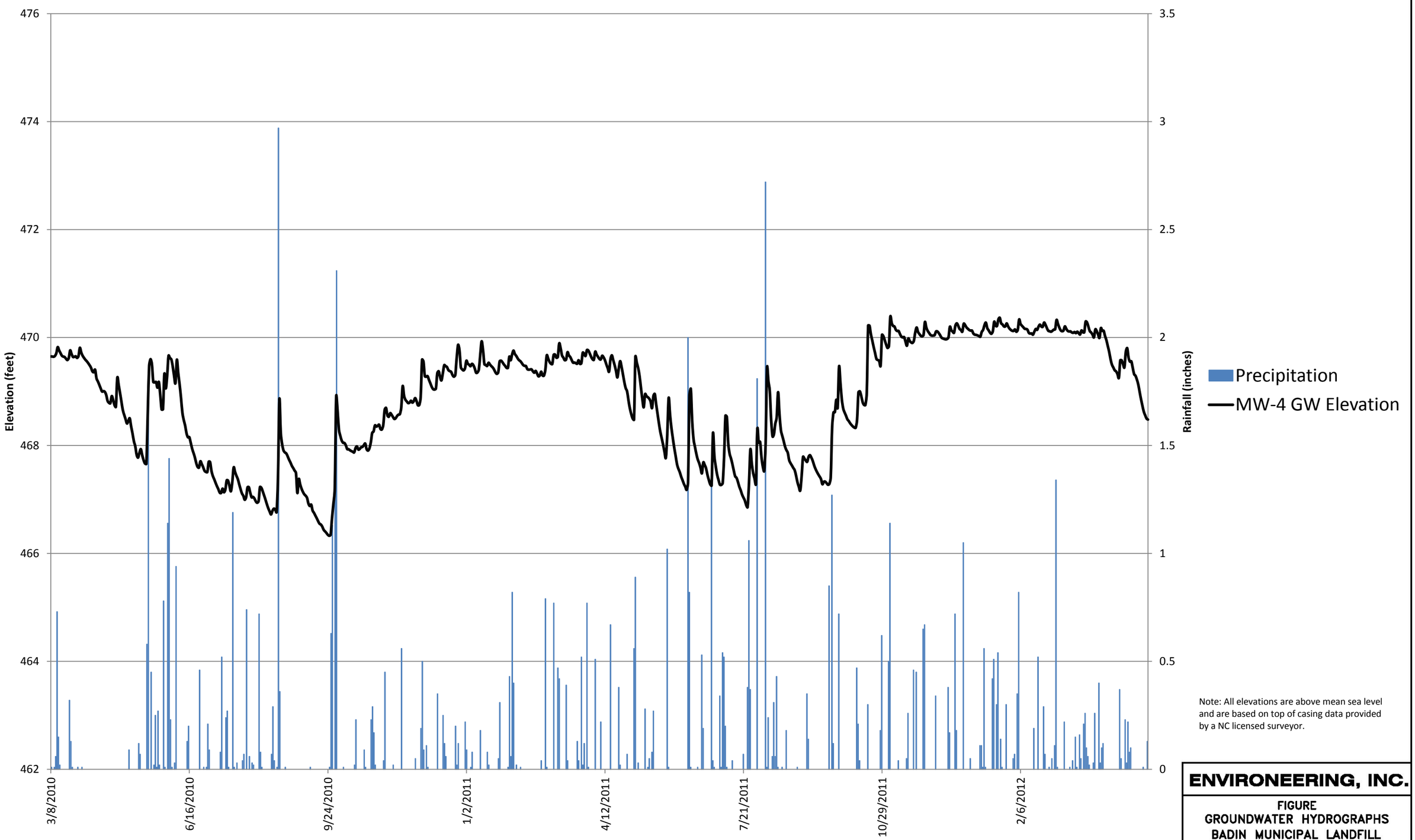
ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
BADIN MUNICIPAL LANDFILL
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



Note: All elevations are above mean sea level and are based on top of casing data provided by a NC licensed surveyor.

ENVIRONEERING, INC.

FIGURE
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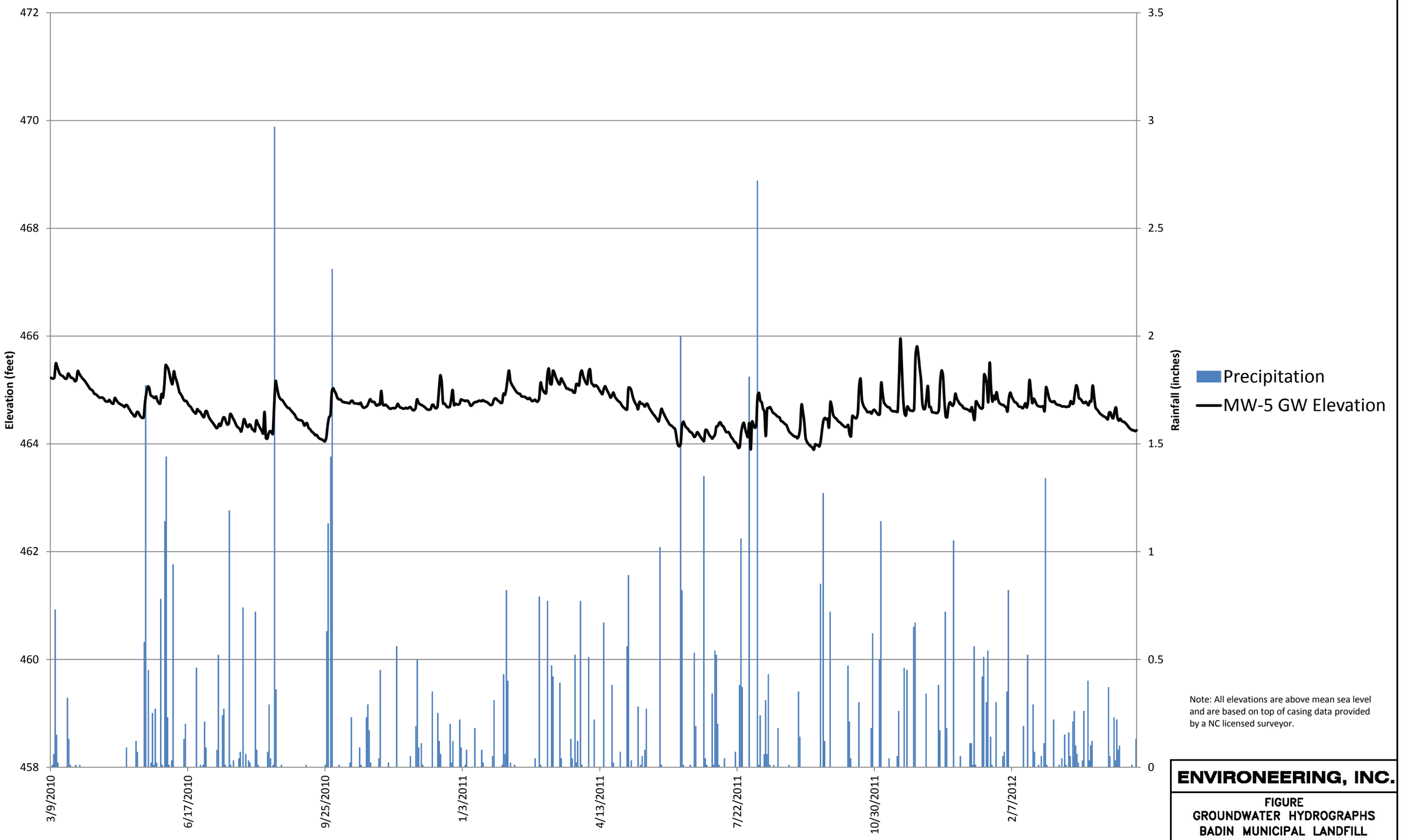
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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ENVIRONEERING, INC.

FIGURE
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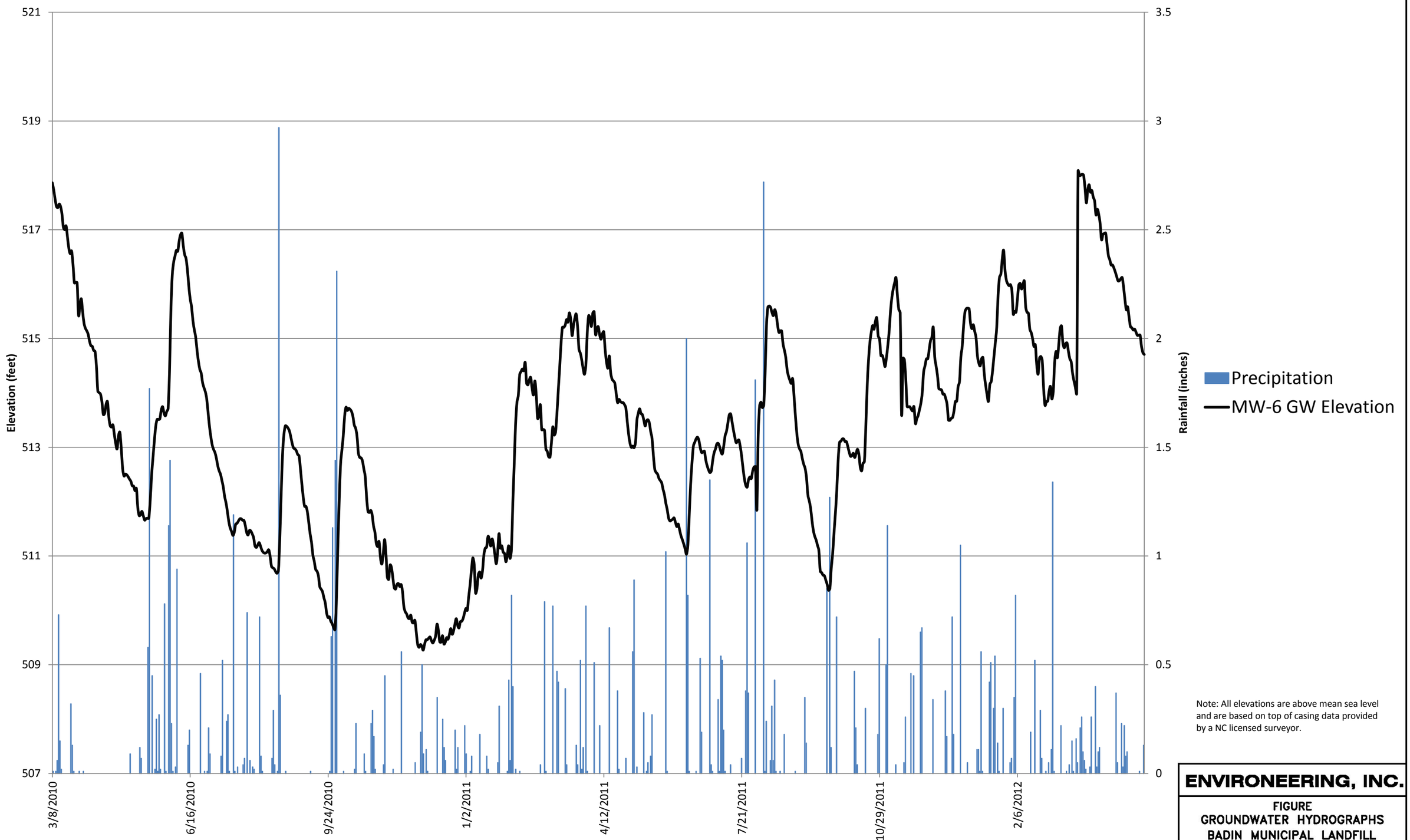
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

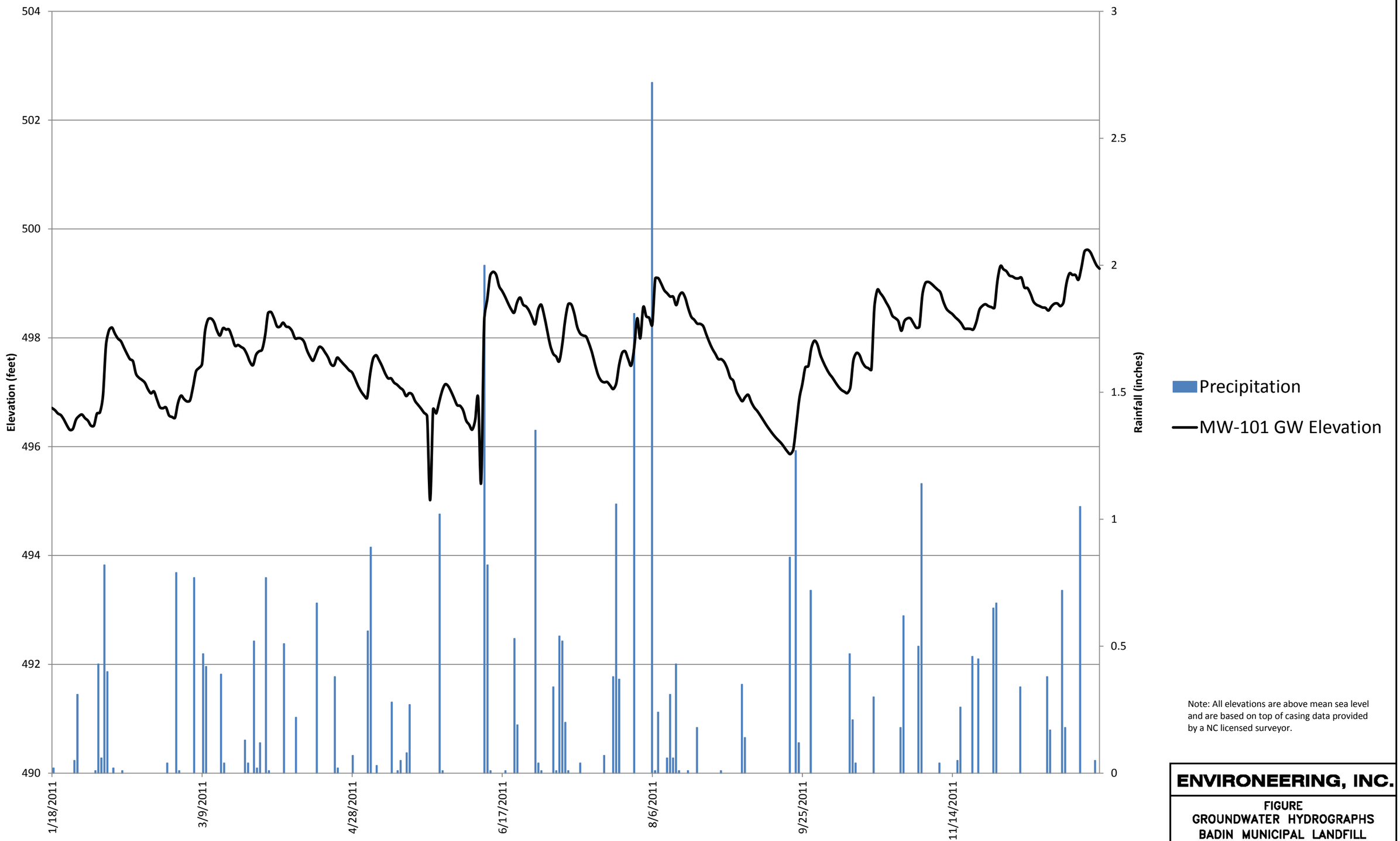


Note: All elevations are above mean sea level and are based on top of casing data provided by a NC licensed surveyor.

ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
BADIN MUNICIPAL LANDFILL
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



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ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
BADIN MUNICIPAL LANDFILL
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

APPENDIX J

WATER QUALITY ANALYTICAL DATA PACKAGE AND CHAIN OF CUSTODY DOCUMENTATION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-896-1
Client Project/Site: Alcoa Badin

For:
BHE Environmental Inc./ Alcoa Work
11733 Chesterdale Road
Cincinnati, Ohio 45246-3405

Attn: Mr. Matt Bruck

Authorized for release by:
07/15/2011 01:25:39 PM

Christina Kovitch
Project Manager II
chris.kovitch@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Definitions 4
Certification Summary 5
Sample Summary 6
Method Summary 7
Client Sample Results 8
QC Sample Results 10
QC Association 14
Chain of Custody 16
Receipt Checklists 18

Job ID: 180-896-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-896-1

Receipt
All samples were received in good condition within temperature requirements.

GCMS Semivolatiles
No analytical or quality issues were noted.

General Chemistry
Sample ABP-MW027-F003 was diluted for fluoride.

.

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

Certification Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-896-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-08-00123
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210
TestAmerica North Canton	Wisconsin	State Program	5	999518190

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-896-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-896-1	ABP-MW019-F003	Water	06/07/11 15:10	06/09/11 14:36
180-896-2	ABP-MW018-F001	Water	06/07/11 13:25	06/09/11 14:36
180-896-3	ABP-MW009-F003	Water	06/07/11 19:15	06/09/11 14:36
180-896-4	ABP-MW108-F004	Water	06/08/11 09:40	06/09/11 14:36
180-896-5	ABP-MW005-F001	Water	06/08/11 11:30	06/09/11 14:36
180-896-6	ABP-MW027-F003	Water	06/08/11 14:00	06/09/11 14:36

Method Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-896-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL PIT
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
340.2	Fluoride	MCAWW	TAL NC
SM 2320B	Alkalinity	SM	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Client Sample ID: ABP-MW019-F003 — Lab Sample ID: 180-896-1

Date Collected: 06/07/11 15:10 — **Matrix: Water**
Date Received: 06/09/11 14:36

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/10/11 11:57	1
Fluoride	**0.060**		0.050	0.0068	mg/L			07/01/11 10:55	1
Alkalinity	**15**	**B**	5.0	0.41	mg/L			06/13/11 14:22	1

Client Sample ID: ABP-MW018-F001 — Lab Sample ID: 180-896-2

Date Collected: 06/07/11 13:25 — **Matrix: Water**
Date Received: 06/09/11 14:36

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/10/11 11:59	1
Fluoride	**0.040**	**J**	0.050	0.0068	mg/L			07/01/11 11:23	1
Alkalinity	**24**	**B**	5.0	0.41	mg/L			06/13/11 14:31	1

Client Sample ID: ABP-MW009-F003 — Lab Sample ID: 180-896-3

Date Collected: 06/07/11 19:15 — **Matrix: Water**
Date Received: 06/09/11 14:36

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.039**		0.0020	0.0018	mg/L			06/10/11 12:00	1
Fluoride	**23**		1.0	0.14	mg/L			07/05/11 12:23	20
Alkalinity	**250**	**B**	5.0	0.41	mg/L			06/13/11 14:51	1

Client Sample ID: ABP-MW108-F004 — Lab Sample ID: 180-896-4

Date Collected: 06/08/11 09:40 — **Matrix: Water**
Date Received: 06/09/11 14:36

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/10/11 12:02	1
Fluoride	**0.47**		0.050	0.0068	mg/L			07/01/11 11:41	1
Alkalinity	**9.5**	**B**	5.0	0.41	mg/L			06/13/11 14:59	1

Client Sample ID: ABP-MW005-F001 — Lab Sample ID: 180-896-5

Date Collected: 06/08/11 11:30 — **Matrix: Water**
Date Received: 06/09/11 14:36

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.19	0.014	ug/L		06/13/11 09:36	06/14/11 15:16	1
Acenaphthylene	ND		0.19	0.014	ug/L		06/13/11 09:36	06/14/11 15:16	1
Anthracene	ND		0.19	0.14	ug/L		06/13/11 09:36	06/14/11 15:16	1
Benzo[a]anthracene	ND		0.19	0.014	ug/L		06/13/11 09:36	06/14/11 15:16	1
Benzo[b]fluoranthene	ND		0.19	0.015	ug/L		06/13/11 09:36	06/14/11 15:16	1
Benzo[k]fluoranthene	ND		0.19	0.052	ug/L		06/13/11 09:36	06/14/11 15:16	1

Client Sample ID: ABP-MW005-F001

Lab Sample ID: 180-896-5

Date Collected: 06/08/11 11:30

Matrix: Water

Date Received: 06/09/11 14:36

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	ND		0.19	0.014	ug/L		06/13/11 09:36	06/14/11 15:16	1
Benzo[a]pyrene	ND		0.19	0.013	ug/L		06/13/11 09:36	06/14/11 15:16	1
Chrysene	ND		0.19	0.013	ug/L		06/13/11 09:36	06/14/11 15:16	1
Dibenz(a,h)anthracene	ND		0.19	0.015	ug/L		06/13/11 09:36	06/14/11 15:16	1
Fluoranthene	ND		0.19	0.015	ug/L		06/13/11 09:36	06/14/11 15:16	1
Fluorene	ND		0.19	0.021	ug/L		06/13/11 09:36	06/14/11 15:16	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.019	ug/L		06/13/11 09:36	06/14/11 15:16	1
Naphthalene	**0.030**	**J**	0.19	0.013	ug/L		06/13/11 09:36	06/14/11 15:16	1
Phenanthrene	ND		0.19	0.041	ug/L		06/13/11 09:36	06/14/11 15:16	1
Pyrene	ND		0.19	0.015	ug/L		06/13/11 09:36	06/14/11 15:16	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*54*		*10 - 132*	*06/13/11 09:36*	*06/14/11 15:16*	*1*
Nitrobenzene-d5	*50*		*23 - 112*	*06/13/11 09:36*	*06/14/11 15:16*	*1*
2-Fluorobiphenyl	*50*		*19 - 107*	*06/13/11 09:36*	*06/14/11 15:16*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/10/11 12:03	1
Fluoride	**6.0**		2.5	0.34	mg/L			07/01/11 11:51	50
Alkalinity	**100**	**B**	5.0	0.41	mg/L			06/13/11 15:08	1

Client Sample ID: ABP-MW027-F003

Lab Sample ID: 180-896-6

Date Collected: 06/08/11 14:00

Matrix: Water

Date Received: 06/09/11 14:36

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.095**		0.0020	0.0018	mg/L			06/10/11 12:05	1
Fluoride	**300**		100	14	mg/L			07/01/11 12:00	2000
Alkalinity	**840**	**B**	5.0	0.41	mg/L			06/13/11 15:23	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 180-4138/1-A
Matrix: Water
Analysis Batch: 4347

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4138

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.20	0.014	ug/L		06/13/11 09:36	06/14/11 10:19	1
Acenaphthylene	ND		0.20	0.015	ug/L		06/13/11 09:36	06/14/11 10:19	1
Anthracene	ND		0.20	0.15	ug/L		06/13/11 09:36	06/14/11 10:19	1
Benzo[a]anthracene	ND		0.20	0.015	ug/L		06/13/11 09:36	06/14/11 10:19	1
Benzo[b]fluoranthene	ND		0.20	0.016	ug/L		06/13/11 09:36	06/14/11 10:19	1
Benzo[k]fluoranthene	ND		0.20	0.055	ug/L		06/13/11 09:36	06/14/11 10:19	1
Benzo[g,h,i]perylene	ND		0.20	0.015	ug/L		06/13/11 09:36	06/14/11 10:19	1
Benzo[a]pyrene	ND		0.20	0.013	ug/L		06/13/11 09:36	06/14/11 10:19	1
Chrysene	ND		0.20	0.014	ug/L		06/13/11 09:36	06/14/11 10:19	1
Dibenz(a,h)anthracene	ND		0.20	0.016	ug/L		06/13/11 09:36	06/14/11 10:19	1
Fluoranthene	ND		0.20	0.016	ug/L		06/13/11 09:36	06/14/11 10:19	1
Fluorene	ND		0.20	0.022	ug/L		06/13/11 09:36	06/14/11 10:19	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.020	ug/L		06/13/11 09:36	06/14/11 10:19	1
Naphthalene	ND		0.20	0.014	ug/L		06/13/11 09:36	06/14/11 10:19	1
Phenanthrene	ND		0.20	0.043	ug/L		06/13/11 09:36	06/14/11 10:19	1
Pyrene	ND		0.20	0.016	ug/L		06/13/11 09:36	06/14/11 10:19	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*74*		*10 - 132*	*06/13/11 09:36*	*06/14/11 10:19*	*1*
Nitrobenzene-d5	*60*		*23 - 112*	*06/13/11 09:36*	*06/14/11 10:19*	*1*
2-Fluorobiphenyl	*62*		*19 - 107*	*06/13/11 09:36*	*06/14/11 10:19*	*1*

Lab Sample ID: LCS 180-4138/2-A
Matrix: Water
Analysis Batch: 4347

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Acenaphthene	20.0	13.0		ug/L		65	35 - 99
Acenaphthylene	20.0	13.4		ug/L		67	37 - 107
Anthracene	20.0	12.7		ug/L		63	35 - 105
Benzo[a]anthracene	20.0	14.0		ug/L		70	38 - 101
Benzo[b]fluoranthene	20.0	13.3		ug/L		67	29 - 98
Benzo[k]fluoranthene	20.0	11.9		ug/L		60	28 - 107
Benzo[g,h,i]perylene	20.0	13.6		ug/L		68	20 - 115
Benzo[a]pyrene	20.0	13.1		ug/L		66	26 - 108
Chrysene	20.0	12.4		ug/L		62	37 - 99
Dibenz(a,h)anthracene	20.0	12.8		ug/L		64	19 - 118
Fluoranthene	20.0	12.5		ug/L		63	32 - 112
Fluorene	20.0	13.4		ug/L		67	34 - 104
Indeno[1,2,3-cd]pyrene	20.0	11.9		ug/L		59	22 - 115
Naphthalene	20.0	13.0		ug/L		65	35 - 97
Phenanthrene	20.0	13.6		ug/L		68	32 - 104

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*73*		*10 - 132*
Nitrobenzene-d5	*64*		*23 - 112*
2-Fluorobiphenyl	*63*		*19 - 107*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCSD 180-4138/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4347 — **Prep Batch: 4138**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Acenaphthene	20.0	13.1		ug/L		66	35 - 99	1	41
Acenaphthylene	20.0	13.7		ug/L		69	37 - 107	2	40
Anthracene	20.0	13.5		ug/L		68	35 - 105	6	37
Benzo[a]anthracene	20.0	14.4		ug/L		72	38 - 101	3	36
Benzo[b]fluoranthene	20.0	13.8		ug/L		69	29 - 98	4	46
Benzo[k]fluoranthene	20.0	11.8		ug/L		59	28 - 107	2	31
Benzo[g,h,i]perylene	20.0	13.6		ug/L		68	20 - 115	0	44
Benzo[a]pyrene	20.0	13.3		ug/L		67	26 - 108	2	40
Chrysene	20.0	12.6		ug/L		63	37 - 99	1	42
Dibenz(a,h)anthracene	20.0	12.7		ug/L		64	19 - 118	0	44
Fluoranthene	20.0	13.1		ug/L		65	32 - 112	4	39
Fluorene	20.0	13.9		ug/L		70	34 - 104	4	40
Indeno[1,2,3-cd]pyrene	20.0	12.5		ug/L		62	22 - 115	5	54
Naphthalene	20.0	13.1		ug/L		66	35 - 97	1	43
Phenanthrene	20.0	14.5		ug/L		73	32 - 104	7	36

Surrogate	*LCSD % Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*71*		*10 - 132*
Nitrobenzene-d5	*64*		*23 - 112*
2-Fluorobiphenyl	*65*		*19 - 107*

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-4018/17 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4018

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/10/11 11:53	1

Lab Sample ID: LCS 180-4018/18 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4018

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.212		mg/L		106	82 - 132

Lab Sample ID: LCSD 180-4018/19 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4018

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide	0.200	0.216		mg/L		108	82 - 132	2	20

Method: 340.2 - Fluoride

Lab Sample ID: MB 240-6344/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			06/27/11 18:14	1

Lab Sample ID: LCS 240-6344/4 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.57	2.62		mg/L		102	88 - 117

Lab Sample ID: MB 240-6959/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/01/11 10:28	1

Lab Sample ID: LCS 240-6959/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6959

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	1.29	1.22		mg/L		95	88 - 117

Lab Sample ID: MB 240-7315/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 10:40	1

Lab Sample ID: LCS 240-7315/5 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.58	2.54		mg/L		98	88 - 117

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 180-4223/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.00	J	5.0	0.41	mg/L			06/13/11 09:21	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 180-4223/28
Matrix: Water
Analysis Batch: 4223

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.15	J	5.0	0.41	mg/L			06/13/11 14:15	1

Lab Sample ID: 180-896-2 DU
Matrix: Water
Analysis Batch: 4223

Client Sample ID: ABP-MW018-F001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	24	B		23.4		mg/L				2	20

QC Association Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-896-1

GC/MS Semi VOA

Prep Batch: 4138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4138/1-A	Method Blank	Total/NA	Water	3520C	
LCS 180-4138/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 180-4138/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
180-896-5	ABP-MW005-F001	Total/NA	Water	3520C	

Analysis Batch: 4347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4138/1-A	Method Blank	Total/NA	Water	8270C LL	4138
LCS 180-4138/2-A	Lab Control Sample	Total/NA	Water	8270C LL	4138
LCSD 180-4138/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	4138
180-896-5	ABP-MW005-F001	Total/NA	Water	8270C LL	4138

General Chemistry

Analysis Batch: 4018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4018/17	Method Blank	Total/NA	Water	1677	
LCS 180-4018/18	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-4018/19	Lab Control Sample Dup	Total/NA	Water	1677	
180-896-1	ABP-MW019-F003	Total/NA	Water	1677	
180-896-2	ABP-MW018-F001	Total/NA	Water	1677	
180-896-3	ABP-MW009-F003	Total/NA	Water	1677	
180-896-4	ABP-MW108-F004	Total/NA	Water	1677	
180-896-5	ABP-MW005-F001	Total/NA	Water	1677	
180-896-6	ABP-MW027-F003	Total/NA	Water	1677	

Analysis Batch: 4223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4223/2	Method Blank	Total/NA	Water	SM 2320B	
LCS 180-4223/27	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-4223/28	Method Blank	Total/NA	Water	SM 2320B	
180-896-1	ABP-MW019-F003	Total/NA	Water	SM 2320B	
180-896-2	ABP-MW018-F001	Total/NA	Water	SM 2320B	
180-896-2 DU	ABP-MW018-F001	Total/NA	Water	SM 2320B	
180-896-3	ABP-MW009-F003	Total/NA	Water	SM 2320B	
180-896-4	ABP-MW108-F004	Total/NA	Water	SM 2320B	
180-896-5	ABP-MW005-F001	Total/NA	Water	SM 2320B	
180-896-6	ABP-MW027-F003	Total/NA	Water	SM 2320B	

Analysis Batch: 6344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-6344/3	Method Blank	Total/NA	Water	340.2	
LCS 240-6344/4 ^2	Lab Control Sample	Total/NA	Water	340.2	

Analysis Batch: 6959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-6959/4	Method Blank	Total/NA	Water	340.2	
LCS 240-6959/5	Lab Control Sample	Total/NA	Water	340.2	
180-896-1	ABP-MW019-F003	Total/NA	Water	340.2	
180-896-2	ABP-MW018-F001	Total/NA	Water	340.2	
180-896-4	ABP-MW108-F004	Total/NA	Water	340.2	
180-896-5	ABP-MW005-F001	Total/NA	Water	340.2	

General Chemistry (Continued)

Analysis Batch: 6959 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-896-6	ABP-MW027-F003	Total/NA	Water	340.2	

Analysis Batch: 7315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-7315/4	Method Blank	Total/NA	Water	340.2	
LCS 240-7315/5 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-896-3	ABP-MW009-F003	Total/NA	Water	340.2	

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Pittsburgh
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact			
Company Name: BHE Environmental, Inc	Client Project Manager: Tim Tressner	Site Contact: Mark Bruck	Lab Contact: Patrick Omeara
Address: 11733 Chesterdale Road	Telephone: 513-326-1500	Telephone: 513-326-1500	Telephone: 330-966-5725
City/State/Zip: Cincinnati OH 45246	Email: Ttressner@BHEenvironmental		
Phone: 513-326-1500			
Project Name: ALCOA-Badin, NC	Method of Shipment/Carrier: Fed-ex		
Project Number: 0990.225	Shipping/Tracking No:		
PO# 0990.225			

COC No: 6-8-11
1 of 1 COCs

Analysis Turnaround Time (in BUS days)
TAT if different from below
☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only
Walk-in client ☐
Lab pickup ☐
Lab sampling ☐
Job/SDG No.:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite-C/Grab-G	Analyses: Cyanide	Fluoride	Alkalinity	PAH							Sample Specific Notes / Special Instructions:
ABP-MW019-F003	6/7/11	1510		✓							1		2		N	G	✓	✓	✓								No sulfide interference
ABP-MW018-F001	6/7/11	1325		✓							1		2		N	G	✓	✓	✓								No sulfide Interference
ABP-MW009-F003	6/7/11	1915		✓							1		2		N	G	✓	✓	✓								No sulfide Interference
ABP-MW108-F004	6/8/11	940		✓							1		2		N	G	✓	✓	✓								No sulfide Interference
ABP-MW005-F001	6/8/11	1130		✓							1		4		N	G	✓	✓	✓	✓							No sulfide Interference
ABP-MW037-F003	6/8/11	1400		✓							1		2		N	G	✓	✓	✓								No sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Beverly Ramsey	BHE	6/8/11 1500		TA PH	6/9/11 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

144

1784
06.06

ORIGIN ID: SRWA (513) 326-1500
WENDY RAMSEY
BHE
11733 CHESTERDALE AVE.

CINCINNATI, OH 45246
UNITED STATES US

SHIP DATE: 08JUN11
ACTWGT: 39.7 LB
CAD: 6015190/FSSR1205
DIMS: 24x13x15 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
TESTAMERICA INC.
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963-7058
INV:
PO:
REF:
DEPT:

FedEx
Express

TRK# 0201 7971 8393 2023

THU - 09 JUN A2
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Part # 156297-435 RIT 10/09

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-896-1

Login Number: 896

List Number: 1

Creator: Gamber, Tom

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-896-1

Login Number: 896
List Number: 1
Creator: Ferrel, Matthew

List Source: TestAmerica North Canton
List Creation: 06/14/11 12:28 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.8, 7.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-960-1
Client Project/Site: Alcoa Badin 0990-225

For:
BHE Environmental Inc./ Alcoa Work
11733 Chesterdale Road
Cincinnati, Ohio 45246-3405

Attn: Mr. Matt Bruck

Authorized for release by:
07/17/2011 11:48:00 PM

Christina Kovitch
Project Manager II
chris.kovitch@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Job ID: 180-960-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-960-1

Receipt
All samples were received in good condition within temperature requirements.

General Chemistry
Several samples were diluted for fluoride.

For Available Cyanide, the matrix spike / matrix spike duplicate (MS/MSD) recoveries were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

The sample duplicate precision for sample ABP-MW017-F003 (180-960-2 DU) for alkalinity was outside control limits.

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F	MS or MSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

Certification Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990-225

TestAmerica Job ID: 180-960-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-08-00123
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210
TestAmerica North Canton	Wisconsin	State Program	5	999518190

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990-225

TestAmerica Job ID: 180-960-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-960-1	ABP-MW008-F001	Water	06/08/11 17:05	06/11/11 09:30
180-960-2	ABP-MW017-F003	Water	06/09/11 07:05	06/11/11 09:30
180-960-3	ABP-MW016-F003	Water	06/09/11 08:50	06/11/11 09:30
180-960-4	ABP-MW010-F003	Water	06/09/11 10:45	06/11/11 09:30
180-960-5	ABP-MW011-F003	Water	06/09/11 13:25	06/11/11 09:30
180-960-6	ABP-MW001-F004	Water	06/09/11 15:00	06/11/11 09:30

Method Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990-225

TestAmerica Job ID: 180-960-1

Method	Method Description	Protocol	Laboratory
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
340.2	Fluoride	MCAWW	TAL NC
SM 2320B	Alkalinity	SM	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Client Sample ID: ABP-MW008-F001 — Lab Sample ID: 180-960-1

Date Collected: 06/08/11 17:05
Date Received: 06/11/11 09:30
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.011		0.0020	0.0018	mg/L			06/16/11 12:21	1
Fluoride	14		5.0	0.68	mg/L			07/01/11 12:09	100
Alkalinity	150	B	5.0	0.41	mg/L			06/13/11 18:15	1

Client Sample ID: ABP-MW017-F003 — Lab Sample ID: 180-960-2

Date Collected: 06/09/11 07:05
Date Received: 06/11/11 09:30
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 13:44	1
Fluoride	0.030	J	0.050	0.0068	mg/L			07/01/11 12:19	1
Alkalinity	7.1	B	5.0	0.41	mg/L			06/14/11 18:05	1

Client Sample ID: ABP-MW016-F003 — Lab Sample ID: 180-960-3

Date Collected: 06/09/11 08:50
Date Received: 06/11/11 09:30
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.034		0.0020	0.0018	mg/L			06/16/11 12:27	1
Fluoride	13		5.0	0.68	mg/L			07/01/11 12:46	100
Alkalinity	210	B	5.0	0.41	mg/L			06/14/11 18:24	1

Client Sample ID: ABP-MW010-F003 — Lab Sample ID: 180-960-4

Date Collected: 06/09/11 10:45
Date Received: 06/11/11 09:30
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:28	1
Fluoride	1.2		0.050	0.0068	mg/L			07/05/11 12:32	1
Alkalinity	15	B	5.0	0.41	mg/L			06/14/11 19:11	1

Client Sample ID: ABP-MW011-F003 — Lab Sample ID: 180-960-5

Date Collected: 06/09/11 13:25
Date Received: 06/11/11 09:30
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:30	1
Fluoride	0.51		0.050	0.0068	mg/L			07/05/11 12:41	1
Alkalinity	24	B	5.0	0.41	mg/L			06/14/11 19:20	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990-225

TestAmerica Job ID: 180-960-1

Client Sample ID: ABP-MW001-F004

Lab Sample ID: 180-960-6

Date Collected: 06/09/11 15:00
Matrix: Water
Date Received: 06/11/11 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:31	1
Fluoride	**0.020**	**J**	0.050	0.0068	mg/L			07/05/11 12:51	1
Alkalinity	**13**	**B**	5.0	0.41	mg/L			06/14/11 19:29	1

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-4594/49 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:15	1

Lab Sample ID: MB 180-4594/66 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:40	1

Lab Sample ID: MB 180-4594/82 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 13:04	1

Lab Sample ID: LCS 180-4594/50 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.206		mg/L		103	82 - 132

Lab Sample ID: LCS 180-4594/83 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.206		mg/L		103	82 - 132

Lab Sample ID: LCSD 180-4594/68 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide	0.200	0.210		mg/L		105	82 - 132	2	20

Lab Sample ID: LCSD 180-4594/84 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide	0.200	0.209		mg/L		105	82 - 132	1	20

Lab Sample ID: 180-960-2 MS — **Client Sample ID: ABP-MW017-F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	ND		0.200	0.135	F	mg/L		68	82 - 130

Method: 1677 - Cyanide, Available (Flow Injection) (Continued)

Lab Sample ID: 180-960-2 MSD — **Client Sample ID: ABP-MW017-F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide	ND		0.200	0.137	F	mg/L		69	82 - 130	1	11

Method: 340.2 - Fluoride

Lab Sample ID: MB 240-6344/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			06/27/11 18:14	1

Lab Sample ID: LCS 240-6344/4 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.57	2.62		mg/L		102	88 - 117

Lab Sample ID: MB 240-6959/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/01/11 10:28	1

Lab Sample ID: LCS 240-6959/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6959

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	1.29	1.22		mg/L		95	88 - 117

Lab Sample ID: 180-960-2 MS — **Client Sample ID: ABP-MW017-F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6959

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	0.030	J	2.00	2.02		mg/L		100	83 - 117

Lab Sample ID: 180-960-2 MSD — **Client Sample ID: ABP-MW017-F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6959

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	0.030	J	2.00	2.04		mg/L		101	83 - 117	1	20

Method: 340.2 - Fluoride (Continued)

Lab Sample ID: MB 240-7315/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 10:40	1

Lab Sample ID: LCS 240-7315/5 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.58	2.54		mg/L		98	88 - 117

Lab Sample ID: 180-960-6 MS — **Client Sample ID: ABP-MW001-F004**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	0.020	J	1.00	1.08		mg/L		106	83 - 117

Lab Sample ID: 180-960-6 MSD — **Client Sample ID: ABP-MW001-F004**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	0.020	J	1.00	1.08		mg/L		106	83 - 117	0	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 180-4223/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.00	J	5.0	0.41	mg/L			06/13/11 09:21	1

Lab Sample ID: MB 180-4223/28 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.15	J	5.0	0.41	mg/L			06/13/11 14:15	1

Lab Sample ID: 180-960-1 DU — **Client Sample ID: ABP-MW008-F001**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4223

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	150	B	153		mg/L		0.04	20

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 180-4410/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.73	J	5.0	0.41	mg/L			06/14/11 10:59	1

Lab Sample ID: MB 180-4410/28 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.32	J	5.0	0.41	mg/L			06/14/11 14:58	1

Lab Sample ID: MB 180-4410/56 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.35	J	5.0	0.41	mg/L			06/14/11 19:03	1

Lab Sample ID: 180-960-2 DU — **Client Sample ID: ABP-MW017-F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4410

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	7.1	B		5.78		mg/L				21	20

Lab Sample ID: MB 180-4870/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4870

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.28	J	5.0	0.41	mg/L			06/20/11 06:49	1

General Chemistry

Analysis Batch: 4223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4223/2	Method Blank	Total/NA	Water	SM 2320B	
LCS 180-4223/27	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-4223/28	Method Blank	Total/NA	Water	SM 2320B	
180-960-1	ABP-MW008-F001	Total/NA	Water	SM 2320B	
180-960-1 DU	ABP-MW008-F001	Total/NA	Water	SM 2320B	

Analysis Batch: 4410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4410/2	Method Blank	Total/NA	Water	SM 2320B	
LCS 180-4410/27	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-4410/28	Method Blank	Total/NA	Water	SM 2320B	
180-960-2	ABP-MW017-F003	Total/NA	Water	SM 2320B	
180-960-2 DU	ABP-MW017-F003	Total/NA	Water	SM 2320B	
180-960-3	ABP-MW016-F003	Total/NA	Water	SM 2320B	
LCS 180-4410/55	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-4410/56	Method Blank	Total/NA	Water	SM 2320B	
180-960-4	ABP-MW010-F003	Total/NA	Water	SM 2320B	
180-960-5	ABP-MW011-F003	Total/NA	Water	SM 2320B	
180-960-6	ABP-MW001-F004	Total/NA	Water	SM 2320B	

Analysis Batch: 4594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4594/49	Method Blank	Total/NA	Water	1677	
LCS 180-4594/50	Lab Control Sample	Total/NA	Water	1677	
180-960-1	ABP-MW008-F001	Total/NA	Water	1677	
180-960-3	ABP-MW016-F003	Total/NA	Water	1677	
180-960-4	ABP-MW010-F003	Total/NA	Water	1677	
180-960-5	ABP-MW011-F003	Total/NA	Water	1677	
180-960-6	ABP-MW001-F004	Total/NA	Water	1677	
MB 180-4594/66	Method Blank	Total/NA	Water	1677	
LCSD 180-4594/68	Lab Control Sample Dup	Total/NA	Water	1677	
MB 180-4594/82	Method Blank	Total/NA	Water	1677	
LCS 180-4594/83	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-4594/84	Lab Control Sample Dup	Total/NA	Water	1677	
180-960-2	ABP-MW017-F003	Total/NA	Water	1677	
180-960-2 MS	ABP-MW017-F003	Total/NA	Water	1677	
180-960-2 MSD	ABP-MW017-F003	Total/NA	Water	1677	

Analysis Batch: 4870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-4870/1	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-4870/2	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 6344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-6344/3	Method Blank	Total/NA	Water	340.2	
LCS 240-6344/4 ^2	Lab Control Sample	Total/NA	Water	340.2	

Analysis Batch: 6959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-6959/4	Method Blank	Total/NA	Water	340.2	
LCS 240-6959/5	Lab Control Sample	Total/NA	Water	340.2	

General Chemistry (Continued)

Analysis Batch: 6959 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-960-1	ABP-MW008-F001	Total/NA	Water	340.2	
180-960-2	ABP-MW017-F003	Total/NA	Water	340.2	
180-960-2 MS	ABP-MW017-F003	Total/NA	Water	340.2	
180-960-2 MSD	ABP-MW017-F003	Total/NA	Water	340.2	
180-960-3	ABP-MW016-F003	Total/NA	Water	340.2	

Analysis Batch: 7315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-7315/4	Method Blank	Total/NA	Water	340.2	
LCS 240-7315/5 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-960-4	ABP-MW010-F003	Total/NA	Water	340.2	
180-960-5	ABP-MW011-F003	Total/NA	Water	340.2	
180-960-6	ABP-MW001-F004	Total/NA	Water	340.2	
180-960-6 MS	ABP-MW001-F004	Total/NA	Water	340.2	
180-960-6 MSD	ABP-MW001-F004	Total/NA	Water	340.2	

Chain of Custody Record

TestAmerica Laboratory location: Pittsburg

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

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TestAmerica Laboratories, Inc.

07/17/2011

Client Contact			
Company Name: BHE Environmental	Client Project Manager: Tim Kessner	Site Contact: Matt Bruck	Lab Contact: Patrick Omeara
Address: 11733 Chesterdale Rd	Telephone: 513-326-1500	Telephone: 513-326-1500	Telephone: 330-966-5725
City/State/Zip: Cincinnati OH 45246	Email: Tkessner@bhenvironmental.com		
Phone: 513-326-1500			
Project Name: 0990-225 ALCOA-Badin NC	Method of Shipment/Carrier: Fedex		
Project Number: 0990-225	Shipping/Tracking No:		
PO# 0990-225			

COC No: 018303

1 of 1 COCs

Analysis Turnaround Time (in BUS days)

TAT if different from below

☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only: Walk-in client ☐ Lab pickup ☐ Lab sampling ☐ Job/SDG No.

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite-C/Grab-G	Analyses: Cyanide	Fluoride	Alkalinity	Sample Specific Notes / Special Instructions:
ABP-MW008-F001	6/8/11	1705		✓							1		2		N	G	✓	✓	✓	No Sulfide Interference
ABP-MW017-F003	6/9/11	705		✓							1		2		N	G	✓	✓	✓	No Sulfide Interference
ABP-MW017-MS	6/9/11	705		✓							1		2		N	G	✓	✓	✓	No Sulfide Interference
ABP-MW017-MSD	6/9/11	705		✓							1		2		N	G	✓	✓	✓	No Sulfide Interference
ABP-MW016-F003	6/9/11	850		✓							1		2		N	G	✓	✓	✓	No Sulfide Interference
ABP-MW010-F003	6/9/11	1045		✓							1		2		N	G	✓	✓	✓	No Sulfide Interference
ABP-MW011-F003	6/9/11	1325		✓							1		2		N	G	✓	✓	✓	No Sulfide Interference
ABP-MW001-F001	6/9/11	1500		✓							1		2		N	G	✓	✓	✓	No Sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wally Dunning	BHE	6/10/11 1200	[signature]	TA	6/11/11 0930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL 0018- 1 (04/10)

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-960-1

Login Number: 960

List Number: 1

Creator: Blotzer, Tristan

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-960-1

Login Number: 960
List Number: 1
Creator: Ferrel, Matthew

List Source: TestAmerica North Canton
List Creation: 06/14/11 12:19 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	7.6 for llhg
Cooler Temperature is recorded.	True	4.8, 7.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-1023-1
Client Project/Site: Alcoa Badin 0990.225

For:
BHE Environmental Inc./ Alcoa Work
11733 Chesterdale Road
Cincinnati, Ohio 45246-3405

Attn: Mr. Matt Bruck

Authorized for release by:
07/12/2011 06:52:11 AM
Jill Colussy
Report Production Representative
jill.colussy@testamericainc.com

Designee for

Christina Kovitch
Project Manager II
chris.kovitch@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Job ID: 180-1023-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-1023-1

Receipt
All samples were received in good condition within temperature requirements.

GC/MS Semi VOA
No analytical or quality issues were noted.

General Chemistry
Several samples were analyzed at a dilution for fluoride and/or available cyanide.

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

Certification Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990.225

TestAmerica Job ID: 180-1023-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-08-00123
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210
TestAmerica North Canton	Wisconsin	State Program	5	999518190

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990.225

TestAmerica Job ID: 180-1023-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-1023-1	ABP-MW101-F004	Water	06/10/11 15:00	06/14/11 10:00
180-1023-2	ABP-MW101-D001	Water	06/10/11 15:00	06/14/11 10:00
180-1023-3	ABP-MW207-F004	Water	06/11/11 15:45	06/14/11 10:00
180-1023-4	ABP-MW029-F001	Water	06/12/11 10:40	06/14/11 10:00
180-1023-5	ABP-MW077-F002	Water	06/12/11 14:00	06/14/11 10:00
180-1023-6	ABP-MW104-F004	Water	06/10/11 17:30	06/14/11 10:00
180-1023-7	ABP-MW102-F004	Water	06/12/11 17:55	06/14/11 10:00

Method Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990.225

TestAmerica Job ID: 180-1023-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL PIT
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
340.2	Fluoride	MCAWW	TAL NC
SM 2320B	Alkalinity	SM	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Client Sample ID: ABP-MW101-F004

Lab Sample ID: 180-1023-1

Date Collected: 06/10/11 15:00
Matrix: Water
Date Received: 06/14/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:33	1
Fluoride	**0.17**		0.050	0.0068	mg/L			07/05/11 13:18	1
Alkalinity	**10**	**B**	5.0	0.41	mg/L			06/20/11 14:38	1

Client Sample ID: ABP-MW101-D001

Lab Sample ID: 180-1023-2

Date Collected: 06/10/11 15:00
Matrix: Water
Date Received: 06/14/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:34	1
Fluoride	**0.11**		0.050	0.0068	mg/L			07/05/11 13:28	1
Alkalinity	**10**	**B**	5.0	0.41	mg/L			06/20/11 14:46	1

Client Sample ID: ABP-MW207-F004

Lab Sample ID: 180-1023-3

Date Collected: 06/11/11 15:45
Matrix: Water
Date Received: 06/14/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:45	1
Fluoride	**1.2**		0.050	0.0068	mg/L			07/05/11 13:56	1
Alkalinity	**83**	**B**	5.0	0.41	mg/L			06/20/11 14:58	1

Client Sample ID: ABP-MW029-F001

Lab Sample ID: 180-1023-4

Date Collected: 06/12/11 10:40
Matrix: Water
Date Received: 06/14/11 10:00

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.19	0.014	ug/L		06/16/11 08:30	06/17/11 16:58	1
Acenaphthylene	ND		0.19	0.014	ug/L		06/16/11 08:30	06/17/11 16:58	1
Anthracene	ND		0.19	0.14	ug/L		06/16/11 08:30	06/17/11 16:58	1
Benzo[a]anthracene	ND		0.19	0.014	ug/L		06/16/11 08:30	06/17/11 16:58	1
Benzo[b]fluoranthene	ND		0.19	0.015	ug/L		06/16/11 08:30	06/17/11 16:58	1
Benzo[k]fluoranthene	ND		0.19	0.052	ug/L		06/16/11 08:30	06/17/11 16:58	1
Benzo[g,h,i]perylene	ND		0.19	0.014	ug/L		06/16/11 08:30	06/17/11 16:58	1
Benzo[a]pyrene	ND		0.19	0.013	ug/L		06/16/11 08:30	06/17/11 16:58	1
Chrysene	ND		0.19	0.013	ug/L		06/16/11 08:30	06/17/11 16:58	1
Dibenz(a,h)anthracene	ND		0.19	0.015	ug/L		06/16/11 08:30	06/17/11 16:58	1
Fluoranthene	ND		0.19	0.015	ug/L		06/16/11 08:30	06/17/11 16:58	1
Fluorene	ND		0.19	0.020	ug/L		06/16/11 08:30	06/17/11 16:58	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.019	ug/L		06/16/11 08:30	06/17/11 16:58	1
Naphthalene	ND		0.19	0.013	ug/L		06/16/11 08:30	06/17/11 16:58	1
Phenanthrene	ND		0.19	0.040	ug/L		06/16/11 08:30	06/17/11 16:58	1
Pyrene	ND		0.19	0.015	ug/L		06/16/11 08:30	06/17/11 16:58	1

Client Sample ID: ABP-MW029-F001

Lab Sample ID: 180-1023-4

Date Collected: 06/12/11 10:40
Matrix: Water
Date Received: 06/14/11 10:00

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*41*		*10 - 132*	*06/16/11 08:30*	*06/17/11 16:58*	*1*
Nitrobenzene-d5	*56*		*23 - 112*	*06/16/11 08:30*	*06/17/11 16:58*	*1*
2-Fluorobiphenyl	*53*		*19 - 107*	*06/16/11 08:30*	*06/17/11 16:58*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.70**		0.020	0.018	mg/L			06/16/11 13:49	10
Fluoride	**52**		2.5	0.34	mg/L			07/05/11 14:05	50
Alkalinity	ND		5.0	0.41	mg/L			06/20/11 15:34	1

Client Sample ID: ABP-MW077-F002

Lab Sample ID: 180-1023-5

Date Collected: 06/12/11 14:00
Matrix: Water
Date Received: 06/14/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 13:50	1
Fluoride	**0.030**	**J**	0.050	0.0068	mg/L			07/05/11 14:14	1
Alkalinity	**30**	**B**	5.0	0.41	mg/L			06/20/11 16:22	1

Client Sample ID: ABP-MW104-F004

Lab Sample ID: 180-1023-6

Date Collected: 06/10/11 17:30
Matrix: Water
Date Received: 06/14/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:49	1
Fluoride	**4.1**		0.50	0.068	mg/L			07/05/11 14:24	10
Alkalinity	**3.0**	**J B**	5.0	0.41	mg/L			06/20/11 16:32	1

Client Sample ID: ABP-MW102-F004

Lab Sample ID: 180-1023-7

Date Collected: 06/12/11 17:55
Matrix: Water
Date Received: 06/14/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:51	1
Fluoride	**2.9**		0.25	0.034	mg/L			07/05/11 14:33	5
Alkalinity	**10**	**B**	5.0	0.41	mg/L			06/20/11 16:50	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 180-4516/1-A
Matrix: Water
Analysis Batch: 4825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.20	0.014	ug/L		06/16/11 08:30	06/17/11 12:42	1
Acenaphthylene	ND		0.20	0.015	ug/L		06/16/11 08:30	06/17/11 12:42	1
Anthracene	ND		0.20	0.15	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[a]anthracene	ND		0.20	0.015	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[b]fluoranthene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[k]fluoranthene	ND		0.20	0.055	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[g,h,i]perylene	ND		0.20	0.015	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[a]pyrene	ND		0.20	0.013	ug/L		06/16/11 08:30	06/17/11 12:42	1
Chrysene	ND		0.20	0.014	ug/L		06/16/11 08:30	06/17/11 12:42	1
Dibenz(a,h)anthracene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 12:42	1
Fluoranthene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 12:42	1
Fluorene	ND		0.20	0.022	ug/L		06/16/11 08:30	06/17/11 12:42	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.020	ug/L		06/16/11 08:30	06/17/11 12:42	1
Naphthalene	ND		0.20	0.014	ug/L		06/16/11 08:30	06/17/11 12:42	1
Phenanthrene	ND		0.20	0.043	ug/L		06/16/11 08:30	06/17/11 12:42	1
Pyrene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 12:42	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*74*		*10 - 132*	*06/16/11 08:30*	*06/17/11 12:42*	*1*
Nitrobenzene-d5	*73*		*23 - 112*	*06/16/11 08:30*	*06/17/11 12:42*	*1*
2-Fluorobiphenyl	*74*		*19 - 107*	*06/16/11 08:30*	*06/17/11 12:42*	*1*

Lab Sample ID: LCS 180-4516/2-A
Matrix: Water
Analysis Batch: 4825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4516

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Acenaphthene	20.0	15.1		ug/L		76	35 - 99
Acenaphthylene	20.0	15.7		ug/L		78	37 - 107
Anthracene	20.0	15.3		ug/L		76	35 - 105
Benzo[a]anthracene	20.0	15.5		ug/L		78	38 - 101
Benzo[b]fluoranthene	20.0	15.7		ug/L		79	29 - 98
Benzo[k]fluoranthene	20.0	15.1		ug/L		75	28 - 107
Benzo[g,h,i]perylene	20.0	17.7		ug/L		88	20 - 115
Benzo[a]pyrene	20.0	16.2		ug/L		81	26 - 108
Chrysene	20.0	15.9		ug/L		80	37 - 99
Dibenz(a,h)anthracene	20.0	17.5		ug/L		87	19 - 118
Fluoranthene	20.0	15.6		ug/L		78	32 - 112
Fluorene	20.0	15.2		ug/L		76	34 - 104
Indeno[1,2,3-cd]pyrene	20.0	17.7		ug/L		88	22 - 115
Naphthalene	20.0	13.9		ug/L		70	35 - 97
Phenanthrene	20.0	15.0		ug/L		75	32 - 104

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*75*		*10 - 132*
Nitrobenzene-d5	*67*		*23 - 112*
2-Fluorobiphenyl	*71*		*19 - 107*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCSD 180-4516/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4825 — **Prep Batch: 4516**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Acenaphthene	20.0	15.1		ug/L		76	35 - 99	0	41
Acenaphthylene	20.0	15.4		ug/L		77	37 - 107	2	40
Anthracene	20.0	15.6		ug/L		78	35 - 105	2	37
Benzo[a]anthracene	20.0	14.9		ug/L		75	38 - 101	4	36
Benzo[b]fluoranthene	20.0	15.8		ug/L		79	29 - 98	0	46
Benzo[k]fluoranthene	20.0	14.3		ug/L		72	28 - 107	5	31
Benzo[g,h,i]perylene	20.0	17.7		ug/L		89	20 - 115	0	44
Benzo[a]pyrene	20.0	15.5		ug/L		77	26 - 108	4	40
Chrysene	20.0	15.3		ug/L		76	37 - 99	4	42
Dibenz(a,h)anthracene	20.0	17.8		ug/L		89	19 - 118	2	44
Fluoranthene	20.0	15.5		ug/L		78	32 - 112	1	39
Fluorene	20.0	15.5		ug/L		77	34 - 104	2	40
Indeno[1,2,3-cd]pyrene	20.0	18.0		ug/L		90	22 - 115	2	54
Naphthalene	20.0	14.1		ug/L		71	35 - 97	1	43
Phenanthrene	20.0	15.1		ug/L		76	32 - 104	1	36

Surrogate	*LCSD % Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*73*		*10 - 132*
Nitrobenzene-d5	*68*		*23 - 112*
2-Fluorobiphenyl	*71*		*19 - 107*

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-4594/49 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:15	1

Lab Sample ID: MB 180-4594/66 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:40	1

Lab Sample ID: MB 180-4594/82 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 13:04	1

Lab Sample ID: LCS 180-4594/50 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.206		mg/L		103	82 - 132

Method: 1677 - Cyanide, Available (Flow Injection) (Continued)

Lab Sample ID: LCS 180-4594/67 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.206		mg/L		103	82 - 132

Lab Sample ID: LCS 180-4594/83 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.206		mg/L		103	82 - 132

Lab Sample ID: LCSD 180-4594/68 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide	0.200	0.210		mg/L		105	82 - 132	2	20

Lab Sample ID: LCSD 180-4594/84 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide	0.200	0.209		mg/L		105	82 - 132	1	20

Method: 340.2 - Fluoride

Lab Sample ID: MB 240-6344/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			06/27/11 18:14	1

Lab Sample ID: LCS 240-6344/4 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 6344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.57	2.62		mg/L		102	88 - 117

Lab Sample ID: MB 240-7315/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 10:40	1

Method: 340.2 - Fluoride (Continued)

Lab Sample ID: LCS 240-7315/5 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride			2.58	2.54		mg/L		98	88 - 117		

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 180-4923/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.41	J	5.0	0.41	mg/L			06/20/11 11:42	1

Lab Sample ID: MB 180-4923/28 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.44	J	5.0	0.41	mg/L			06/20/11 16:13	1

Lab Sample ID: LCS 180-4923/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Alkalinity			250	257		mg/L		103	80 - 120		

Lab Sample ID: LCS 180-4923/27 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Alkalinity			250	249		mg/L		99	80 - 120		

Lab Sample ID: 180-1023-6 DU — **Client Sample ID: ABP-MW104-F004**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	3.0	J B		3.74	J	mg/L				21	20

QC Association Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990.225

TestAmerica Job ID: 180-1023-1

GC/MS Semi VOA

Prep Batch: 4516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4516/1-A	Method Blank	Total/NA	Water	3520C	
LCS 180-4516/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 180-4516/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
180-1023-4	ABP-MW029-F001	Total/NA	Water	3520C	

Analysis Batch: 4825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4516/1-A	Method Blank	Total/NA	Water	8270C LL	4516
LCS 180-4516/2-A	Lab Control Sample	Total/NA	Water	8270C LL	4516
LCSD 180-4516/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	4516
180-1023-4	ABP-MW029-F001	Total/NA	Water	8270C LL	4516

General Chemistry

Analysis Batch: 4594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4594/49	Method Blank	Total/NA	Water	1677	
LCS 180-4594/50	Lab Control Sample	Total/NA	Water	1677	
180-1023-1	ABP-MW101-F004	Total/NA	Water	1677	
180-1023-2	ABP-MW101-D001	Total/NA	Water	1677	
MB 180-4594/66	Method Blank	Total/NA	Water	1677	
LCS 180-4594/67	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-4594/68	Lab Control Sample Dup	Total/NA	Water	1677	
180-1023-3	ABP-MW207-F004	Total/NA	Water	1677	
180-1023-6	ABP-MW104-F004	Total/NA	Water	1677	
180-1023-7	ABP-MW102-F004	Total/NA	Water	1677	
MB 180-4594/82	Method Blank	Total/NA	Water	1677	
LCS 180-4594/83	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-4594/84	Lab Control Sample Dup	Total/NA	Water	1677	
180-1023-4	ABP-MW029-F001	Total/NA	Water	1677	
180-1023-5	ABP-MW077-F002	Total/NA	Water	1677	

Analysis Batch: 4923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-4923/1	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-4923/2	Method Blank	Total/NA	Water	SM 2320B	
180-1023-1	ABP-MW101-F004	Total/NA	Water	SM 2320B	
180-1023-2	ABP-MW101-D001	Total/NA	Water	SM 2320B	
180-1023-3	ABP-MW207-F004	Total/NA	Water	SM 2320B	
180-1023-4	ABP-MW029-F001	Total/NA	Water	SM 2320B	
LCS 180-4923/27	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-4923/28	Method Blank	Total/NA	Water	SM 2320B	
180-1023-5	ABP-MW077-F002	Total/NA	Water	SM 2320B	
180-1023-6	ABP-MW104-F004	Total/NA	Water	SM 2320B	
180-1023-6 DU	ABP-MW104-F004	Total/NA	Water	SM 2320B	
180-1023-7	ABP-MW102-F004	Total/NA	Water	SM 2320B	

Analysis Batch: 6344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-6344/3	Method Blank	Total/NA	Water	340.2	
LCS 240-6344/4 ^2	Lab Control Sample	Total/NA	Water	340.2	

General Chemistry (Continued)

Analysis Batch: 7315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-7315/4	Method Blank	Total/NA	Water	340.2	
LCS 240-7315/5 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-1023-1	ABP-MW101-F004	Total/NA	Water	340.2	
180-1023-2	ABP-MW101-D001	Total/NA	Water	340.2	
180-1023-3	ABP-MW207-F004	Total/NA	Water	340.2	
180-1023-4	ABP-MW029-F001	Total/NA	Water	340.2	
180-1023-5	ABP-MW077-F002	Total/NA	Water	340.2	
180-1023-6	ABP-MW104-F004	Total/NA	Water	340.2	
180-1023-7	ABP-MW102-F004	Total/NA	Water	340.2	

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Pittsburg
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

07/12/2011

Client Contact			
Company Name: BHE Environmental	Client Project Manager: Tim Gressner	Site Contact: Matt Bruck	Lab Contact: Patrick Omeara
Address: 11733 Chesterdale Rd	Telephone: 513-326-1500	Telephone: 513-326-1500	Telephone: 330-966-5725
City/State/Zip: Cincinnati OH 45246	Email: Tgressner@bheenvironmental.com	Analysis Turnaround Time (in BUS days)	
Phone: 513-326-1500		TAT if different from below ☐ 3 weeks ☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day	
Project Name: ALCOA-Badin, NC	Method of Shipment/Carrier: Fedex		
Project Number: 0290.225	Shipping/Tracking No:		
PO# 0990.225			

COC No: 6-13-11
1 of 1 COCs

For lab use only: Walk-in client ☐ Lab pickup ☐ Lab sampling ☐ Job/SDG No.:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C/Grab=G	Alkalinity	Fluoride	Cyanide	TPH							Sample Specific Notes / Special Instructions:
ABP-MW101-F004	6/10/11	1500		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW101-D001	6/10/11	1500		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW207-F004	6/11/11	1545		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW029-F001	6/12/11	1040		✓							1		4		N	G	✓	✓	✓	✓							No Sulfide Interference
ABP-MW077-F002	6/12/11	1400		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW104-F004	6/10/11	1730		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW102-F004	6/12/11	1755		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	6/13/11 1512	[signature]	TA	6/14/11 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-1023-1

Login Number: 1023

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Blotzer, Tristan

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-1023-1

Login Number: 1023
List Number: 1
Creator: Ferrel, Matthew

List Source: TestAmerica North Canton
List Creation: 06/15/11 11:27 AM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background		
The cooler's custody seal, if present, is intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the sample IDs on the containers and the COC.		
Samples are received within Holding Time.		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-1070-1
Client Project/Site: Alcoa Badin

For:
BHE Environmental Inc./ Alcoa Work
11733 Chesterdale Road
Cincinnati, Ohio 45246-3405

Attn: Mr. Matt Bruck

Authorized for release by:
07/12/2011 06:59:05 AM
Jill Colussy
Report Production Representative
jill.colussy@testamericainc.com

Designee for

Christina Kovitch
Project Manager II
chris.kovitch@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Job ID: 180-1070-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-1070-1

Receipt
All samples were received in good condition within temperature requirements.

GC/MS Semi VOA
No analytical or quality issues were noted.

General Chemistry
Samples ABP-MW006-F004 (180-1070-7) and ABP-MW023-F001 (180-1070-6). were analyzed at a dilution for availaboe cyanide and fluoride.

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

Certification Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-1070-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-08-00123
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210
TestAmerica North Canton	Wisconsin	State Program	5	999518190

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-1070-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-1070-1	ABP-EQB	Water	06/13/11 08:00	06/15/11 10:00
180-1070-2	ABP-MW105-F004	Water	06/14/11 06:50	06/15/11 10:00
180-1070-3	ABP-MW203-F003	Water	06/14/11 08:20	06/15/11 10:00
180-1070-4	ABP-MW202-F003	Water	06/14/11 09:40	06/15/11 10:00
180-1070-5	ABP-MW202-D003	Water	06/14/11 09:40	06/15/11 10:00
180-1070-6	ABP-MW023-F001	Water	06/13/11 09:55	06/15/11 10:00
180-1070-7	ABP-MW006-F004	Water	06/13/11 12:05	06/15/11 10:00

Method Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-1070-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL PIT
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
340.2	Fluoride	MCAWW	TAL NC
SM 2320B	Alkalinity	SM	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Client Sample ID: ABP-EQB

Lab Sample ID: 180-1070-1

Date Collected: 06/13/11 08:00
Matrix: Water
Date Received: 06/15/11 10:00

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.20	0.014	ug/L		06/16/11 08:30	06/17/11 17:22	1
Acenaphthylene	ND		0.20	0.015	ug/L		06/16/11 08:30	06/17/11 17:22	1
Anthracene	ND		0.20	0.15	ug/L		06/16/11 08:30	06/17/11 17:22	1
Benzo[a]anthracene	ND		0.20	0.015	ug/L		06/16/11 08:30	06/17/11 17:22	1
Benzo[b]fluoranthene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 17:22	1
Benzo[k]fluoranthene	ND		0.20	0.055	ug/L		06/16/11 08:30	06/17/11 17:22	1
Benzo[g,h,i]perylene	ND		0.20	0.015	ug/L		06/16/11 08:30	06/17/11 17:22	1
Benzo[a]pyrene	ND		0.20	0.013	ug/L		06/16/11 08:30	06/17/11 17:22	1
Chrysene	ND		0.20	0.014	ug/L		06/16/11 08:30	06/17/11 17:22	1
Dibenz(a,h)anthracene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 17:22	1
Fluoranthene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 17:22	1
Fluorene	ND		0.20	0.022	ug/L		06/16/11 08:30	06/17/11 17:22	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.020	ug/L		06/16/11 08:30	06/17/11 17:22	1
Naphthalene	**0.069**	**J**	0.20	0.014	ug/L		06/16/11 08:30	06/17/11 17:22	1
Phenanthrene	ND		0.20	0.043	ug/L		06/16/11 08:30	06/17/11 17:22	1
Pyrene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 17:22	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*55*		*10 - 132*	*06/16/11 08:30*	*06/17/11 17:22*	*1*
Nitrobenzene-d5	*58*		*23 - 112*	*06/16/11 08:30*	*06/17/11 17:22*	*1*
2-Fluorobiphenyl	*57*		*19 - 107*	*06/16/11 08:30*	*06/17/11 17:22*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:52	1
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 14:42	1
Alkalinity	**0.94**	**J B**	5.0	0.41	mg/L			06/20/11 19:14	1

Client Sample ID: ABP-MW105-F004

Lab Sample ID: 180-1070-2

Date Collected: 06/14/11 06:50
Matrix: Water
Date Received: 06/15/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:54	1
Fluoride	**0.29**		0.050	0.0068	mg/L			07/05/11 14:52	1
Alkalinity	**20**	**B**	5.0	0.41	mg/L			06/20/11 19:23	1

Client Sample ID: ABP-MW203-F003

Lab Sample ID: 180-1070-3

Date Collected: 06/14/11 08:20
Matrix: Water
Date Received: 06/15/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:55	1
Fluoride	**0.35**		0.050	0.0068	mg/L			07/05/11 15:01	1
Alkalinity	**99**	**B**	5.0	0.41	mg/L			06/20/11 19:33	1

Client Sample ID: ABP-MW202-F003

Lab Sample ID: 180-1070-4

Date Collected: 06/14/11 09:40
Matrix: Water
Date Received: 06/15/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:57	1
Fluoride	**0.92**		0.050	0.0068	mg/L			07/05/11 15:10	1
Alkalinity	**43**	**B**	5.0	0.41	mg/L			06/20/11 19:42	1

Client Sample ID: ABP-MW202-D003

Lab Sample ID: 180-1070-5

Date Collected: 06/14/11 09:40
Matrix: Water
Date Received: 06/15/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:58	1
Fluoride	**0.92**		0.050	0.0068	mg/L			07/05/11 15:20	1
Alkalinity	**43**	**B**	5.0	0.41	mg/L			06/20/11 20:31	1

Client Sample ID: ABP-MW023-F001

Lab Sample ID: 180-1070-6

Date Collected: 06/13/11 09:55
Matrix: Water
Date Received: 06/15/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**1.4**		0.040	0.036	mg/L			06/16/11 13:52	20
Fluoride	**4500**		250	34	mg/L			07/05/11 21:58	5000
Alkalinity	**2100**	**B**	5.0	0.41	mg/L			06/24/11 05:35	1

Client Sample ID: ABP-MW006-F004

Lab Sample ID: 180-1070-7

Date Collected: 06/13/11 12:05
Matrix: Water
Date Received: 06/15/11 10:00

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.19	0.014	ug/L		06/16/11 08:30	06/17/11 17:45	1
Acenaphthylene	ND		0.19	0.014	ug/L		06/16/11 08:30	06/17/11 17:45	1
Anthracene	ND		0.19	0.14	ug/L		06/16/11 08:30	06/17/11 17:45	1
Benzo[a]anthracene	ND		0.19	0.014	ug/L		06/16/11 08:30	06/17/11 17:45	1
Benzo[b]fluoranthene	ND		0.19	0.015	ug/L		06/16/11 08:30	06/17/11 17:45	1
Benzo[k]fluoranthene	ND		0.19	0.052	ug/L		06/16/11 08:30	06/17/11 17:45	1
Benzo[g,h,i]perylene	ND		0.19	0.014	ug/L		06/16/11 08:30	06/17/11 17:45	1
Benzo[a]pyrene	ND		0.19	0.013	ug/L		06/16/11 08:30	06/17/11 17:45	1
Chrysene	ND		0.19	0.013	ug/L		06/16/11 08:30	06/17/11 17:45	1
Dibenz(a,h)anthracene	ND		0.19	0.015	ug/L		06/16/11 08:30	06/17/11 17:45	1
Fluoranthene	**0.074**	**J**	0.19	0.015	ug/L		06/16/11 08:30	06/17/11 17:45	1
Fluorene	ND		0.19	0.021	ug/L		06/16/11 08:30	06/17/11 17:45	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.019	ug/L		06/16/11 08:30	06/17/11 17:45	1
Naphthalene	ND		0.19	0.013	ug/L		06/16/11 08:30	06/17/11 17:45	1
Phenanthrene	**0.081**	**J**	0.19	0.041	ug/L		06/16/11 08:30	06/17/11 17:45	1
Pyrene	**0.063**	**J**	0.19	0.015	ug/L		06/16/11 08:30	06/17/11 17:45	1

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-1070-1

Client Sample ID: ABP-MW006-F004

Lab Sample ID: 180-1070-7

Date Collected: 06/13/11 12:05
Date Received: 06/15/11 10:00

Matrix: Water

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*34*		*10 - 132*	*06/16/11 08:30*	*06/17/11 17:45*	*1*
Nitrobenzene-d5	*49*		*23 - 112*	*06/16/11 08:30*	*06/17/11 17:45*	*1*
2-Fluorobiphenyl	*45*		*19 - 107*	*06/16/11 08:30*	*06/17/11 17:45*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.58**		0.020	0.018	mg/L			06/16/11 13:53	10
Fluoride	**1800**		50	6.8	mg/L			07/05/11 16:15	1000
Alkalinity	**1800**	**B**	5.0	0.41	mg/L			06/24/11 05:46	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 180-4516/1-A
Matrix: Water
Analysis Batch: 4825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.20	0.014	ug/L		06/16/11 08:30	06/17/11 12:42	1
Acenaphthylene	ND		0.20	0.015	ug/L		06/16/11 08:30	06/17/11 12:42	1
Anthracene	ND		0.20	0.15	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[a]anthracene	ND		0.20	0.015	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[b]fluoranthene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[k]fluoranthene	ND		0.20	0.055	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[g,h,i]perylene	ND		0.20	0.015	ug/L		06/16/11 08:30	06/17/11 12:42	1
Benzo[a]pyrene	ND		0.20	0.013	ug/L		06/16/11 08:30	06/17/11 12:42	1
Chrysene	ND		0.20	0.014	ug/L		06/16/11 08:30	06/17/11 12:42	1
Dibenz(a,h)anthracene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 12:42	1
Fluoranthene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 12:42	1
Fluorene	ND		0.20	0.022	ug/L		06/16/11 08:30	06/17/11 12:42	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.020	ug/L		06/16/11 08:30	06/17/11 12:42	1
Naphthalene	ND		0.20	0.014	ug/L		06/16/11 08:30	06/17/11 12:42	1
Phenanthrene	ND		0.20	0.043	ug/L		06/16/11 08:30	06/17/11 12:42	1
Pyrene	ND		0.20	0.016	ug/L		06/16/11 08:30	06/17/11 12:42	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*74*		*10 - 132*	*06/16/11 08:30*	*06/17/11 12:42*	*1*
Nitrobenzene-d5	*73*		*23 - 112*	*06/16/11 08:30*	*06/17/11 12:42*	*1*
2-Fluorobiphenyl	*74*		*19 - 107*	*06/16/11 08:30*	*06/17/11 12:42*	*1*

Lab Sample ID: LCS 180-4516/2-A
Matrix: Water
Analysis Batch: 4825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4516

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Acenaphthene	20.0	15.1		ug/L		76	35 - 99
Acenaphthylene	20.0	15.7		ug/L		78	37 - 107
Anthracene	20.0	15.3		ug/L		76	35 - 105
Benzo[a]anthracene	20.0	15.5		ug/L		78	38 - 101
Benzo[b]fluoranthene	20.0	15.7		ug/L		79	29 - 98
Benzo[k]fluoranthene	20.0	15.1		ug/L		75	28 - 107
Benzo[g,h,i]perylene	20.0	17.7		ug/L		88	20 - 115
Benzo[a]pyrene	20.0	16.2		ug/L		81	26 - 108
Chrysene	20.0	15.9		ug/L		80	37 - 99
Dibenz(a,h)anthracene	20.0	17.5		ug/L		87	19 - 118
Fluoranthene	20.0	15.6		ug/L		78	32 - 112
Fluorene	20.0	15.2		ug/L		76	34 - 104
Indeno[1,2,3-cd]pyrene	20.0	17.7		ug/L		88	22 - 115
Naphthalene	20.0	13.9		ug/L		70	35 - 97
Phenanthrene	20.0	15.0		ug/L		75	32 - 104

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*75*		*10 - 132*
Nitrobenzene-d5	*67*		*23 - 112*
2-Fluorobiphenyl	*71*		*19 - 107*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCSD 180-4516/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4825 — **Prep Batch: 4516**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Acenaphthene	20.0	15.1		ug/L		76	35 - 99	0	41
Acenaphthylene	20.0	15.4		ug/L		77	37 - 107	2	40
Anthracene	20.0	15.6		ug/L		78	35 - 105	2	37
Benzo[a]anthracene	20.0	14.9		ug/L		75	38 - 101	4	36
Benzo[b]fluoranthene	20.0	15.8		ug/L		79	29 - 98	0	46
Benzo[k]fluoranthene	20.0	14.3		ug/L		72	28 - 107	5	31
Benzo[g,h,i]perylene	20.0	17.7		ug/L		89	20 - 115	0	44
Benzo[a]pyrene	20.0	15.5		ug/L		77	26 - 108	4	40
Chrysene	20.0	15.3		ug/L		76	37 - 99	4	42
Dibenz(a,h)anthracene	20.0	17.8		ug/L		89	19 - 118	2	44
Fluoranthene	20.0	15.5		ug/L		78	32 - 112	1	39
Fluorene	20.0	15.5		ug/L		77	34 - 104	2	40
Indeno[1,2,3-cd]pyrene	20.0	18.0		ug/L		90	22 - 115	2	54
Naphthalene	20.0	14.1		ug/L		71	35 - 97	1	43
Phenanthrene	20.0	15.1		ug/L		76	32 - 104	1	36

Surrogate	*LCSD % Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*73*		*10 - 132*
Nitrobenzene-d5	*68*		*23 - 112*
2-Fluorobiphenyl	*71*		*19 - 107*

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-4594/66 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 12:40	1

Lab Sample ID: MB 180-4594/82 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/16/11 13:04	1

Lab Sample ID: LCS 180-4594/67 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.206		mg/L		103	82 - 132

Lab Sample ID: LCS 180-4594/83 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.206		mg/L		103	82 - 132

Method: 1677 - Cyanide, Available (Flow Injection) (Continued)

Lab Sample ID: LCSD 180-4594/68 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide			0.200	0.210		mg/L		105	82 - 132	2	20

Lab Sample ID: LCSD 180-4594/84 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4594

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide			0.200	0.209		mg/L		105	82 - 132	1	20

Method: 340.2 - Fluoride

Lab Sample ID: MB 240-7315/28 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 15:47	1

Lab Sample ID: MB 240-7315/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 10:40	1

Lab Sample ID: MB 240-7315/52 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 19:33	1

Lab Sample ID: LCS 240-7315/29 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride			2.58	2.60		mg/L		101	88 - 117		

Lab Sample ID: LCS 240-7315/5 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride			2.58	2.54		mg/L		98	88 - 117		

Method: 340.2 - Fluoride (Continued)

Lab Sample ID: LCS 240-7315/53 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride			2.58	2.58		mg/L		100	88 - 117		

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 180-4923/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.41	J	5.0	0.41	mg/L			06/20/11 11:42	1

Lab Sample ID: MB 180-4923/28 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.44	J	5.0	0.41	mg/L			06/20/11 16:13	1

Lab Sample ID: MB 180-4923/54 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.15	J	5.0	0.41	mg/L			06/20/11 20:22	1

Lab Sample ID: LCS 180-4923/27 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Alkalinity			250	249		mg/L		99	80 - 120		

Lab Sample ID: LCS 180-4923/53 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Alkalinity			250	255		mg/L		102	80 - 120		

Lab Sample ID: 180-1070-5 DU — **Client Sample ID: ABP-MW202-D003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4923

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	43	B		41.7		mg/L				3	20

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 180-5379/2
Matrix: Water
Analysis Batch: 5379

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	4.17	J	5.0	0.41	mg/L			06/24/11 05:23	1

Lab Sample ID: LCS 180-5379/1
Matrix: Water
Analysis Batch: 5379

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Alkalinity			1000	904		mg/L		90	80 - 120		

QC Association Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-1070-1

GC/MS Semi VOA

Prep Batch: 4516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4516/1-A	Method Blank	Total/NA	Water	3520C	
LCS 180-4516/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 180-4516/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
180-1070-1	ABP-EQB	Total/NA	Water	3520C	
180-1070-7	ABP-MW006-F004	Total/NA	Water	3520C	

Analysis Batch: 4825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4516/1-A	Method Blank	Total/NA	Water	8270C LL	4516
LCS 180-4516/2-A	Lab Control Sample	Total/NA	Water	8270C LL	4516
LCSD 180-4516/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	4516
180-1070-1	ABP-EQB	Total/NA	Water	8270C LL	4516
180-1070-7	ABP-MW006-F004	Total/NA	Water	8270C LL	4516

General Chemistry

Analysis Batch: 4594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4594/66	Method Blank	Total/NA	Water	1677	
LCS 180-4594/67	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-4594/68	Lab Control Sample Dup	Total/NA	Water	1677	
180-1070-1	ABP-EQB	Total/NA	Water	1677	
180-1070-2	ABP-MW105-F004	Total/NA	Water	1677	
180-1070-3	ABP-MW203-F003	Total/NA	Water	1677	
180-1070-4	ABP-MW202-F003	Total/NA	Water	1677	
180-1070-5	ABP-MW202-D003	Total/NA	Water	1677	
MB 180-4594/82	Method Blank	Total/NA	Water	1677	
LCS 180-4594/83	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-4594/84	Lab Control Sample Dup	Total/NA	Water	1677	
180-1070-6	ABP-MW023-F001	Total/NA	Water	1677	
180-1070-7	ABP-MW006-F004	Total/NA	Water	1677	

Analysis Batch: 4923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4923/2	Method Blank	Total/NA	Water	SM 2320B	
LCS 180-4923/27	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-4923/28	Method Blank	Total/NA	Water	SM 2320B	
180-1070-1	ABP-EQB	Total/NA	Water	SM 2320B	
180-1070-2	ABP-MW105-F004	Total/NA	Water	SM 2320B	
180-1070-3	ABP-MW203-F003	Total/NA	Water	SM 2320B	
180-1070-4	ABP-MW202-F003	Total/NA	Water	SM 2320B	
LCS 180-4923/53	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-4923/54	Method Blank	Total/NA	Water	SM 2320B	
180-1070-5	ABP-MW202-D003	Total/NA	Water	SM 2320B	
180-1070-5 DU	ABP-MW202-D003	Total/NA	Water	SM 2320B	

Analysis Batch: 5379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-5379/1	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-5379/2	Method Blank	Total/NA	Water	SM 2320B	
180-1070-6	ABP-MW023-F001	Total/NA	Water	SM 2320B	
180-1070-7	ABP-MW006-F004	Total/NA	Water	SM 2320B	

General Chemistry (Continued)

Analysis Batch: 7315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-7315/4	Method Blank	Total/NA	Water	340.2	
LCS 240-7315/5 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-1070-1	ABP-EQB	Total/NA	Water	340.2	
180-1070-2	ABP-MW105-F004	Total/NA	Water	340.2	
180-1070-3	ABP-MW203-F003	Total/NA	Water	340.2	
180-1070-4	ABP-MW202-F003	Total/NA	Water	340.2	
180-1070-5	ABP-MW202-D003	Total/NA	Water	340.2	
MB 240-7315/28	Method Blank	Total/NA	Water	340.2	
LCS 240-7315/29 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-1070-7	ABP-MW006-F004	Total/NA	Water	340.2	
MB 240-7315/52	Method Blank	Total/NA	Water	340.2	
LCS 240-7315/53 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-1070-6	ABP-MW023-F001	Total/NA	Water	340.2	

0.5 oc 180-1070

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Pittsburgh
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact				
Company Name: BHE Environmental	Client Project Manager: Tim Bessing	Site Contact: Matt Brock	Lab Contact: Patrick Omara	COC No: 6-14-11
Address: 11733 Chesterdale Rd	Telephone: 513-326-1500	Telephone: 513-326-1500	Telephone: 330-966-5225	1 of 1 COCs
City/State/Zip: Cincinnati OH 45246	Email: Tbessner@bheenvironmental.com	Analysis Turnaround Time (In BUS days)		For lab use only:
Phone: 513-326-1500		TAT if different from below ____		Walk-in client ☐
Project Name: ALCOA - Badin, NC	Method of Shipment/Carrier: Fedex	☐ 3 weeks		Lab pickup ☐
Project Number: 0790.225	Shipping/Tracking No:	☑ 2 weeks		Lab sampling ☐
PO# 0790.225		☐ 1 week		Job/SDG No:
		☐ 2 days		
		☐ 1 day		

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite C/Grab G	Alkalinity	Fluoride	Cyanide	PAH							Sample Specific Notes / Special Instructions:
ABP-EQB	6/13/11	0800		✓							1		4		N	G	✓	✓	✓	✓							No Sulfide Interference
ABP-MW105-F004	6/14/11	0650		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW203-F003	6/14/11	0820		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW202-F003	6/14/11	0940		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW202-D003	6/14/11	0940		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW023-F001	6/13/11	0955		✓							1		2		N	G	✓	✓	✓								No Sulfide Interference
ABP-MW006-F004	6/13/11	1205		✓							1		4		N	G	✓	✓	✓	✓							No Sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	6/14/11 1500	[signature]	TA	6/15/11 10:00
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

07/12/2011

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-1070-1

Login Number: 1070

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Radzevick, Jaclyn

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-1070-1

Login Number: 1070
List Number: 1
Creator: Ferrel, Matthew

List Source: TestAmerica North Canton
List Creation: 06/17/11 12:20 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background		
The cooler's custody seal, if present, is intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the sample IDs on the containers and the COC.		
Samples are received within Holding Time.		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-1127-1
Client Project/Site: Alcoa Badin 0990.225

For:
BHE Environmental Inc./ Alcoa Work
11733 Chesterdale Road
Cincinnati, Ohio 45246-3405

Attn: Mr. Matt Bruck

Authorized for release by:
07/12/2011 08:22:27 AM
Jill Colussy
Report Production Representative
jill.colussy@testamericainc.com

Designee for

Christina Kovitch
Project Manager II
chris.kovitch@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Job ID: 180-1127-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-1127-1

Receipt
All samples were received in good condition within temperature requirements.

GC/MS Semi VOA
No analytical or quality issues were noted.

General Chemistry
Sample ABP-MW004-F001 was analyzed at a dilution for fluoride.

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

Certification Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990.225

TestAmerica Job ID: 180-1127-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-08-00123
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210
TestAmerica North Canton	Wisconsin	State Program	5	999518190

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990.225

TestAmerica Job ID: 180-1127-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-1127-1	ABP-MW007-F004	Water	06/14/11 12:15	06/16/11 10:00
180-1127-2	ABP-MW205-F004	Water	06/14/11 14:45	06/16/11 10:00
180-1127-3	ABP-MW015-F004	Water	06/14/11 17:05	06/16/11 10:00
180-1127-4	ABP-MW004-F001	Water	06/15/11 12:05	06/16/11 10:00

Method Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990.225

TestAmerica Job ID: 180-1127-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL PIT
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
340.2	Fluoride	MCAWW	TAL NC
SM 2320B	Alkalinity	SM	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Client Sample ID: ABP-MW007-F004

Lab Sample ID: 180-1127-1

Date Collected: 06/14/11 12:15
Matrix: Water
Date Received: 06/16/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/23/11 12:56	1
Fluoride	**0.030**	**J**	0.050	0.0068	mg/L			07/05/11 16:25	1
Alkalinity	**12**	**B**	5.0	0.41	mg/L			06/21/11 17:15	1

Client Sample ID: ABP-MW205-F004

Lab Sample ID: 180-1127-2

Date Collected: 06/14/11 14:45
Matrix: Water
Date Received: 06/16/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/23/11 12:58	1
Fluoride	**0.40**		0.050	0.0068	mg/L			07/05/11 16:34	1
Alkalinity	**93**	**B**	5.0	0.41	mg/L			06/21/11 17:51	1

Client Sample ID: ABP-MW015-F004

Lab Sample ID: 180-1127-3

Date Collected: 06/14/11 17:05
Matrix: Water
Date Received: 06/16/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/23/11 12:59	1
Fluoride	**0.29**		0.050	0.0068	mg/L			07/05/11 16:43	1
Alkalinity	**92**	**B**	5.0	0.41	mg/L			06/21/11 18:00	1

Client Sample ID: ABP-MW004-F001

Lab Sample ID: 180-1127-4

Date Collected: 06/15/11 12:05
Matrix: Water
Date Received: 06/16/11 10:00

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.19	0.014	ug/L		06/17/11 07:49	06/19/11 05:50	1
Acenaphthylene	ND		0.19	0.014	ug/L		06/17/11 07:49	06/19/11 05:50	1
Anthracene	ND		0.19	0.14	ug/L		06/17/11 07:49	06/19/11 05:50	1
Benzo[a]anthracene	ND		0.19	0.014	ug/L		06/17/11 07:49	06/19/11 05:50	1
Benzo[b]fluoranthene	ND		0.19	0.015	ug/L		06/17/11 07:49	06/19/11 05:50	1
Benzo[k]fluoranthene	ND		0.19	0.052	ug/L		06/17/11 07:49	06/19/11 05:50	1
Benzo[g,h,i]perylene	ND		0.19	0.014	ug/L		06/17/11 07:49	06/19/11 05:50	1
Benzo[a]pyrene	ND		0.19	0.013	ug/L		06/17/11 07:49	06/19/11 05:50	1
Chrysene	ND		0.19	0.013	ug/L		06/17/11 07:49	06/19/11 05:50	1
Dibenz(a,h)anthracene	ND		0.19	0.015	ug/L		06/17/11 07:49	06/19/11 05:50	1
Fluoranthene	ND		0.19	0.015	ug/L		06/17/11 07:49	06/19/11 05:50	1
Fluorene	ND		0.19	0.021	ug/L		06/17/11 07:49	06/19/11 05:50	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.019	ug/L		06/17/11 07:49	06/19/11 05:50	1
Naphthalene	ND		0.19	0.013	ug/L		06/17/11 07:49	06/19/11 05:50	1
Phenanthrene	ND		0.19	0.041	ug/L		06/17/11 07:49	06/19/11 05:50	1
Pyrene	ND		0.19	0.015	ug/L		06/17/11 07:49	06/19/11 05:50	1

Client Sample ID: ABP-MW004-F001

Lab Sample ID: 180-1127-4

Date Collected: 06/15/11 12:05

Matrix: Water

Date Received: 06/16/11 10:00

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*62*		*10 - 132*	*06/17/11 07:49*	*06/19/11 05:50*	*1*
Nitrobenzene-d5	*62*		*23 - 112*	*06/17/11 07:49*	*06/19/11 05:50*	*1*
2-Fluorobiphenyl	*54*		*19 - 107*	*06/17/11 07:49*	*06/19/11 05:50*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.22**		0.0020	0.0018	mg/L			06/23/11 13:01	1
Fluoride	**49**		2.5	0.34	mg/L			07/05/11 22:07	50
Alkalinity	**230**	**B**	5.0	0.41	mg/L			06/22/11 12:28	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 180-4652/1-A
Matrix: Water
Analysis Batch: 4832

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4652

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.20	0.014	ug/L		06/17/11 07:49	06/18/11 20:45	1
Acenaphthylene	ND		0.20	0.015	ug/L		06/17/11 07:49	06/18/11 20:45	1
Anthracene	ND		0.20	0.15	ug/L		06/17/11 07:49	06/18/11 20:45	1
Benzo[a]anthracene	ND		0.20	0.015	ug/L		06/17/11 07:49	06/18/11 20:45	1
Benzo[b]fluoranthene	ND		0.20	0.016	ug/L		06/17/11 07:49	06/18/11 20:45	1
Benzo[k]fluoranthene	ND		0.20	0.055	ug/L		06/17/11 07:49	06/18/11 20:45	1
Benzo[g,h,i]perylene	ND		0.20	0.015	ug/L		06/17/11 07:49	06/18/11 20:45	1
Benzo[a]pyrene	ND		0.20	0.013	ug/L		06/17/11 07:49	06/18/11 20:45	1
Chrysene	ND		0.20	0.014	ug/L		06/17/11 07:49	06/18/11 20:45	1
Dibenz(a,h)anthracene	ND		0.20	0.016	ug/L		06/17/11 07:49	06/18/11 20:45	1
Fluoranthene	ND		0.20	0.016	ug/L		06/17/11 07:49	06/18/11 20:45	1
Fluorene	ND		0.20	0.022	ug/L		06/17/11 07:49	06/18/11 20:45	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.020	ug/L		06/17/11 07:49	06/18/11 20:45	1
Naphthalene	ND		0.20	0.014	ug/L		06/17/11 07:49	06/18/11 20:45	1
Phenanthrene	ND		0.20	0.043	ug/L		06/17/11 07:49	06/18/11 20:45	1
Pyrene	ND		0.20	0.016	ug/L		06/17/11 07:49	06/18/11 20:45	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*81*		*10 - 132*	*06/17/11 07:49*	*06/18/11 20:45*	*1*
Nitrobenzene-d5	*66*		*23 - 112*	*06/17/11 07:49*	*06/18/11 20:45*	*1*
2-Fluorobiphenyl	*72*		*19 - 107*	*06/17/11 07:49*	*06/18/11 20:45*	*1*

Lab Sample ID: LCS 180-4652/2-A
Matrix: Water
Analysis Batch: 4832

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Acenaphthene	20.0	14.7		ug/L		73	35 - 99
Acenaphthylene	20.0	15.4		ug/L		77	37 - 107
Anthracene	20.0	16.0		ug/L		80	35 - 105
Benzo[a]anthracene	20.0	15.8		ug/L		79	38 - 101
Benzo[b]fluoranthene	20.0	15.4		ug/L		77	29 - 98
Benzo[k]fluoranthene	20.0	14.1		ug/L		71	28 - 107
Benzo[g,h,i]perylene	20.0	17.2		ug/L		86	20 - 115
Benzo[a]pyrene	20.0	15.7		ug/L		78	26 - 108
Chrysene	20.0	15.9		ug/L		80	37 - 99
Dibenz(a,h)anthracene	20.0	15.5		ug/L		78	19 - 118
Fluoranthene	20.0	16.2		ug/L		81	32 - 112
Fluorene	20.0	15.4		ug/L		77	34 - 104
Indeno[1,2,3-cd]pyrene	20.0	15.3		ug/L		76	22 - 115
Naphthalene	20.0	13.8		ug/L		69	35 - 97
Phenanthrene	20.0	15.5		ug/L		77	32 - 104

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*79*		*10 - 132*
Nitrobenzene-d5	*58*		*23 - 112*
2-Fluorobiphenyl	*69*		*19 - 107*

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Lab Sample ID: LCSD 180-4652/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 4832 — **Prep Batch: 4652**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Acenaphthene	20.0	15.2		ug/L		76	35 - 99	4	41
Acenaphthylene	20.0	16.2		ug/L		81	37 - 107	5	40
Anthracene	20.0	17.1		ug/L		86	35 - 105	7	37
Benzo[a]anthracene	20.0	16.4		ug/L		82	38 - 101	4	36
Benzo[b]fluoranthene	20.0	16.2		ug/L		81	29 - 98	5	46
Benzo[k]fluoranthene	20.0	14.4		ug/L		72	28 - 107	2	31
Benzo[g,h,i]perylene	20.0	17.3		ug/L		86	20 - 115	1	44
Benzo[a]pyrene	20.0	16.1		ug/L		80	26 - 108	3	40
Chrysene	20.0	16.1		ug/L		81	37 - 99	1	42
Dibenz(a,h)anthracene	20.0	15.8		ug/L		79	19 - 118	2	44
Fluoranthene	20.0	17.4		ug/L		87	32 - 112	7	39
Fluorene	20.0	15.9		ug/L		80	34 - 104	3	40
Indeno[1,2,3-cd]pyrene	20.0	15.4		ug/L		77	22 - 115	1	54
Naphthalene	20.0	15.0		ug/L		75	35 - 97	8	43
Phenanthrene	20.0	16.3		ug/L		81	32 - 104	5	36

Surrogate	*LCSD % Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*79*		*10 - 132*
Nitrobenzene-d5	*61*		*23 - 112*
2-Fluorobiphenyl	*72*		*19 - 107*

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-5307/33 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5307

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/23/11 12:44	1

Lab Sample ID: LCS 180-5307/34 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5307

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.193		mg/L		97	82 - 132

Lab Sample ID: LCSD 180-5307/35 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5307

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide	0.200	0.196		mg/L		98	82 - 132	2	20

Method: 340.2 - Fluoride

Lab Sample ID: MB 240-7315/28 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 15:47	1

Lab Sample ID: MB 240-7315/52 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 19:33	1

Lab Sample ID: LCS 240-7315/29 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.58	2.60		mg/L		101	88 - 117

Lab Sample ID: LCS 240-7315/53 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.58	2.58		mg/L		100	88 - 117

Lab Sample ID: 180-1127-3 MS — **Client Sample ID: ABP-MW015-F004**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	0.29		1.00	1.26		mg/L		97	83 - 117

Lab Sample ID: 180-1127-3 MSD — **Client Sample ID: ABP-MW015-F004**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	0.29		1.00	1.26		mg/L		97	83 - 117	0	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 180-5084/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.92	J	5.0	0.41	mg/L			06/21/11 12:09	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 180-5084/30 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.26	J	5.0	0.41	mg/L			06/21/11 16:36	1

Lab Sample ID: LCS 180-5084/29 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5084

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Alkalinity	250	248		mg/L		99	80 - 120

Lab Sample ID: 180-1127-1 DU — **Client Sample ID: ABP-MW007-F004**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5084

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	12	B	9.52		mg/L		19	20

Lab Sample ID: MB 180-5185/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5185

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.99	J	5.0	0.41	mg/L			06/22/11 09:53	1

Lab Sample ID: LCS 180-5185/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5185

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Alkalinity	250	252		mg/L		101	80 - 120

QC Association Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin 0990.225

TestAmerica Job ID: 180-1127-1

GC/MS Semi VOA

Prep Batch: 4652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4652/1-A	Method Blank	Total/NA	Water	3520C	
LCS 180-4652/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 180-4652/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
180-1127-4	ABP-MW004-F001	Total/NA	Water	3520C	

Analysis Batch: 4832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4652/1-A	Method Blank	Total/NA	Water	8270C LL	4652
LCS 180-4652/2-A	Lab Control Sample	Total/NA	Water	8270C LL	4652
LCSD 180-4652/3-A	Lab Control Sample Dup	Total/NA	Water	8270C LL	4652
180-1127-4	ABP-MW004-F001	Total/NA	Water	8270C LL	4652

General Chemistry

Analysis Batch: 5084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-5084/2	Method Blank	Total/NA	Water	SM 2320B	
LCS 180-5084/29	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-5084/30	Method Blank	Total/NA	Water	SM 2320B	
180-1127-1	ABP-MW007-F004	Total/NA	Water	SM 2320B	
180-1127-1 DU	ABP-MW007-F004	Total/NA	Water	SM 2320B	
180-1127-2	ABP-MW205-F004	Total/NA	Water	SM 2320B	
180-1127-3	ABP-MW015-F004	Total/NA	Water	SM 2320B	

Analysis Batch: 5185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-5185/1	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-5185/2	Method Blank	Total/NA	Water	SM 2320B	
180-1127-4	ABP-MW004-F001	Total/NA	Water	SM 2320B	

Analysis Batch: 5307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-5307/33	Method Blank	Total/NA	Water	1677	
LCS 180-5307/34	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-5307/35	Lab Control Sample Dup	Total/NA	Water	1677	
180-1127-1	ABP-MW007-F004	Total/NA	Water	1677	
180-1127-2	ABP-MW205-F004	Total/NA	Water	1677	
180-1127-3	ABP-MW015-F004	Total/NA	Water	1677	
180-1127-4	ABP-MW004-F001	Total/NA	Water	1677	

Analysis Batch: 7315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-7315/28	Method Blank	Total/NA	Water	340.2	
LCS 240-7315/29 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-1127-1	ABP-MW007-F004	Total/NA	Water	340.2	
180-1127-2	ABP-MW205-F004	Total/NA	Water	340.2	
180-1127-3	ABP-MW015-F004	Total/NA	Water	340.2	
180-1127-3 MS	ABP-MW015-F004	Total/NA	Water	340.2	
180-1127-3 MSD	ABP-MW015-F004	Total/NA	Water	340.2	
MB 240-7315/52	Method Blank	Total/NA	Water	340.2	
LCS 240-7315/53 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-1127-4	ABP-MW004-F001	Total/NA	Water	340.2	

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Pittsburgh
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

07/12/2011

Client Contact			
Company Name: BHE Environmental	Client Project Manager: Tim Gessner	Site Contact: Matt Bruck	Lab Contact: Patrick Omeara
Address: 11733 Chesterdale Rd	Telephone: 513 326 1500	Telephone: 513-326-1500	Telephone: 330-966-5725
City/State/Zip: Cincinnati OH 45246	Email: Tgessner@bheenvironmental.com		
Phone: 513 326 1500			
Project Name: ALCOA - Badin, NC	Method of Shipment/Carrier: Fedex		
Project Number: 0990.225	Shipping/Tracking No:		
PO# 0890.225			

COC No: 6-15-11
1 of 1 COCs

Analysis Turnaround Time (in BUS days)
TAT if different from below
☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only
Walk-in client ☐
Lab pickup ☐
Lab sampling ☐
Job/SDG No:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C/Grab=G	Analyses: Alkalinity	Fluoride	Cyanide	PAH	Sample Specific Notes / Special Instructions:
ABP-MW007-F004	6/14/11	1215		✓							1		2		N	G	✓	✓	✓		No Sulfide Interference
ABP-MW005-F004	6/14/11	1445		✓							1		2		N	G	✓	✓	✓		No Sulfide Interference
ABP-MW015-F004	6/14/11	1705		✓							1		2		N	G	✓	✓	✓		No Sulfide Interference
ABP-MW004-F001	6/15/11	1005		✓							1		4		N	G	✓	✓	✓	✓	No Sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Windy Ramsey	BHE	6/16/11 1400	[illegible]	TA	6/16/11 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

ORIGIN ID: SRWA (513) 326-1500
WENDY RAMSEY
BHE
11733 CHESTERDALE AVE.

CINCINNATI, OH 45246
UNITED STATES US

SHIP DATE: 15JUN11
ACTWGT: 47.1 LB
CAD: 6015190/FSSR1205
DIMS: 15x21x14 IN

BILL THIRD PARTY

TO TEST AMERICA

301 ALPHA DR

PITTSBURGH PA 15238

(330) 966-5726

INV:
PO:
REF:
DEPT:

FedEx Express

J1120110429012 5

TRK# 0201 7972 0803 2015

THU - 16 JUN A2
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US PIT

Part # 156297-435 RIT 10/09

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-1127-1

Login Number: 1127

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Blotzer, Tristan

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-1127-1

Login Number: 1127
List Number: 1
Creator: Ferrel, Matthew

List Source: TestAmerica North Canton
List Creation: 06/17/11 12:20 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background		
The cooler's custody seal, if present, is intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the sample IDs on the containers and the COC.		
Samples are received within Holding Time.		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-1163-1
Client Project/Site: Alcoa Badin NC 0990.225

For:
BHE Environmental Inc./ Alcoa Work
11733 Chesterdale Road
Cincinnati, Ohio 45246-3405

Attn: Mr. Matt Bruck

Authorized for release by:
07/15/2011 12:29:46 PM

Christina Kovitch
Project Manager II
chris.kovitch@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.
EPA	United States Environmental Protection Agency
ND	Not Detected above the reporting level.
MDL	Method Detection Limit
RL	Reporting Limit
RE, RE1 (etc.)	Indicates a Re-extraction or Reanalysis of the sample.
%R	Percent Recovery
RPD	Relative Percent Difference, a measure of the relative difference between two points.

Certification Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin NC 0990.225

TestAmerica Job ID: 180-1163-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-08-00123
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210
TestAmerica North Canton	Wisconsin	State Program	5	999518190

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin NC 0990.225

TestAmerica Job ID: 180-1163-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-1163-1	ABP-MW014-F003	Water	06/15/11 15:00	06/17/11 10:00
180-1163-2	ABP-MW014-D001	Water	06/15/11 15:00	06/17/11 10:00
180-1163-3	ABP-MW103-F004	Water	06/15/11 18:25	06/17/11 10:00
180-1163-4	ABP-MW109-F004	Water	06/16/11 08:50	06/17/11 10:00

Method Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin NC 0990.225

TestAmerica Job ID: 180-1163-1

Method	Method Description	Protocol	Laboratory
8270C LL	Semivolatile Organic Compounds by GCMS - Low Levels	SW846	TAL PIT
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
340.2	Fluoride	MCAWW	TAL NC
SM 2320B	Alkalinity	SM	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Client Sample ID: ABP-MW014-F003

Lab Sample ID: 180-1163-1

Date Collected: 06/15/11 15:00

Matrix: Water

Date Received: 06/17/11 10:00

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.19	0.014	ug/L		06/18/11 08:27	06/21/11 20:33	1
Acenaphthylene	ND		0.19	0.014	ug/L		06/18/11 08:27	06/21/11 20:33	1
Anthracene	ND		0.19	0.14	ug/L		06/18/11 08:27	06/21/11 20:33	1
Benzo[a]anthracene	ND		0.19	0.014	ug/L		06/18/11 08:27	06/21/11 20:33	1
Benzo[b]fluoranthene	ND		0.19	0.015	ug/L		06/18/11 08:27	06/21/11 20:33	1
Benzo[k]fluoranthene	ND		0.19	0.052	ug/L		06/18/11 08:27	06/21/11 20:33	1
Benzo[g,h,i]perylene	ND		0.19	0.014	ug/L		06/18/11 08:27	06/21/11 20:33	1
Benzo[a]pyrene	ND		0.19	0.013	ug/L		06/18/11 08:27	06/21/11 20:33	1
Chrysene	ND		0.19	0.013	ug/L		06/18/11 08:27	06/21/11 20:33	1
Dibenz(a,h)anthracene	ND		0.19	0.015	ug/L		06/18/11 08:27	06/21/11 20:33	1
Fluoranthene	**0.041**	**J**	0.19	0.015	ug/L		06/18/11 08:27	06/21/11 20:33	1
Fluorene	ND		0.19	0.021	ug/L		06/18/11 08:27	06/21/11 20:33	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.019	ug/L		06/18/11 08:27	06/21/11 20:33	1
Naphthalene	ND		0.19	0.013	ug/L		06/18/11 08:27	06/21/11 20:33	1
Phenanthrene	ND		0.19	0.041	ug/L		06/18/11 08:27	06/21/11 20:33	1
Pyrene	**0.029**	**J**	0.19	0.015	ug/L		06/18/11 08:27	06/21/11 20:33	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*66*		*10 - 132*	*06/18/11 08:27*	*06/21/11 20:33*	*1*
Nitrobenzene-d5	*68*		*23 - 112*	*06/18/11 08:27*	*06/21/11 20:33*	*1*
2-Fluorobiphenyl	*63*		*19 - 107*	*06/18/11 08:27*	*06/21/11 20:33*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/23/11 13:16	1
Fluoride	**6.4**		0.50	0.068	mg/L			07/08/11 18:31	10
Alkalinity	**240**	**B**	5.0	0.41	mg/L			06/22/11 16:19	1

Client Sample ID: ABP-MW014-D001

Lab Sample ID: 180-1163-2

Date Collected: 06/15/11 15:00

Matrix: Water

Date Received: 06/17/11 10:00

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.19	0.014	ug/L		06/18/11 08:27	06/21/11 20:54	1
Acenaphthylene	ND		0.19	0.015	ug/L		06/18/11 08:27	06/21/11 20:54	1
Anthracene	ND		0.19	0.15	ug/L		06/18/11 08:27	06/21/11 20:54	1
Benzo[a]anthracene	ND		0.19	0.014	ug/L		06/18/11 08:27	06/21/11 20:54	1
Benzo[b]fluoranthene	ND		0.19	0.015	ug/L		06/18/11 08:27	06/21/11 20:54	1
Benzo[k]fluoranthene	ND		0.19	0.053	ug/L		06/18/11 08:27	06/21/11 20:54	1
Benzo[g,h,i]perylene	ND		0.19	0.015	ug/L		06/18/11 08:27	06/21/11 20:54	1
Benzo[a]pyrene	ND		0.19	0.013	ug/L		06/18/11 08:27	06/21/11 20:54	1
Chrysene	ND		0.19	0.014	ug/L		06/18/11 08:27	06/21/11 20:54	1
Dibenz(a,h)anthracene	ND		0.19	0.015	ug/L		06/18/11 08:27	06/21/11 20:54	1
Fluoranthene	ND		0.19	0.016	ug/L		06/18/11 08:27	06/21/11 20:54	1
Fluorene	ND		0.19	0.021	ug/L		06/18/11 08:27	06/21/11 20:54	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.019	ug/L		06/18/11 08:27	06/21/11 20:54	1
Naphthalene	ND		0.19	0.014	ug/L		06/18/11 08:27	06/21/11 20:54	1
Phenanthrene	ND		0.19	0.041	ug/L		06/18/11 08:27	06/21/11 20:54	1

Client Sample ID: ABP-MW014-D001

Lab Sample ID: 180-1163-2

Date Collected: 06/15/11 15:00
Matrix: Water
Date Received: 06/17/11 10:00

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pyrene	ND		0.19	0.015	ug/L		06/18/11 08:27	06/21/11 20:54	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*87*		*10 - 132*	*06/18/11 08:27*	*06/21/11 20:54*	*1*
Nitrobenzene-d5	*84*		*23 - 112*	*06/18/11 08:27*	*06/21/11 20:54*	*1*
2-Fluorobiphenyl	*76*		*19 - 107*	*06/18/11 08:27*	*06/21/11 20:54*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/23/11 13:17	1
Fluoride	**7.3**		0.50	0.068	mg/L			07/08/11 18:40	10
Alkalinity	**240**	**B**	5.0	0.41	mg/L			06/22/11 16:29	1

Client Sample ID: ABP-MW103-F004

Lab Sample ID: 180-1163-3

Date Collected: 06/15/11 18:25
Matrix: Water
Date Received: 06/17/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/23/11 13:19	1
Fluoride	**2.8**		0.25	0.034	mg/L			07/08/11 18:49	5
Alkalinity	**15**	**B**	5.0	0.41	mg/L			06/22/11 16:55	1

Client Sample ID: ABP-MW109-F004

Lab Sample ID: 180-1163-4

Date Collected: 06/16/11 08:50
Matrix: Water
Date Received: 06/17/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.021**		0.0020	0.0018	mg/L			06/23/11 13:20	1
Fluoride	**0.42**		0.050	0.0068	mg/L			07/05/11 18:10	1
Alkalinity	**330**	**B**	5.0	0.41	mg/L			06/22/11 17:06	1

Method: 8270C LL - Semivolatile Organic Compounds by GCMS - Low Levels

Lab Sample ID: MB 180-4764/1-A
Matrix: Water
Analysis Batch: 5302

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4764

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.20	0.014	ug/L		06/18/11 08:27	06/21/11 15:44	1
Acenaphthylene	ND		0.20	0.015	ug/L		06/18/11 08:27	06/21/11 15:44	1
Anthracene	ND		0.20	0.15	ug/L		06/18/11 08:27	06/21/11 15:44	1
Benzo[a]anthracene	ND		0.20	0.015	ug/L		06/18/11 08:27	06/21/11 15:44	1
Benzo[b]fluoranthene	ND		0.20	0.016	ug/L		06/18/11 08:27	06/21/11 15:44	1
Benzo[k]fluoranthene	ND		0.20	0.055	ug/L		06/18/11 08:27	06/21/11 15:44	1
Benzo[g,h,i]perylene	ND		0.20	0.015	ug/L		06/18/11 08:27	06/21/11 15:44	1
Benzo[a]pyrene	ND		0.20	0.013	ug/L		06/18/11 08:27	06/21/11 15:44	1
Chrysene	ND		0.20	0.014	ug/L		06/18/11 08:27	06/21/11 15:44	1
Dibenz(a,h)anthracene	ND		0.20	0.016	ug/L		06/18/11 08:27	06/21/11 15:44	1
Fluoranthene	ND		0.20	0.016	ug/L		06/18/11 08:27	06/21/11 15:44	1
Fluorene	ND		0.20	0.022	ug/L		06/18/11 08:27	06/21/11 15:44	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.020	ug/L		06/18/11 08:27	06/21/11 15:44	1
Naphthalene	ND		0.20	0.014	ug/L		06/18/11 08:27	06/21/11 15:44	1
Phenanthrene	ND		0.20	0.043	ug/L		06/18/11 08:27	06/21/11 15:44	1
Pyrene	ND		0.20	0.016	ug/L		06/18/11 08:27	06/21/11 15:44	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*92*		*10 - 132*	*06/18/11 08:27*	*06/21/11 15:44*	*1*
Nitrobenzene-d5	*80*		*23 - 112*	*06/18/11 08:27*	*06/21/11 15:44*	*1*
2-Fluorobiphenyl	*66*		*19 - 107*	*06/18/11 08:27*	*06/21/11 15:44*	*1*

Lab Sample ID: LCS 180-4764/2-A
Matrix: Water
Analysis Batch: 5302

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4764

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Acenaphthene	20.0	14.7		ug/L		74	35 - 99
Acenaphthylene	20.0	15.1		ug/L		76	37 - 107
Anthracene	20.0	14.8		ug/L		74	35 - 105
Benzo[a]anthracene	20.0	13.8		ug/L		69	38 - 101
Benzo[b]fluoranthene	20.0	10.7		ug/L		53	29 - 98
Benzo[k]fluoranthene	20.0	12.9		ug/L		64	28 - 107
Benzo[g,h,i]perylene	20.0	14.3		ug/L		72	20 - 115
Benzo[a]pyrene	20.0	12.4		ug/L		62	26 - 108
Chrysene	20.0	15.2		ug/L		76	37 - 99
Dibenz(a,h)anthracene	20.0	12.3		ug/L		61	19 - 118
Fluoranthene	20.0	15.3		ug/L		76	32 - 112
Fluorene	20.0	14.5		ug/L		73	34 - 104
Indeno[1,2,3-cd]pyrene	20.0	12.8		ug/L		64	22 - 115
Naphthalene	20.0	13.4		ug/L		67	35 - 97
Phenanthrene	20.0	15.1		ug/L		76	32 - 104

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14	*78*		*10 - 132*
Nitrobenzene-d5	*74*		*23 - 112*
2-Fluorobiphenyl	*50*		*19 - 107*

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-5307/49 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5307

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.0018	mg/L			06/23/11 13:08	1

Lab Sample ID: LCS 180-5307/50 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5307

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Available cyanide	0.200	0.195		mg/L		98	82 - 132

Lab Sample ID: LCSD 180-5307/51 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 5307

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Available cyanide	0.200	0.196		mg/L		98	82 - 132	1	20

Method: 340.2 - Fluoride

Lab Sample ID: MB 240-7315/28 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/05/11 15:47	1

Lab Sample ID: LCS 240-7315/29 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.58	2.60		mg/L		101	88 - 117

Lab Sample ID: MB 240-7897/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7897

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			07/08/11 18:13	1

Lab Sample ID: LCS 240-7897/5 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 7897

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.58	2.46		mg/L		95	88 - 117

QC Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin NC 0990.225

TestAmerica Job ID: 180-1163-1

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 180-5235/2
Matrix: Water
Analysis Batch: 5235

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.79	J	5.0	0.41	mg/L			06/22/11 14:43	1

QC Association Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin NC 0990.225

TestAmerica Job ID: 180-1163-1

GC/MS Semi VOA

Prep Batch: 4764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4764/1-A	Method Blank	Total/NA	Water	3520C	
LCS 180-4764/2-A	Lab Control Sample	Total/NA	Water	3520C	
180-1163-1	ABP-MW014-F003	Total/NA	Water	3520C	
180-1163-2	ABP-MW014-D001	Total/NA	Water	3520C	

Analysis Batch: 5302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-4764/1-A	Method Blank	Total/NA	Water	8270C LL	4764
LCS 180-4764/2-A	Lab Control Sample	Total/NA	Water	8270C LL	4764
180-1163-1	ABP-MW014-F003	Total/NA	Water	8270C LL	4764
180-1163-2	ABP-MW014-D001	Total/NA	Water	8270C LL	4764

General Chemistry

Analysis Batch: 5235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-5235/1	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 180-5235/2	Method Blank	Total/NA	Water	SM 2320B	
180-1163-1	ABP-MW014-F003	Total/NA	Water	SM 2320B	
180-1163-2	ABP-MW014-D001	Total/NA	Water	SM 2320B	
180-1163-3	ABP-MW103-F004	Total/NA	Water	SM 2320B	
180-1163-4	ABP-MW109-F004	Total/NA	Water	SM 2320B	

Analysis Batch: 5307

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-5307/49	Method Blank	Total/NA	Water	1677	
LCS 180-5307/50	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-5307/51	Lab Control Sample Dup	Total/NA	Water	1677	
180-1163-1	ABP-MW014-F003	Total/NA	Water	1677	
180-1163-2	ABP-MW014-D001	Total/NA	Water	1677	
180-1163-3	ABP-MW103-F004	Total/NA	Water	1677	
180-1163-4	ABP-MW109-F004	Total/NA	Water	1677	

Analysis Batch: 7315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-7315/28	Method Blank	Total/NA	Water	340.2	
LCS 240-7315/29 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-1163-4	ABP-MW109-F004	Total/NA	Water	340.2	

Analysis Batch: 7897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-7897/4	Method Blank	Total/NA	Water	340.2	
LCS 240-7897/5 ^2	Lab Control Sample	Total/NA	Water	340.2	
180-1163-1	ABP-MW014-F003	Total/NA	Water	340.2	
180-1163-2	ABP-MW014-D001	Total/NA	Water	340.2	
180-1163-3	ABP-MW103-F004	Total/NA	Water	340.2	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-1163-1

Login Number: 1163

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Blotzer, Tristan

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	ABP-MW014-F003
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-1163-1

Login Number: 1163
List Number: 1
Creator: Ferrel, Matthew

List Source: TestAmerica North Canton
List Creation: 06/20/11 01:25 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background		
The cooler's custody seal, if present, is intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the sample IDs on the containers and the COC.		
Samples are received within Holding Time.		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-2693-1
Client Project/Site: Alcoa Badin Landfill 0990.231
Revision: 1

For:
BHE Environmental Inc./ Alcoa Work
11733 Chesterdale Road
Cincinnati, Ohio 45246-3405

Attn: Mr. Matt Bruck

Authorized for release by:
09/12/2011 12:46:03 PM

Whitney Ritari
Project Manager I
whitney.ritari@testamericainc.com

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Job ID: 180-2693-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-2693-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

General Chemistry
No analytical or quality issues were noted.

Definitions/Glossary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit (Dioxin)
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or method detection limit if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	Arkansas	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-11-00328
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-2693-1	ABLPZ16F001	Water	08/02/11 13:45	08/05/11 10:00
180-2693-2	ABLPZ17F001	Water	08/02/11 14:50	08/05/11 10:00
180-2693-3	ABLPZ18F001	Water	08/02/11 15:25	08/05/11 10:00
180-2693-4	ABLPZ19F001	Water	08/03/11 10:15	08/05/11 10:00
180-2693-5	ABLPZ15F001	Water	08/03/11 10:05	08/05/11 10:00
180-2693-6	ABLPZ01IF001	Water	08/02/11 17:40	08/05/11 10:00
180-2693-7	ABLPZ01DF001	Water	08/02/11 18:45	08/05/11 10:00
180-2693-8	ABLEQB	Water	08/02/11 18:15	08/05/11 10:00
180-2693-9	ABLPZ02DF001	Water	08/03/11 10:00	08/05/11 10:00
180-2693-10	ABLPZ03IF001	Water	08/03/11 12:35	08/05/11 10:00
180-2693-11	ABLMW04F001	Water	08/01/11 10:10	08/05/11 10:00
180-2693-12	ABLPZ03SF001	Water	08/01/11 10:55	08/05/11 10:00
180-2693-13	ABLMW05F001	Water	08/01/11 11:27	08/05/11 10:00
180-2693-14	ABLMW02F001	Water	08/01/11 15:20	08/05/11 10:00
180-2693-15	ABLMW06F001	Water	08/01/11 16:50	08/05/11 10:00
180-2693-16	ABLPZ01SF001	Water	08/01/11 17:20	08/05/11 10:00
180-2693-17	ABLMW01F001	Water	08/02/11 08:15	08/05/11 10:00
180-2693-18	ABLMW03F001	Water	08/02/11 08:50	08/05/11 10:00
180-2693-19	ABLMW101F001	Water	08/02/11 10:10	08/05/11 10:00
180-2693-20	ABLMW101D001	Water	08/02/11 10:10	08/05/11 10:00
180-2693-21	ABLPZ03DF001	Water	08/03/11 12:00	08/05/11 10:00
180-2693-22	ABLPZ03DF001	Water	08/03/11 12:00	08/05/11 10:00
180-2693-23	ABLWWF001	Water	08/01/11 12:57	08/05/11 10:00
180-2693-24	ABLLEACHATE01F001	Water	08/01/11 12:00	08/05/11 10:00
180-2693-25	ABLLEACHATE02F001	Water	08/01/11 12:15	08/05/11 10:00
180-2693-26	ABLLEACHATE03F001	Water	08/01/11 12:30	08/05/11 10:00

Method Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

Method	Method Description	Protocol	Laboratory
340.2	Fluoride	MCAWW	TAL NC

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

Client Sample ID: ABLPZ16F001

Lab Sample ID: 180-2693-1
Date Collected: 08/02/11 13:45
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	8.9		0.50	0.068	mg/L			08/12/11 23:05	10

Client Sample ID: ABLPZ17F001

Lab Sample ID: 180-2693-2
Date Collected: 08/02/11 14:50
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	77		5.0	0.68	mg/L			08/12/11 23:15	100

Client Sample ID: ABLPZ18F001

Lab Sample ID: 180-2693-3
Date Collected: 08/02/11 15:25
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	31		5.0	0.68	mg/L			08/12/11 23:24	100

Client Sample ID: ABLPZ19F001

Lab Sample ID: 180-2693-4
Date Collected: 08/03/11 10:15
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	27		5.0	0.68	mg/L			08/12/11 23:33	100

Client Sample ID: ABLPZ15F001

Lab Sample ID: 180-2693-5
Date Collected: 08/03/11 10:05
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	53		5.0	0.68	mg/L			08/12/11 23:43	100

Client Sample ID: ABLPZ01IF001

Lab Sample ID: 180-2693-6
Date Collected: 08/02/11 17:40
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.52		0.050	0.0068	mg/L			08/10/11 16:36	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

Client Sample ID: ABLPZ01DF001
Lab Sample ID: 180-2693-7
Date Collected: 08/02/11 18:45
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.39		0.050	0.0068	mg/L			08/10/11 16:45	1

Client Sample ID: ABLEQB
Lab Sample ID: 180-2693-8
Date Collected: 08/02/11 18:15
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.020	J	0.050	0.0068	mg/L			08/10/11 16:55	1

Client Sample ID: ABLPZ02DF001
Lab Sample ID: 180-2693-9
Date Collected: 08/03/11 10:00
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.23		0.050	0.0068	mg/L			08/10/11 17:04	1

Client Sample ID: ABLPZ03IF001
Lab Sample ID: 180-2693-10
Date Collected: 08/03/11 12:35
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.14		0.050	0.0068	mg/L			08/10/11 17:13	1

Client Sample ID: ABLMW04F001
Lab Sample ID: 180-2693-11
Date Collected: 08/01/11 10:10
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.19		0.050	0.0068	mg/L			08/10/11 17:41	1

Client Sample ID: ABLPZ03SF001
Lab Sample ID: 180-2693-12
Date Collected: 08/01/11 10:55
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.45		0.050	0.0068	mg/L			08/10/11 17:50	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

Client Sample ID: ABLMW05F001
Lab Sample ID: 180-2693-13
Date Collected: 08/01/11 11:27
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.26		0.050	0.0068	mg/L			08/10/11 18:00	1

Client Sample ID: ABLMW02F001
Lab Sample ID: 180-2693-14
Date Collected: 08/01/11 15:20
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.050		0.050	0.0068	mg/L			08/10/11 18:09	1

Client Sample ID: ABLMW06F001
Lab Sample ID: 180-2693-15
Date Collected: 08/01/11 16:50
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.070		0.050	0.0068	mg/L			08/10/11 18:18	1

Client Sample ID: ABLPZ01SF001
Lab Sample ID: 180-2693-16
Date Collected: 08/01/11 17:20
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.16		0.050	0.0068	mg/L			08/10/11 18:28	1

Client Sample ID: ABLMW01F001
Lab Sample ID: 180-2693-17
Date Collected: 08/02/11 08:15
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.17		0.050	0.0068	mg/L			08/10/11 18:37	1

Client Sample ID: ABLMW03F001
Lab Sample ID: 180-2693-18
Date Collected: 08/02/11 08:50
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.10		0.050	0.0068	mg/L			08/10/11 18:46	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

Client Sample ID: ABLMW101F001
Lab Sample ID: 180-2693-19
Date Collected: 08/02/11 10:10
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.090		0.050	0.0068	mg/L			08/10/11 18:56	1

Client Sample ID: ABLMW101D001
Lab Sample ID: 180-2693-20
Date Collected: 08/02/11 10:10
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.090		0.050	0.0068	mg/L			08/10/11 19:05	1

Client Sample ID: ABLPZ03DF001
Lab Sample ID: 180-2693-21
Date Collected: 08/03/11 12:00
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.13	B	0.050	0.0068	mg/L			08/10/11 20:10	1

Client Sample ID: ABLPZ03DF001
Lab Sample ID: 180-2693-22
Date Collected: 08/03/11 12:00
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.13	B	0.050	0.0068	mg/L			08/10/11 20:20	1

Client Sample ID: ABLWWF001
Lab Sample ID: 180-2693-23
Date Collected: 08/01/11 12:57
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	12		5.0	0.68	mg/L			08/12/11 23:52	100

Client Sample ID: ABLLEACHATE01F001
Lab Sample ID: 180-2693-24
Date Collected: 08/01/11 12:00
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.39	B	0.050	0.0068	mg/L			08/10/11 20:37	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

Client Sample ID: ABLLEACHATE02F001

Lab Sample ID: 180-2693-25

Date Collected: 08/01/11 12:15
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.40		0.25	0.034	mg/L			08/15/11 14:19	5

Client Sample ID: ABLLEACHATE03F001

Lab Sample ID: 180-2693-26

Date Collected: 08/01/11 12:30
Matrix: Water
Date Received: 08/05/11 10:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.37	B	0.050	0.0068	mg/L			08/10/11 20:55	1

Method: 340.2 - Fluoride

Lab Sample ID: MB 240-11641/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 11641

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			08/10/11 14:24	1

Lab Sample ID: LCS 240-11641/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 11641

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	1.29	1.34		mg/L		104	88 - 117

Lab Sample ID: 180-2693-20 MS — **Client Sample ID: ABLMW101D001**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 11641

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	0.090		1.00	1.08		mg/L		99	83 - 117

Lab Sample ID: 180-2693-20 MSD — **Client Sample ID: ABLMW101D001**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 11641

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	0.090		1.00	1.13		mg/L		104	83 - 117	5	20

Lab Sample ID: MB 240-12032/19 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 12032

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			08/12/11 21:43	1

Lab Sample ID: LCS 240-12032/20 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 12032

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.58	2.50		mg/L		97	88 - 117

Lab Sample ID: MB 240-12138/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 12138

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.050	0.0068	mg/L			08/15/11 12:07	1

Lab Sample ID: LCS 240-12138/4 ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 12138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Fluoride	2.58	2.62		mg/L		102	88 - 117

QC Association Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin Landfill 0990.231

TestAmerica Job ID: 180-2693-1

General Chemistry

Analysis Batch: 11641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-2693-6	ABLPZ01IF001	Total/NA	Water	340.2	
180-2693-7	ABLPZ01DF001	Total/NA	Water	340.2	
180-2693-8	ABLEQB	Total/NA	Water	340.2	
180-2693-9	ABLPZ02DF001	Total/NA	Water	340.2	
180-2693-10	ABLPZ03IF001	Total/NA	Water	340.2	
180-2693-11	ABLMW04F001	Total/NA	Water	340.2	
180-2693-12	ABLPZ03SF001	Total/NA	Water	340.2	
180-2693-13	ABLMW05F001	Total/NA	Water	340.2	
180-2693-14	ABLMW02F001	Total/NA	Water	340.2	
180-2693-15	ABLMW06F001	Total/NA	Water	340.2	
180-2693-16	ABLPZ01SF001	Total/NA	Water	340.2	
180-2693-17	ABLMW01F001	Total/NA	Water	340.2	
180-2693-18	ABLMW03F001	Total/NA	Water	340.2	
180-2693-19	ABLMW101F001	Total/NA	Water	340.2	
180-2693-20	ABLMW101D001	Total/NA	Water	340.2	
180-2693-20 MS	ABLMW101D001	Total/NA	Water	340.2	
180-2693-20 MSD	ABLMW101D001	Total/NA	Water	340.2	
180-2693-21	ABLPZ03DF001	Total/NA	Water	340.2	
180-2693-22	ABLPZ03DF001	Total/NA	Water	340.2	
180-2693-24	ABLLEACHATE01F001	Total/NA	Water	340.2	
180-2693-26	ABLLEACHATE03F001	Total/NA	Water	340.2	
LCS 240-11641/5	Lab Control Sample	Total/NA	Water	340.2	
MB 240-11641/4	Method Blank	Total/NA	Water	340.2	

Analysis Batch: 12032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-2693-1	ABLPZ16F001	Total/NA	Water	340.2	
180-2693-2	ABLPZ17F001	Total/NA	Water	340.2	
180-2693-3	ABLPZ18F001	Total/NA	Water	340.2	
180-2693-4	ABLPZ19F001	Total/NA	Water	340.2	
180-2693-5	ABLPZ15F001	Total/NA	Water	340.2	
180-2693-23	ABLWWF001	Total/NA	Water	340.2	
LCS 240-12032/20 ^2	Lab Control Sample	Total/NA	Water	340.2	
MB 240-12032/19	Method Blank	Total/NA	Water	340.2	

Analysis Batch: 12138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-2693-25	ABLLEACHATE02F001	Total/NA	Water	340.2	
LCS 240-12138/4 ^2	Lab Control Sample	Total/NA	Water	340.2	
MB 240-12138/3	Method Blank	Total/NA	Water	340.2	

0.5°C

Chain of Custody Record

TestAmerica Laboratory location: Pittsburg

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

09/12/2011

Client Contact			
Company Name: BHE Environmental	Client Project Manager: Matt Bruck	Site Contact: Matt Bruck	Lab Contact: Chris Kovach
Address: 11733 Chesterdale Rd	Telephone: 513 326 1500	Telephone: 513 326 1500	Telephone:
City/State/Zip: Cincinnati, OH	Email: MBruck@bheenvironmental		COC No: 018596
Phone: 513 326 1500			1 of 3 COCs
Project Name: ACOA - Badin Landfill	Method of Shipment/Carrier: Fedex	Analysis Turnaround Time (in BUS days)	For lab use only
Project Number: 0890.231	Shipping/Tracking No:	TAT if different from below ____	Walk-in client ☐
PO# 0890.231		☐ 3 weeks	Lab pickup ☐
		☒ 2 weeks	Lab sampling ☐
		☐ 1 week	Job/SDG No:
		☐ 2 days	
		☐ 1 day	

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C/Grab=G	Analyses: Flow rate										Sample Specific Notes / Special Instructions:
ABLPZ16F001	8/2/11	1345		✓									✓		N	G	✓										
ABLPZ17F001	8/2/11	1450		✓									✓		N	G	✓										
ABLPZ18F001	8/2/11	1525		✓									✓		N	G	✓										
ABLPZ19F001	8/3/11	1015		✓									✓		N	G	✓										
ABLPZ15F001	8/3/11	1005		✓									✓		N	G	✓										
ABLPZ01IF001	8/2/11	1740		✓									✓		N	G	✓										
APLPZ010F001	8/2/11	1845		✓									✓		N	G	✓										
ABLEQB	8/2/11	1815		✓									✓		N	G	✓										
ABLPZ02D F001	8/3/11	1000		✓									✓		N	G	✓										
ABLPZ03I F001	8/3/11	1235		✓									✓		N	G	✓										

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	8/3/11 1700	[signature]	TA	8/5/11 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL 0018- 1 (04/10)

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

TestAmerica Laboratory location: Pittsburg
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

09/12/2011

Client Contact			
Company Name: BHE Environmental	Client Project Manager: Matt Brack	Site Contact: Matt Brack	Lab Contact: Chris Kovach
Address: 11733 Chesterdale Rd	Telephone: 513 326 1500	Telephone: 513 326 1500	Telephone:
City/State/Zip: Cincinnati OH	Email: MBrack@bheenvironmental		
Phone: 513 326 1500			
Project Name: Alcoa Badin NC Landfill	Method of Shipment/Carrier: Fedex		
Project Number: 0990.231	Shipping/Tracking No:		
PO# 0990.231			

COC No: 018441
2 of 3 COCs

Analysis Turnaround Time (in BUS days)
TAT if different from below
☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only
Walk-in client ☐
Lab pickup ☐
Lab sampling ☐
Job/SDG No.:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite-C/Grab-G	Fluoride									Sample Specific Notes / Special Instructions:
ABLMW04 F001	8/1/11	1010		✓									✓		N	G	✓									
ABL PZ03S F001	8/1/11	1055		✓									✓		N	G	✓									
ABL MW05 F001	8/1/11	1127		✓									✓		N	G	✓									
ABL MW02 F001	8/1/11	1520		✓									✓		N	G	✓									
ABL MW06 F001	8/1/11	1650		✓									✓		N	G	✓									
ABL PZ01S F001	8/1/11	1730		✓									✓		N	G	✓									
ABL MW01 F001	8/2/11	0815		✓									✓		N	G	✓									
ABL MW03 F001	8/2/11	0850		✓									✓		N	G	✓									
ABL MW101 F001	8/2/11	1010		✓									✓		N	G	✓									
ABL MW101 D001	8/2/11	1010		✓									✓		N	G	✓									

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	8/3/11	[illegible]	TA	8/5/11 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL 0018- 1 (04/10)

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Pittsburgh

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other

TestAmerica Laboratories, Inc.

09/12/2011

Client Contact			
Company Name: BHE Environmental	Client Project Manager: Matt Bruck	Site Contact: Matt Bruck	Lab Contact: Chris Kovach
Address: 11733 Chesterdale Rd	Telephone: 513 326 1500	Telephone: 513 326 1500	Telephone:
City/State/Zip: Cincinnati, OH	Email: MBruck@bhenvironmental		COC No: 018594
Phone: 513 326 1500			3 of 3 COCs
Project Name: AICOA Bedin Landfill	Method of Shipment/Carrier: Fedex	Analysis Turnaround Time (in BUS days)	
Project Number: 0990.231	Shipping/Tracking No:	TAT if different from below ☐ 3 weeks ☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day	
PO# 0990.231			For lab use only: Walk-in client ☐ Lab pickup ☐ Lab sampling ☐ Job/SDG No:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite C/Grab G	Analyses: Fluoride									Sample Specific Notes / Special Instructions:
ABLPZ03DP001	8/3/11	1200		✓									✓		N	G	✓									
ABLPZ03DD001	8/3/11	1200		✓									✓		N	G	✓									
ABLWWF001	8/1/11	1257		✓									✓		N	G	✓									
ABL Leachate 01 F001	8/1/11	1200		✓									✓		N	G	✓									
ABL Leachate 02 F001	8/1/11	1215		✓									✓		N	G	✓									
ABL Leachate 03 F001	8/1/11	1230		✓									✓		N	G	✓									

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	8/3/11 1700	[illegible]	TA	8/5/11 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL 0018- 1 (04/10)

ORIGIN ID: CVGA (513) 326-1500
SUSANNAH MCDONALD
BHE ENVIRONMENTAL, INC.
11733 CHESTERDALE ROAD

CINCINNATI, OH 45246
UNITED STATES US

SHIP DATE: 04AUG11
ACTWGT: 53.0 LB MAN
CAD: 247443/CAFE2472

BILL SENDER

TO SAMPLE RECEIVING
TESTAMERICA LABORAT
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 1523
(412) 963-7058
REF: 0990.231/WJR/JMB2/

RT 198 1 A
FZ 199
4421
08.05

FedEx
Express

J1010100501010124

TRK# 0201 9274 7037 4421

FRI - 05 AUG A2
PRIORITY OVERNIGHT

NA AGCA

15238
PA-US
PIT

Part # 156143-434 MPT V3 07-08

505C1/EEE7/DA47

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-2693-1

Login Number: 2693
List Number: 1
Creator: Blotzer, Tristan

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-2693-1

Login Number: 2693
List Number: 1
Creator: Sutek, Nick

List Source: TestAmerica North Canton
List Creation: 08/09/11 02:46 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-3513-1
Client Project/Site: Alcoa Badin

For:
BHE Environmental Inc./ Alcoa Work
11733 Chesterdale Road
Cincinnati, Ohio 45246-3405

Attn: Mr. Matt Bruck

Whitney Ritari

Authorized for release by:
09/16/2011 02:30:29 PM

Whitney Ritari
Project Manager I
whitney.ritari@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Case Narrative

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-3513-1

Job ID: 180-3513-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-3513-1

Comments
No additional comments.

Receipt
The following sample(s) was listed on the Chain-of-Custody (COC); however, no sample(s) was received: . COC LISTED TRIP BLANK...WAS ONLY TEMP BLANK.

All other samples were received in good condition within temperature requirements.

General Chemistry
No analytical or quality issues were noted.

Definitions/Glossary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-3513-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit (Dioxin)
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or method detection limit if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-3513-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	Arkansas	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-11-00328
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210
TestAmerica North Canton	Wisconsin	State Program	5	999518190

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-3513-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-3513-1	WET WELL	Water	08/30/11 15:57	08/31/11 10:00

Method Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-3513-1

Method	Method Description	Protocol	Laboratory
340.2	Fluoride	MCAWW	TAL NC

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-3513-1

Client Sample ID: WET WELL

Lab Sample ID: 180-3513-1

Date Collected: 08/30/11 15:57
Date Received: 08/31/11 10:00

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	26	B	2.5	0.34	mg/L			09/15/11 12:42	50

QC Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-3513-1

Method: 340.2 - Fluoride

Lab Sample ID: MB 240-15553/4
Matrix: Water
Analysis Batch: 15553

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.0200	J	0.050	0.0068	mg/L			09/15/11 11:13	1

Lab Sample ID: LCS 240-15553/5
Matrix: Water
Analysis Batch: 15553

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride			1.39	1.32		mg/L		95	88 - 117		

Lab Sample ID: 180-3513-1 MS
Matrix: Water
Analysis Batch: 15553

Client Sample ID: WET WELL
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	% Rec	% Rec. Limits		
Fluoride	26	B	50.0	75.0		mg/L		98	83 - 117		

Lab Sample ID: 180-3513-1 MSD
Matrix: Water
Analysis Batch: 15553

Client Sample ID: WET WELL
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Fluoride	26	B	50.0	76.0		mg/L		100	83 - 117	1	20

QC Association Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa Badin

TestAmerica Job ID: 180-3513-1

General Chemistry

Analysis Batch: 15553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-3513-1	WET WELL	Total/NA	Water	340.2	
180-3513-1 MS	WET WELL	Total/NA	Water	340.2	
180-3513-1 MSD	WET WELL	Total/NA	Water	340.2	
LCS 240-15553/5	Lab Control Sample	Total/NA	Water	340.2	
MB 240-15553/4	Method Blank	Total/NA	Water	340.2	

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

09/16/2011

Client Information

Client Contact: Mr. Matt Bruck
Company: BHE Environmental Inc./ Alcoa Work
Address: 11733 Chesterdale Road
City: Cincinnati
State, Zip: OH, 45246-3405
Phone:
Email: mbruck@bheenvironmental.com
Project Name: Alcoa Badin
Site: ABL

Sampler: Frank Schuler
Phone: 513-659-5522
Due Date Requested: 9/2/11
TAT Requested (days):
PO #: Purchase Order Requested
WO #:
Project #: 18007709
SSOW#:

Lab PM: Ritari, Whitney
E-Mail: whitney.ritari@testamericainc.com
Carrier Tracking No(s):

COC No: 180-1473-457.1
Page: Page 1 of 1
Job #:

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	340.2 - Fluoride	Total Number of containers	Special Instructions/Note:
				Preservation Code:	X	X	N	X	
Wet Well	8/30/11	1557	G	Water	N	N	X	1	Results by 9/2/11
Trip Blank				Water			X	1	
				Water					
				Water					
				Water					

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

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	8/30/11 1700	BHE	[signature]	8/31/11 1000	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

00013

00076

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8764 3164 7310

RECIPIENT: PEEL HERE

fedex.com 1800.GoFedEx 1800.463.3339

1 From This portion can be removed for Recipient's records.

FedEx Tracking Number 876431647310

Date 8/30/11

Sender's Name Frank Schuler Phone 513 324-1500

Company RHE ENVIRONMENTAL INC

Address 11733 CHESTERDALE RD Dept./Floor/Suite/Room

City CINCINNATI State OH ZIP 45246

2 Your Internal Billing Reference PN0990-232

3 To

Recipient's Name Test America Phone 412 963-7058

Company Test America/Sample Receiving

Address 301 Alpha Drive Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Pittsburgh State PA ZIP 15238

HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

0408406541

8764 3164 7310

Form ID No. 0215

Recipient's Copy

4 Express Package Service *To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs.* For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- [ ] NEW FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging *Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

6 Special Handling and Delivery Signature Options

- [ ] SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. *Fee applies.*

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Obtain recip. Acct. No. [ ]

Total Packages 1 Total Weight 15 lbs.

Credit Card Auth.

611

†Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

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Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-3513-1

Login Number: 3513
List Number: 1
Creator: Gamber, Tom

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-3513-1

Login Number: 3513
List Number: 1
Creator: Ferrel, Matthew

List Source: TestAmerica North Canton
List Creation: 09/07/11 02:38 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-74506-1
Client Project/Site: ABL CMS GW

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
12/6/2011 1:55:42 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 680-74506-1

Laboratory: TestAmerica Savannah

Narrative

Job Narrative
680-74506-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

GC/MS Semi VOA
Method(s) 8270C: The laboratory control sample and the laboratory control sample duplicate (LCS/LCSD) for batch 221436 exceeded control limits for the following analyte(s): famphur. Famphur has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Sample Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-74506-1	ABLPZ15F002	Water	11/15/11 11:45	11/17/11 09:22
680-74506-2	ABLPZ16F002	Water	11/15/11 11:25	11/17/11 09:22
680-74506-3	ABLPZ17F002	Water	11/15/11 14:20	11/17/11 09:22
680-74506-4	ABLPZ17DF002	Water	11/15/11 14:40	11/17/11 09:22
680-74506-5	ABLPZ18F002	Water	11/16/11 08:40	11/17/11 09:22
680-74506-6	ABLPZ19F002	Water	11/15/11 16:30	11/17/11 09:22
680-74506-8	Trip Blank	Water	11/15/11 08:00	11/17/11 09:22
680-74506-9	ABLMW01F002	Water	11/14/11 14:30	11/17/11 09:22
680-74506-10	ABLMW02F002	Water	11/15/11 09:15	11/17/11 09:22
680-74506-11	ABLMW03F002	Water	11/15/11 11:35	11/17/11 09:22
680-74506-12	ABLMW04F002	Water	11/15/11 14:20	11/17/11 09:22
680-74506-13	ABLMW04D002	Water	11/15/11 14:20	11/17/11 09:22
680-74506-14	ABLMW05F002	Water	11/15/11 18:06	11/17/11 09:22
680-74506-15	ABLMW06F002	Water	11/14/11 11:00	11/17/11 09:22

Method Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
7470A	Mercury (CVAA)	SW846	TAL SAV
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV
SM 4500 F C	Fluoride	SM	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
E	Result exceeded calibration range.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample ID: ABLPZ15F002

Lab Sample ID: 680-74506-1

Date Collected: 11/15/11 11:45
Matrix: Water
Date Received: 11/17/11 09:22

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:27	1
Total Organic Carbon	6.1		1.0	0.50	mg/L			11/22/11 15:57	1
Fluoride	35		2.0	0.50	mg/L			11/21/11 18:30	10

Client Sample ID: ABLPZ16F002

Lab Sample ID: 680-74506-2

Date Collected: 11/15/11 11:25
Matrix: Water
Date Received: 11/17/11 09:22

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:29	1
Total Organic Carbon	34		1.0	0.50	mg/L			11/22/11 16:14	1
Fluoride	9.5		0.20	0.050	mg/L			11/21/11 13:27	1

Client Sample ID: ABLPZ17F002

Lab Sample ID: 680-74506-3

Date Collected: 11/15/11 14:20
Matrix: Water
Date Received: 11/17/11 09:22

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:44	1
Total Organic Carbon	77		1.0	0.50	mg/L			11/22/11 16:32	1
Fluoride	57		2.0	0.50	mg/L			11/21/11 18:33	10

Client Sample ID: ABLPZ17DF002

Lab Sample ID: 680-74506-4

Date Collected: 11/15/11 14:40
Matrix: Water
Date Received: 11/17/11 09:22

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:45	1
Total Organic Carbon	52		1.0	0.50	mg/L			11/22/11 16:49	1
Fluoride	57		2.0	0.50	mg/L			11/21/11 18:36	10

Client Sample ID: ABLPZ18F002

Lab Sample ID: 680-74506-5

Date Collected: 11/16/11 08:40
Matrix: Water
Date Received: 11/17/11 09:22

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 13:33	1
Total Organic Carbon	7.8		1.0	0.50	mg/L			11/22/11 17:09	1
Fluoride	27		2.0	0.50	mg/L			11/21/11 18:39	10

Client Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Client Sample ID: ABLPZ19F002

Lab Sample ID: 680-74506-6

Date Collected: 11/15/11 16:30
Matrix: Water
Date Received: 11/17/11 09:22

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	8.3		1.0	0.50	mg/L			11/22/11 17:26	1
Fluoride	41		2.0	0.50	mg/L			11/21/11 18:45	10

Client Sample ID: Trip Blank

Lab Sample ID: 680-74506-8

Date Collected: 11/15/11 08:00
Matrix: Water
Date Received: 11/17/11 09:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.11		1.0	0.11	ug/L			11/27/11 16:47	1
Styrene	<0.11		1.0	0.11	ug/L			11/27/11 16:47	1
cis-1,3-Dichloropropene	<0.11		1.0	0.11	ug/L			11/27/11 16:47	1
trans-1,3-Dichloropropene	<0.21		1.0	0.21	ug/L			11/27/11 16:47	1
Acrolein	<7.4		20	7.4	ug/L			11/27/11 16:47	1
Allyl chloride	<0.20		1.0	0.20	ug/L			11/27/11 16:47	1
1,2-Dichloroethane	<0.10		1.0	0.10	ug/L			11/27/11 16:47	1
Propionitrile	<4.6		20	4.6	ug/L			11/27/11 16:47	1
Acrylonitrile	<7.2		20	7.2	ug/L			11/27/11 16:47	1
Vinyl acetate	<0.28		2.0	0.28	ug/L			11/27/11 16:47	1
4-Methyl-2-pentanone	<1.0		10	1.0	ug/L			11/27/11 16:47	1
Toluene	<0.33		1.0	0.33	ug/L			11/27/11 16:47	1
Chlorobenzene	<0.25		1.0	0.25	ug/L			11/27/11 16:47	1
trans-1,4-Dichloro-2-butene	<0.50		2.0	0.50	ug/L			11/27/11 16:47	1
Dibromochloromethane	<0.10		1.0	0.10	ug/L			11/27/11 16:47	1
Methacrylonitrile	<3.3		20	3.3	ug/L			11/27/11 16:47	1
Chloroprene	<0.30		1.0	0.30	ug/L			11/27/11 16:47	1
Tetrachloroethene	<0.15		1.0	0.15	ug/L			11/27/11 16:47	1
Xylenes, Total	<0.20		2.0	0.20	ug/L			11/27/11 16:47	1
trans-1,2-Dichloroethene	<0.20		1.0	0.20	ug/L			11/27/11 16:47	1
Carbon tetrachloride	<0.50		1.0	0.50	ug/L			11/27/11 16:47	1
2-Hexanone	<1.0		10	1.0	ug/L			11/27/11 16:47	1
1,1,1,2-Tetrachloroethane	<0.33		1.0	0.33	ug/L			11/27/11 16:47	1
Acetone	<5.0		25	5.0	ug/L			11/27/11 16:47	1
Chloroform	<0.14		1.0	0.14	ug/L			11/27/11 16:47	1
Benzene	<0.25		1.0	0.25	ug/L			11/27/11 16:47	1
1,1,1-Trichloroethane	<0.50		1.0	0.50	ug/L			11/27/11 16:47	1
Bromomethane	<0.80		1.0	0.80	ug/L			11/27/11 16:47	1
Chloromethane	<0.33		1.0	0.33	ug/L			11/27/11 16:47	1
Iodomethane	<1.0		5.0	1.0	ug/L			11/27/11 16:47	1
Dibromomethane	<0.20		1.0	0.20	ug/L			11/27/11 16:47	1
Chloroethane	<1.0		1.0	1.0	ug/L			11/27/11 16:47	1
Vinyl chloride	<0.18		1.0	0.18	ug/L			11/27/11 16:47	1
Acetonitrile	<10		40	10	ug/L			11/27/11 16:47	1
Methylene Chloride	<1.0		5.0	1.0	ug/L			11/27/11 16:47	1
Carbon disulfide	<0.60		2.0	0.60	ug/L			11/27/11 16:47	1
Bromoform	<0.50		1.0	0.50	ug/L			11/27/11 16:47	1
Bromodichloromethane	<0.25		1.0	0.25	ug/L			11/27/11 16:47	1
1,1-Dichloroethane	<0.25		1.0	0.25	ug/L			11/27/11 16:47	1
1,1-Dichloroethene	<0.11		1.0	0.11	ug/L			11/27/11 16:47	1

Client Sample ID: Trip Blank

Lab Sample ID: 680-74506-8

Date Collected: 11/15/11 08:00
Date Received: 11/17/11 09:22

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	<0.25		1.0	0.25	ug/L			11/27/11 16:47	1
Dichlorodifluoromethane	<0.25		1.0	0.25	ug/L			11/27/11 16:47	1
Pentachloroethane	<1.2		5.0	1.2	ug/L			11/27/11 16:47	1
Isobutanol	<11		40	11	ug/L			11/27/11 16:47	1
1,2-Dichloropropane	<0.13		1.0	0.13	ug/L			11/27/11 16:47	1
2-Butanone	<1.0		10	1.0	ug/L			11/27/11 16:47	1
1,1,2-Trichloroethane	<0.13		1.0	0.13	ug/L			11/27/11 16:47	1
Trichloroethene	<0.13		1.0	0.13	ug/L			11/27/11 16:47	1
1,1,2,2-Tetrachloroethane	<0.18		1.0	0.18	ug/L			11/27/11 16:47	1
Methyl methacrylate	<0.48		1.0	0.48	ug/L			11/27/11 16:47	1
Ethyl methacrylate	<0.25		1.0	0.25	ug/L			11/27/11 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*104*		*70 - 130*		*11/27/11 16:47*	*1*
Dibromofluoromethane	*101*		*70 - 130*		*11/27/11 16:47*	*1*
Toluene-d8 (Surr)	*107*		*70 - 130*		*11/27/11 16:47*	*1*

Client Sample ID: ABLMW01F002

Lab Sample ID: 680-74506-9

Date Collected: 11/14/11 14:30
Date Received: 11/17/11 09:22

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:21	1
Total Organic Carbon	**0.53**	**J**	1.0	0.50	mg/L			11/22/11 17:44	1
Fluoride	**0.20**		0.20	0.050	mg/L			11/21/11 13:57	1

Client Sample ID: ABLMW02F002

Lab Sample ID: 680-74506-10

Date Collected: 11/15/11 09:15
Date Received: 11/17/11 09:22

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:47	1
Total Organic Carbon	<0.50		1.0	0.50	mg/L			11/22/11 18:33	1
Fluoride	**0.050**	**J**	0.20	0.050	mg/L			11/21/11 14:04	1

Client Sample ID: ABLMW03F002

Lab Sample ID: 680-74506-11

Date Collected: 11/15/11 11:35
Date Received: 11/17/11 09:22

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:48	1
Total Organic Carbon	<0.50		1.0	0.50	mg/L			11/22/11 18:50	1
Fluoride	**0.090**	**J**	0.20	0.050	mg/L			11/21/11 14:07	1

Client Sample ID: ABLMW04F002

Lab Sample ID: 680-74506-12

Date Collected: 11/15/11 14:20

Matrix: Water

Date Received: 11/17/11 09:22

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:50	1
Total Organic Carbon	**0.69**	**J**	1.0	0.50	mg/L			11/22/11 19:06	1
Fluoride	**0.10**	**J**	0.20	0.050	mg/L			11/21/11 14:10	1

Client Sample ID: ABLMW04D002

Lab Sample ID: 680-74506-13

Date Collected: 11/15/11 14:20

Matrix: Water

Date Received: 11/17/11 09:22

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:51	1
Total Organic Carbon	**0.62**	**J**	1.0	0.50	mg/L			11/22/11 19:23	1
Fluoride	**0.10**	**J**	0.20	0.050	mg/L			11/21/11 14:13	1

Client Sample ID: ABLMW05F002

Lab Sample ID: 680-74506-14

Date Collected: 11/15/11 18:06

Matrix: Water

Date Received: 11/17/11 09:22

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.11		1.0	0.11	ug/L			11/28/11 13:14	1
Styrene	<0.11		1.0	0.11	ug/L			11/28/11 13:14	1
cis-1,3-Dichloropropene	<0.11		1.0	0.11	ug/L			11/28/11 13:14	1
trans-1,3-Dichloropropene	<0.21		1.0	0.21	ug/L			11/28/11 13:14	1
Acrolein	<7.4		20	7.4	ug/L			11/28/11 13:14	1
Allyl chloride	<0.20		1.0	0.20	ug/L			11/28/11 13:14	1
1,2-Dichloroethane	<0.10		1.0	0.10	ug/L			11/28/11 13:14	1
Propionitrile	<4.6		20	4.6	ug/L			11/28/11 13:14	1
Acrylonitrile	<7.2		20	7.2	ug/L			11/28/11 13:14	1
Vinyl acetate	<0.28		2.0	0.28	ug/L			11/28/11 13:14	1
4-Methyl-2-pentanone	<1.0		10	1.0	ug/L			11/28/11 13:14	1
Toluene	<0.33		1.0	0.33	ug/L			11/28/11 13:14	1
Chlorobenzene	<0.25		1.0	0.25	ug/L			11/28/11 13:14	1
trans-1,4-Dichloro-2-butene	<0.50		2.0	0.50	ug/L			11/28/11 13:14	1
Dibromochloromethane	<0.10		1.0	0.10	ug/L			11/28/11 13:14	1
Methacrylonitrile	<3.3		20	3.3	ug/L			11/28/11 13:14	1
Chloroprene	<0.30		1.0	0.30	ug/L			11/28/11 13:14	1
Tetrachloroethene	<0.15		1.0	0.15	ug/L			11/28/11 13:14	1
Xylenes, Total	<0.20		2.0	0.20	ug/L			11/28/11 13:14	1
trans-1,2-Dichloroethene	<0.20		1.0	0.20	ug/L			11/28/11 13:14	1
Carbon tetrachloride	<0.50		1.0	0.50	ug/L			11/28/11 13:14	1
2-Hexanone	<1.0		10	1.0	ug/L			11/28/11 13:14	1
1,1,1,2-Tetrachloroethane	<0.33		1.0	0.33	ug/L			11/28/11 13:14	1
Acetone	<5.0		25	5.0	ug/L			11/28/11 13:14	1
Chloroform	**0.18**	**J**	1.0	0.14	ug/L			11/28/11 13:14	1
Benzene	<0.25		1.0	0.25	ug/L			11/28/11 13:14	1
1,1,1-Trichloroethane	<0.50		1.0	0.50	ug/L			11/28/11 13:14	1
Bromomethane	<0.80		1.0	0.80	ug/L			11/28/11 13:14	1
Chloromethane	<0.33		1.0	0.33	ug/L			11/28/11 13:14	1

Client Sample ID: ABLMW05F002
Date Collected: 11/15/11 18:06
Date Received: 11/17/11 09:22

Lab Sample ID: 680-74506-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iodomethane	<1.0		5.0	1.0	ug/L			11/28/11 13:14	1
Dibromomethane	<0.20		1.0	0.20	ug/L			11/28/11 13:14	1
Chloroethane	<1.0		1.0	1.0	ug/L			11/28/11 13:14	1
Vinyl chloride	<0.18		1.0	0.18	ug/L			11/28/11 13:14	1
Acetonitrile	<10		40	10	ug/L			11/28/11 13:14	1
Methylene Chloride	<1.0		5.0	1.0	ug/L			11/28/11 13:14	1
Carbon disulfide	<0.60		2.0	0.60	ug/L			11/28/11 13:14	1
Bromoform	<0.50		1.0	0.50	ug/L			11/28/11 13:14	1
Bromodichloromethane	<0.25		1.0	0.25	ug/L			11/28/11 13:14	1
1,1-Dichloroethane	<0.25		1.0	0.25	ug/L			11/28/11 13:14	1
1,1-Dichloroethene	<0.11		1.0	0.11	ug/L			11/28/11 13:14	1
Trichlorofluoromethane	<0.25		1.0	0.25	ug/L			11/28/11 13:14	1
Dichlorodifluoromethane	<0.25		1.0	0.25	ug/L			11/28/11 13:14	1
Pentachloroethane	<1.2		5.0	1.2	ug/L			11/28/11 13:14	1
Isobutanol	<11		40	11	ug/L			11/28/11 13:14	1
1,2-Dichloropropane	<0.13		1.0	0.13	ug/L			11/28/11 13:14	1
2-Butanone	<1.0		10	1.0	ug/L			11/28/11 13:14	1
1,1,2-Trichloroethane	<0.13		1.0	0.13	ug/L			11/28/11 13:14	1
Trichloroethene	<0.13		1.0	0.13	ug/L			11/28/11 13:14	1
1,1,2,2-Tetrachloroethane	<0.18		1.0	0.18	ug/L			11/28/11 13:14	1
Methyl methacrylate	<0.48		1.0	0.48	ug/L			11/28/11 13:14	1
Ethyl methacrylate	<0.25		1.0	0.25	ug/L			11/28/11 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*70 - 130*		*11/28/11 13:14*	*1*
Dibromofluoromethane	*88*		*70 - 130*		*11/28/11 13:14*	*1*
Toluene-d8 (Surr)	*111*		*70 - 130*		*11/28/11 13:14*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	<5.9		59	5.9	ug/L		11/19/11 15:31	12/01/11 06:59	1
4-Nitrophenol	<2.3		59	2.3	ug/L		11/19/11 15:31	12/01/11 06:59	1
Benzyl alcohol	<1.3		12	1.3	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitrosopiperidine	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
4-Bromophenyl phenyl ether	<0.91		12	0.91	ug/L		11/19/11 15:31	12/01/11 06:59	1
2,4-Dimethylphenol	<4.7		12	4.7	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitrosomethylethylamine	<3.9		12	3.9	ug/L		11/19/11 15:31	12/01/11 06:59	1
1,4-Dichlorobenzene	<0.64		12	0.64	ug/L		11/19/11 15:31	12/01/11 06:59	1
4-Chloroaniline	<2.6		24	2.6	ug/L		11/19/11 15:31	12/01/11 06:59	1
p-Phenylene diamine	<12		2400	12	ug/L		11/19/11 15:31	12/01/11 06:59	1
bis (2-chloroisopropyl) ether	<0.92		12	0.92	ug/L		11/19/11 15:31	12/01/11 06:59	1
Phenol	<0.98		12	0.98	ug/L		11/19/11 15:31	12/01/11 06:59	1
2-Picoline	<1.7		12	1.7	ug/L		11/19/11 15:31	12/01/11 06:59	1
Pyridine	<2.7		59	2.7	ug/L		11/19/11 15:31	12/01/11 06:59	1
Bis(2-chloroethyl)ether	<1.3		12	1.3	ug/L		11/19/11 15:31	12/01/11 06:59	1
Bis(2-chloroethoxy)methane	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
Bis(2-ethylhexyl) phthalate	<1.9		12	1.9	ug/L		11/19/11 15:31	12/01/11 06:59	1
Di-n-octyl phthalate	<1.7		12	1.7	ug/L		11/19/11 15:31	12/01/11 06:59	1
Hexachlorobenzene	<0.94		12	0.94	ug/L		11/19/11 15:31	12/01/11 06:59	1
3,3'-Dimethylbenzidine	<12		24	12	ug/L		11/19/11 15:31	12/01/11 06:59	1
Anthracene	<0.82		12	0.82	ug/L		11/19/11 15:31	12/01/11 06:59	1

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Client Sample ID: ABLMW05F002
Date Collected: 11/15/11 18:06
Date Received: 11/17/11 09:22

Lab Sample ID: 680-74506-14
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isosafrole	<0.59		12	0.59	ug/L		11/19/11 15:31	12/01/11 06:59	1
1,2,4-Trichlorobenzene	<0.66		12	0.66	ug/L		11/19/11 15:31	12/01/11 06:59	1
2,4-Dichlorophenol	<1.3		12	1.3	ug/L		11/19/11 15:31	12/01/11 06:59	1
2,4-Dinitrotoluene	<1.4		12	1.4	ug/L		11/19/11 15:31	12/01/11 06:59	1
alpha,alpha-Dimethyl phenethylamine	<41		2400	41	ug/L		11/19/11 15:31	12/01/11 06:59	1
1,4-Dioxane	<4.0		12	4.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
o,o',o''-Triethylphosphorothioate	<1.2		12	1.2	ug/L		11/19/11 15:31	12/01/11 06:59	1
Pyrene	<0.75		12	0.75	ug/L		11/19/11 15:31	12/01/11 06:59	1
1,4-Naphthoquinone	<0.73		12	0.73	ug/L		11/19/11 15:31	12/01/11 06:59	1
Dimethyl phthalate	<1.2		12	1.2	ug/L		11/19/11 15:31	12/01/11 06:59	1
Dibenzofuran	<0.94		12	0.94	ug/L		11/19/11 15:31	12/01/11 06:59	1
1-Naphthylamine	<1.3		12	1.3	ug/L		11/19/11 15:31	12/01/11 06:59	1
Aramite	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
Hexachloropropene	<1.7		12	1.7	ug/L		11/19/11 15:31	12/01/11 06:59	1
Benzo[g,h,i]perylene	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
Indeno[1,2,3-cd]pyrene	<1.2		12	1.2	ug/L		11/19/11 15:31	12/01/11 06:59	1
Benzo[b]fluoranthene	<3.1		12	3.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
Fluoranthene	<0.88		12	0.88	ug/L		11/19/11 15:31	12/01/11 06:59	1
Benzo[k]fluoranthene	<1.4		12	1.4	ug/L		11/19/11 15:31	12/01/11 06:59	1
Acenaphthylene	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
Chrysene	<0.60		12	0.60	ug/L		11/19/11 15:31	12/01/11 06:59	1
Diallate	<0.92		12	0.92	ug/L		11/19/11 15:31	12/01/11 06:59	1
Pronamide	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
Thionazin	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
Methyl parathion	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
Phorate	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
Disulfoton	<0.94		12	0.94	ug/L		11/19/11 15:31	12/01/11 06:59	1
Sulfotepp	<0.63		12	0.63	ug/L		11/19/11 15:31	12/01/11 06:59	1
Benzo[a]pyrene	<0.84		12	0.84	ug/L		11/19/11 15:31	12/01/11 06:59	1
2,4-Dinitrophenol	<12		59	12	ug/L		11/19/11 15:31	12/01/11 06:59	1
Famphur	<1.3	*	12	1.3	ug/L		11/19/11 15:31	12/01/11 06:59	1
4,6-Dinitro-2-methylphenol	<12		59	12	ug/L		11/19/11 15:31	12/01/11 06:59	1
Dibenz(a,h)anthracene	<1.2		12	1.2	ug/L		11/19/11 15:31	12/01/11 06:59	1
2-Acetylaminofluorene	<1.9		12	1.9	ug/L		11/19/11 15:31	12/01/11 06:59	1
1,3-Dichlorobenzene	<0.70		12	0.70	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitrosodiethylamine	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
Ethyl Parathion	<1.5		12	1.5	ug/L		11/19/11 15:31	12/01/11 06:59	1
3-Methylcholanthrene	<1.7		12	1.7	ug/L		11/19/11 15:31	12/01/11 06:59	1
Benzo[a]anthracene	<0.65		12	0.65	ug/L		11/19/11 15:31	12/01/11 06:59	1
4-Nitroquinoline-1-oxide	<12		24	12	ug/L		11/19/11 15:31	12/01/11 06:59	1
7,12-Dimethylbenz(a)anthracene	<1.4		12	1.4	ug/L		11/19/11 15:31	12/01/11 06:59	1
2,3,4,6-Tetrachlorophenol	<0.85		12	0.85	ug/L		11/19/11 15:31	12/01/11 06:59	1
4-Chloro-3-methylphenol	<1.2		12	1.2	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitrosomorpholine	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
p-Dimethylamino azobenzene	<0.94		12	0.94	ug/L		11/19/11 15:31	12/01/11 06:59	1
Dimethoate	<0.89		12	0.89	ug/L		11/19/11 15:31	12/01/11 06:59	1
2,6-Dinitrotoluene	<1.3		12	1.3	ug/L		11/19/11 15:31	12/01/11 06:59	1
Pentachlorobenzene	<0.62		12	0.62	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitrosodi-n-propylamine	<0.85		12	0.85	ug/L		11/19/11 15:31	12/01/11 06:59	1
Phenacetin	<1.7		12	1.7	ug/L		11/19/11 15:31	12/01/11 06:59	1

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Client Sample ID: ABLMW05F002
Date Collected: 11/15/11 18:06
Date Received: 11/17/11 09:22

Lab Sample ID: 680-74506-14
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl methanesulfonate	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
Aniline	<2.5		24	2.5	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitrosodimethylamine	<3.3		12	3.3	ug/L		11/19/11 15:31	12/01/11 06:59	1
Methyl methanesulfonate	<0.71		12	0.71	ug/L		11/19/11 15:31	12/01/11 06:59	1
Hexachloroethane	<0.90		12	0.90	ug/L		11/19/11 15:31	12/01/11 06:59	1
4-Chlorophenyl phenyl ether	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
Hexachlorophene	<32		5900	32	ug/L		11/19/11 15:31	12/01/11 06:59	1
Hexachlorocyclopentadiene	<3.0		12	3.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
Isophorone	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
Pentachloronitrobenzene	<0.92		12	0.92	ug/L		11/19/11 15:31	12/01/11 06:59	1
Acenaphthene	<0.90		12	0.90	ug/L		11/19/11 15:31	12/01/11 06:59	1
Diethyl phthalate	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
Di-n-butyl phthalate	<0.98		12	0.98	ug/L		11/19/11 15:31	12/01/11 06:59	1
Phenanthrene	<0.91		12	0.91	ug/L		11/19/11 15:31	12/01/11 06:59	1
Butyl benzyl phthalate	<1.4		12	1.4	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitrosodiphenylamine	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
Fluorene	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
2,6-Dichlorophenol	<0.87		12	0.87	ug/L		11/19/11 15:31	12/01/11 06:59	1
Hexachlorobutadiene	<0.73		12	0.73	ug/L		11/19/11 15:31	12/01/11 06:59	1
Pentachlorophenol	<2.4		59	2.4	ug/L		11/19/11 15:31	12/01/11 06:59	1
2,4,6-Trichlorophenol	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
2-Nitroaniline	<1.5		59	1.5	ug/L		11/19/11 15:31	12/01/11 06:59	1
2-Nitrophenol	<0.90		12	0.90	ug/L		11/19/11 15:31	12/01/11 06:59	1
Dinoseb	<5.9		12	5.9	ug/L		11/19/11 15:31	12/01/11 06:59	1
Naphthalene	<0.83		12	0.83	ug/L		11/19/11 15:31	12/01/11 06:59	1
2-Methylnaphthalene	<0.92		12	0.92	ug/L		11/19/11 15:31	12/01/11 06:59	1
2-Chloronaphthalene	<0.95		12	0.95	ug/L		11/19/11 15:31	12/01/11 06:59	1
2-Naphthylamine	<1.8		12	1.8	ug/L		11/19/11 15:31	12/01/11 06:59	1
Methapyrilene	<3.2		2400	3.2	ug/L		11/19/11 15:31	12/01/11 06:59	1
3,3'-Dichlorobenzidine	<36		71	36	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitrosodi-n-butylamine	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
4-Aminobiphenyl	<1.4		12	1.4	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitrosopyrrolidine	<1.2		12	1.2	ug/L		11/19/11 15:31	12/01/11 06:59	1
Safrole	<0.95		12	0.95	ug/L		11/19/11 15:31	12/01/11 06:59	1
2-Methylphenol	<1.1		12	1.1	ug/L		11/19/11 15:31	12/01/11 06:59	1
1,2-Dichlorobenzene	<0.63		12	0.63	ug/L		11/19/11 15:31	12/01/11 06:59	1
o-Toluidine	<1.7		12	1.7	ug/L		11/19/11 15:31	12/01/11 06:59	1
2-Chlorophenol	<1.0		12	1.0	ug/L		11/19/11 15:31	12/01/11 06:59	1
1,2,4,5-Tetrachlorobenzene	<0.90		12	0.90	ug/L		11/19/11 15:31	12/01/11 06:59	1
2,4,5-Trichlorophenol	<1.4		12	1.4	ug/L		11/19/11 15:31	12/01/11 06:59	1
Acetophenone	<0.68		12	0.68	ug/L		11/19/11 15:31	12/01/11 06:59	1
Nitrobenzene	<0.87		12	0.87	ug/L		11/19/11 15:31	12/01/11 06:59	1
3-Nitroaniline	<5.9		59	5.9	ug/L		11/19/11 15:31	12/01/11 06:59	1
1,3,5-Trinitrobenzene	<2.4		12	2.4	ug/L		11/19/11 15:31	12/01/11 06:59	1
N-Nitro-o-toluidine	<1.8		12	1.8	ug/L		11/19/11 15:31	12/01/11 06:59	1
1,3-Dinitrobenzene	<0.71		12	0.71	ug/L		11/19/11 15:31	12/01/11 06:59	1
3 & 4 Methylphenol	<1.5		12	1.5	ug/L		11/19/11 15:31	12/01/11 06:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*79*		*38 - 130*	*11/19/11 15:31*	*12/01/11 06:59*	*1*

Client Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Client Sample ID: ABLMW05F002

Lab Sample ID: 680-74506-14

Date Collected: 11/15/11 18:06
Date Received: 11/17/11 09:22

Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*80*		*25 - 130*	*11/19/11 15:31*	*12/01/11 06:59*	*1*
Nitrobenzene-d5	*87*		*39 - 130*	*11/19/11 15:31*	*12/01/11 06:59*	*1*
Phenol-d5	*81*		*25 - 130*	*11/19/11 15:31*	*12/01/11 06:59*	*1*
Terphenyl-d14	*85*		*10 - 143*	*11/19/11 15:31*	*12/01/11 06:59*	*1*
2,4,6-Tribromophenol	*81*		*31 - 141*	*11/19/11 15:31*	*12/01/11 06:59*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<5.3		20	5.3	ug/L		11/21/11 13:49	11/29/11 19:13	1
Arsenic	<4.6		20	4.6	ug/L		11/21/11 13:49	11/29/11 19:13	1
Barium	**10**		10	2.3	ug/L		11/21/11 13:49	11/29/11 19:13	1
Beryllium	<0.20		4.0	0.20	ug/L		11/21/11 13:49	11/29/11 19:13	1
Cadmium	<2.0		5.0	2.0	ug/L		11/21/11 13:49	11/29/11 19:13	1
Chromium	**1.9**	**J B**	10	1.2	ug/L		11/21/11 13:49	11/29/11 19:13	1
Cobalt	**72**		10	0.95	ug/L		11/21/11 13:49	11/29/11 19:13	1
Copper	<1.9		20	1.9	ug/L		11/21/11 13:49	11/29/11 19:13	1
Lead	<4.0		10	4.0	ug/L		11/21/11 13:49	11/29/11 19:13	1
Nickel	<2.3		40	2.3	ug/L		11/21/11 13:49	11/29/11 19:13	1
Selenium	<6.4		20	6.4	ug/L		11/21/11 13:49	11/29/11 19:13	1
Silver	<0.89		10	0.89	ug/L		11/21/11 13:49	11/29/11 19:13	1
Thallium	<8.8		25	8.8	ug/L		11/21/11 13:49	11/29/11 19:13	1
Tin	<5.1		50	5.1	ug/L		11/21/11 13:49	11/29/11 19:13	1
Vanadium	<2.4		10	2.4	ug/L		11/21/11 13:49	11/29/11 19:13	1
Zinc	<8.7		20	8.7	ug/L		11/21/11 13:49	11/29/11 19:13	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.091		0.20	0.091	ug/L		11/23/11 12:18	11/29/11 19:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.027**		0.0020	0.00030	mg/L			11/28/11 12:53	1
Total Organic Carbon	**1.1**		1.0	0.50	mg/L			11/24/11 05:45	1
Fluoride	**0.18**	**J**	0.20	0.050	mg/L			11/21/11 14:16	1

Client Sample ID: ABLMW06F002

Lab Sample ID: 680-74506-15

Date Collected: 11/14/11 11:00
Date Received: 11/17/11 09:22

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:23	1
Total Organic Carbon	<0.50		1.0	0.50	mg/L			11/24/11 06:32	1
Fluoride	**0.090**	**J**	0.20	0.050	mg/L			11/21/11 14:26	1

Surrogate Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
680-74506-8	Trip Blank	104	101	107
680-74506-14	ABLMW05F002	92	88	111
LCS 680-221988/4	Lab Control Sample	102	102	101
LCS 680-222046/4	Lab Control Sample	107	105	101
LCSD 680-221988/5	Lab Control Sample Dup	105	103	104
LCSD 680-222046/5	Lab Control Sample Dup	105	105	103
MB 680-221988/7	Method Blank	99	95	102
MB 680-222046/7	Method Blank	104	102	105

Surrogate Legend

BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPH	TBP
Lab Sample ID	Client Sample ID	(38-130)	(25-130)	(39-130)	(25-130)	(10-143)	(31-141)
680-74506-14	ABLMW05F002	79	80	87	81	85	81
LCS 680-221436/13-A	Lab Control Sample	71	65	74	70	75	83
LCS 680-221436/20-A	Lab Control Sample	78	69	78	77	86	91
LCSD 680-221436/14-A	Lab Control Sample Dup	72	69	75	71	78	85
LCSD 680-221436/21-A	Lab Control Sample Dup	76	71	85	76	81	91
MB 680-221436/12-A	Method Blank	73	69	78	75	86	63

Surrogate Legend

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPH = Terphenyl-d14
TBP = 2,4,6-Tribromophenol

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-221988/7
Matrix: Water
Analysis Batch: 221988

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.11		1.0	0.11	ug/L			11/28/11 11:48	1
Styrene	<0.11		1.0	0.11	ug/L			11/28/11 11:48	1
cis-1,3-Dichloropropene	<0.11		1.0	0.11	ug/L			11/28/11 11:48	1
trans-1,3-Dichloropropene	<0.21		1.0	0.21	ug/L			11/28/11 11:48	1
Acrolein	<7.4		20	7.4	ug/L			11/28/11 11:48	1
Allyl chloride	<0.20		1.0	0.20	ug/L			11/28/11 11:48	1
1,2-Dichloroethane	<0.10		1.0	0.10	ug/L			11/28/11 11:48	1
Propionitrile	<4.6		20	4.6	ug/L			11/28/11 11:48	1
Acrylonitrile	<7.2		20	7.2	ug/L			11/28/11 11:48	1
Vinyl acetate	<0.28		2.0	0.28	ug/L			11/28/11 11:48	1
4-Methyl-2-pentanone	<1.0		10	1.0	ug/L			11/28/11 11:48	1
Toluene	<0.33		1.0	0.33	ug/L			11/28/11 11:48	1
Chlorobenzene	<0.25		1.0	0.25	ug/L			11/28/11 11:48	1
trans-1,4-Dichloro-2-butene	<0.50		2.0	0.50	ug/L			11/28/11 11:48	1
Dibromochloromethane	<0.10		1.0	0.10	ug/L			11/28/11 11:48	1
Methacrylonitrile	<3.3		20	3.3	ug/L			11/28/11 11:48	1
Chloroprene	<0.30		1.0	0.30	ug/L			11/28/11 11:48	1
Tetrachloroethene	<0.15		1.0	0.15	ug/L			11/28/11 11:48	1
Xylenes, Total	<0.20		2.0	0.20	ug/L			11/28/11 11:48	1
trans-1,2-Dichloroethene	<0.20		1.0	0.20	ug/L			11/28/11 11:48	1
Carbon tetrachloride	<0.50		1.0	0.50	ug/L			11/28/11 11:48	1
2-Hexanone	<1.0		10	1.0	ug/L			11/28/11 11:48	1
1,1,1,2-Tetrachloroethane	<0.33		1.0	0.33	ug/L			11/28/11 11:48	1
Acetone	<5.0		25	5.0	ug/L			11/28/11 11:48	1
Chloroform	<0.14		1.0	0.14	ug/L			11/28/11 11:48	1
Benzene	<0.25		1.0	0.25	ug/L			11/28/11 11:48	1
1,1,1-Trichloroethane	<0.50		1.0	0.50	ug/L			11/28/11 11:48	1
Bromomethane	<0.80		1.0	0.80	ug/L			11/28/11 11:48	1
Chloromethane	<0.33		1.0	0.33	ug/L			11/28/11 11:48	1
Iodomethane	<1.0		5.0	1.0	ug/L			11/28/11 11:48	1
Dibromomethane	<0.20		1.0	0.20	ug/L			11/28/11 11:48	1
Chloroethane	<1.0		1.0	1.0	ug/L			11/28/11 11:48	1
Vinyl chloride	<0.18		1.0	0.18	ug/L			11/28/11 11:48	1
Acetonitrile	<10		40	10	ug/L			11/28/11 11:48	1
Methylene Chloride	<1.0		5.0	1.0	ug/L			11/28/11 11:48	1
Carbon disulfide	<0.60		2.0	0.60	ug/L			11/28/11 11:48	1
Bromoform	<0.50		1.0	0.50	ug/L			11/28/11 11:48	1
Bromodichloromethane	<0.25		1.0	0.25	ug/L			11/28/11 11:48	1
1,1-Dichloroethane	<0.25		1.0	0.25	ug/L			11/28/11 11:48	1
1,1-Dichloroethene	<0.11		1.0	0.11	ug/L			11/28/11 11:48	1
Trichlorofluoromethane	<0.25		1.0	0.25	ug/L			11/28/11 11:48	1
Dichlorodifluoromethane	<0.25		1.0	0.25	ug/L			11/28/11 11:48	1
Pentachloroethane	<1.2		5.0	1.2	ug/L			11/28/11 11:48	1
Isobutanol	<11		40	11	ug/L			11/28/11 11:48	1
1,2-Dichloropropane	<0.13		1.0	0.13	ug/L			11/28/11 11:48	1
2-Butanone	<1.0		10	1.0	ug/L			11/28/11 11:48	1
1,1,2-Trichloroethane	<0.13		1.0	0.13	ug/L			11/28/11 11:48	1
Trichloroethene	<0.13		1.0	0.13	ug/L			11/28/11 11:48	1
1,1,2,2-Tetrachloroethane	<0.18		1.0	0.18	ug/L			11/28/11 11:48	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-221988/7
Matrix: Water
Analysis Batch: 221988

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl methacrylate	<0.48		1.0	0.48	ug/L			11/28/11 11:48	1
Ethyl methacrylate	<0.25		1.0	0.25	ug/L			11/28/11 11:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*99*		*70 - 130*		*11/28/11 11:48*	*1*
Dibromofluoromethane	*95*		*70 - 130*		*11/28/11 11:48*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*11/28/11 11:48*	*1*

Lab Sample ID: LCS 680-221988/4
Matrix: Water
Analysis Batch: 221988

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	50.0	51.7		ug/L		103	70 - 130
Styrene	50.0	53.7		ug/L		107	70 - 130
cis-1,3-Dichloropropene	50.0	52.0		ug/L		104	70 - 130
trans-1,3-Dichloropropene	50.0	53.4		ug/L		107	70 - 130
1,2-Dichloroethane	50.0	49.5		ug/L		99	70 - 130
4-Methyl-2-pentanone	100	104		ug/L		104	70 - 130
Toluene	50.0	51.4		ug/L		103	70 - 130
Chlorobenzene	50.0	50.8		ug/L		102	70 - 130
Dibromochloromethane	50.0	43.9		ug/L		88	70 - 130
Tetrachloroethene	50.0	51.9		ug/L		104	70 - 130
Xylenes, Total	150	155		ug/L		103	70 - 130
trans-1,2-Dichloroethene	50.0	50.8		ug/L		102	70 - 130
Carbon tetrachloride	50.0	53.1		ug/L		106	70 - 130
2-Hexanone	100	109		ug/L		109	42 - 185
1,1,1,2-Tetrachloroethane	50.0	43.6		ug/L		87	70 - 130
Acetone	100	98.1		ug/L		98	26 - 180
Chloroform	50.0	50.9		ug/L		102	70 - 130
Benzene	50.0	50.8		ug/L		102	70 - 130
1,1,1-Trichloroethane	50.0	50.7		ug/L		101	70 - 130
Bromomethane	50.0	39.6		ug/L		79	23 - 165
Chloromethane	50.0	45.6		ug/L		91	70 - 130
Dibromomethane	50.0	50.7		ug/L		101	70 - 130
Chloroethane	50.0	46.2		ug/L		92	56 - 152
Vinyl chloride	50.0	47.4		ug/L		95	67 - 134
Methylene Chloride	50.0	50.0		ug/L		100	67 - 130
Carbon disulfide	50.0	49.9		ug/L		100	54 - 132
Bromoform	50.0	51.8		ug/L		104	70 - 130
Bromodichloromethane	50.0	50.7		ug/L		101	70 - 130
1,1-Dichloroethane	50.0	51.0		ug/L		102	70 - 130
1,1-Dichloroethene	50.0	49.1		ug/L		98	66 - 131
Trichlorofluoromethane	50.0	50.5		ug/L		101	55 - 156
Dichlorodifluoromethane	50.0	47.9		ug/L		96	44 - 146
1,2-Dichloropropane	50.0	49.9		ug/L		100	70 - 130
2-Butanone	100	106		ug/L		106	49 - 172
1,1,2-Trichloroethane	50.0	51.2		ug/L		102	70 - 130
Trichloroethene	50.0	51.5		ug/L		103	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-221988/4
Matrix: Water
Analysis Batch: 221988

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2,2-Tetrachloroethane	50.0	50.7		ug/L		101	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*102*		*70 - 130*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8 (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 680-221988/5
Matrix: Water
Analysis Batch: 221988

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	50.0	52.6		ug/L		105	70 - 130	2	30
Styrene	50.0	54.9		ug/L		110	70 - 130	2	30
cis-1,3-Dichloropropene	50.0	52.8		ug/L		106	70 - 130	2	30
trans-1,3-Dichloropropene	50.0	55.2		ug/L		110	70 - 130	3	50
1,2-Dichloroethane	50.0	50.9		ug/L		102	70 - 130	3	30
4-Methyl-2-pentanone	100	107		ug/L		107	70 - 130	3	30
Toluene	50.0	52.9		ug/L		106	70 - 130	3	30
Chlorobenzene	50.0	52.0		ug/L		104	70 - 130	2	30
Dibromochloromethane	50.0	45.2		ug/L		90	70 - 130	3	50
Tetrachloroethene	50.0	53.1		ug/L		106	70 - 130	2	30
Xylenes, Total	150	159		ug/L		106	70 - 130	3	30
trans-1,2-Dichloroethene	50.0	52.0		ug/L		104	70 - 130	2	30
Carbon tetrachloride	50.0	54.9		ug/L		110	70 - 130	3	30
2-Hexanone	100	112		ug/L		112	42 - 185	3	30
1,1,1,2-Tetrachloroethane	50.0	44.6		ug/L		89	70 - 130	2	30
Acetone	100	102		ug/L		102	26 - 180	4	50
Chloroform	50.0	52.2		ug/L		104	70 - 130	3	30
Benzene	50.0	51.4		ug/L		103	70 - 130	1	30
1,1,1-Trichloroethane	50.0	51.7		ug/L		103	70 - 130	2	30
Bromomethane	50.0	47.3		ug/L		95	23 - 165	18	50
Chloromethane	50.0	47.3		ug/L		95	70 - 130	4	30
Dibromomethane	50.0	51.3		ug/L		103	70 - 130	1	30
Chloroethane	50.0	45.3		ug/L		91	56 - 152	2	40
Vinyl chloride	50.0	48.7		ug/L		97	67 - 134	3	30
Methylene Chloride	50.0	51.2		ug/L		102	67 - 130	2	30
Carbon disulfide	50.0	51.9		ug/L		104	54 - 132	4	30
Bromoform	50.0	53.1		ug/L		106	70 - 130	2	30
Bromodichloromethane	50.0	52.1		ug/L		104	70 - 130	3	30
1,1-Dichloroethane	50.0	53.1		ug/L		106	70 - 130	4	30
1,1-Dichloroethene	50.0	49.6		ug/L		99	66 - 131	1	30
Trichlorofluoromethane	50.0	50.2		ug/L		100	55 - 156	1	30
Dichlorodifluoromethane	50.0	48.7		ug/L		97	44 - 146	2	50
1,2-Dichloropropane	50.0	51.6		ug/L		103	70 - 130	3	30
2-Butanone	100	107		ug/L		107	49 - 172	1	30
1,1,2-Trichloroethane	50.0	52.5		ug/L		105	70 - 130	2	30
Trichloroethene	50.0	53.2		ug/L		106	70 - 130	3	30
1,1,2,2-Tetrachloroethane	50.0	52.7		ug/L		105	70 - 130	4	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-221988/5
Matrix: Water
Analysis Batch: 221988

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*105*		*70 - 130*
Dibromofluoromethane	*103*		*70 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

Lab Sample ID: MB 680-222046/7
Matrix: Water
Analysis Batch: 222046

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.11		1.0	0.11	ug/L			11/27/11 12:28	1
Styrene	<0.11		1.0	0.11	ug/L			11/27/11 12:28	1
cis-1,3-Dichloropropene	<0.11		1.0	0.11	ug/L			11/27/11 12:28	1
trans-1,3-Dichloropropene	<0.21		1.0	0.21	ug/L			11/27/11 12:28	1
Acrolein	<7.4		20	7.4	ug/L			11/27/11 12:28	1
Allyl chloride	<0.20		1.0	0.20	ug/L			11/27/11 12:28	1
1,2-Dichloroethane	<0.10		1.0	0.10	ug/L			11/27/11 12:28	1
Propionitrile	<4.6		20	4.6	ug/L			11/27/11 12:28	1
Acrylonitrile	<7.2		20	7.2	ug/L			11/27/11 12:28	1
Vinyl acetate	<0.28		2.0	0.28	ug/L			11/27/11 12:28	1
4-Methyl-2-pentanone	<1.0		10	1.0	ug/L			11/27/11 12:28	1
Toluene	<0.33		1.0	0.33	ug/L			11/27/11 12:28	1
Chlorobenzene	<0.25		1.0	0.25	ug/L			11/27/11 12:28	1
trans-1,4-Dichloro-2-butene	<0.50		2.0	0.50	ug/L			11/27/11 12:28	1
Dibromochloromethane	<0.10		1.0	0.10	ug/L			11/27/11 12:28	1
Methacrylonitrile	<3.3		20	3.3	ug/L			11/27/11 12:28	1
Chloroprene	<0.30		1.0	0.30	ug/L			11/27/11 12:28	1
Tetrachloroethene	<0.15		1.0	0.15	ug/L			11/27/11 12:28	1
Xylenes, Total	<0.20		2.0	0.20	ug/L			11/27/11 12:28	1
trans-1,2-Dichloroethene	<0.20		1.0	0.20	ug/L			11/27/11 12:28	1
Carbon tetrachloride	<0.50		1.0	0.50	ug/L			11/27/11 12:28	1
2-Hexanone	<1.0		10	1.0	ug/L			11/27/11 12:28	1
1,1,1,2-Tetrachloroethane	<0.33		1.0	0.33	ug/L			11/27/11 12:28	1
Acetone	<5.0		25	5.0	ug/L			11/27/11 12:28	1
Chloroform	<0.14		1.0	0.14	ug/L			11/27/11 12:28	1
Benzene	<0.25		1.0	0.25	ug/L			11/27/11 12:28	1
1,1,1-Trichloroethane	<0.50		1.0	0.50	ug/L			11/27/11 12:28	1
Bromomethane	<0.80		1.0	0.80	ug/L			11/27/11 12:28	1
Chloromethane	<0.33		1.0	0.33	ug/L			11/27/11 12:28	1
Iodomethane	<1.0		5.0	1.0	ug/L			11/27/11 12:28	1
Dibromomethane	<0.20		1.0	0.20	ug/L			11/27/11 12:28	1
Chloroethane	<1.0		1.0	1.0	ug/L			11/27/11 12:28	1
Vinyl chloride	<0.18		1.0	0.18	ug/L			11/27/11 12:28	1
Acetonitrile	<10		40	10	ug/L			11/27/11 12:28	1
Methylene Chloride	<1.0		5.0	1.0	ug/L			11/27/11 12:28	1
Carbon disulfide	<0.60		2.0	0.60	ug/L			11/27/11 12:28	1
Bromoform	<0.50		1.0	0.50	ug/L			11/27/11 12:28	1
Bromodichloromethane	<0.25		1.0	0.25	ug/L			11/27/11 12:28	1
1,1-Dichloroethane	<0.25		1.0	0.25	ug/L			11/27/11 12:28	1
1,1-Dichloroethene	<0.11		1.0	0.11	ug/L			11/27/11 12:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-222046/7
Matrix: Water
Analysis Batch: 222046

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	<0.25		1.0	0.25	ug/L			11/27/11 12:28	1
Dichlorodifluoromethane	<0.25		1.0	0.25	ug/L			11/27/11 12:28	1
Pentachloroethane	<1.2		5.0	1.2	ug/L			11/27/11 12:28	1
Isobutanol	<11		40	11	ug/L			11/27/11 12:28	1
1,2-Dichloropropane	<0.13		1.0	0.13	ug/L			11/27/11 12:28	1
2-Butanone	<1.0		10	1.0	ug/L			11/27/11 12:28	1
1,1,2-Trichloroethane	<0.13		1.0	0.13	ug/L			11/27/11 12:28	1
Trichloroethene	<0.13		1.0	0.13	ug/L			11/27/11 12:28	1
1,1,2,2-Tetrachloroethane	<0.18		1.0	0.18	ug/L			11/27/11 12:28	1
Methyl methacrylate	<0.48		1.0	0.48	ug/L			11/27/11 12:28	1
Ethyl methacrylate	<0.25		1.0	0.25	ug/L			11/27/11 12:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*104*		*70 - 130*		*11/27/11 12:28*	*1*
Dibromofluoromethane	*102*		*70 - 130*		*11/27/11 12:28*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*11/27/11 12:28*	*1*

Lab Sample ID: LCS 680-222046/4
Matrix: Water
Analysis Batch: 222046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	50.0	51.2		ug/L		102	70 - 130
Styrene	50.0	52.0		ug/L		104	70 - 130
cis-1,3-Dichloropropene	50.0	51.4		ug/L		103	70 - 130
trans-1,3-Dichloropropene	50.0	52.3		ug/L		105	70 - 130
1,2-Dichloroethane	50.0	47.4		ug/L		95	70 - 130
4-Methyl-2-pentanone	100	101		ug/L		101	70 - 130
Toluene	50.0	49.8		ug/L		100	70 - 130
Chlorobenzene	50.0	51.9		ug/L		104	70 - 130
Dibromochloromethane	50.0	54.8		ug/L		110	70 - 130
Tetrachloroethene	50.0	51.4		ug/L		103	70 - 130
Xylenes, Total	150	155		ug/L		104	70 - 130
trans-1,2-Dichloroethene	50.0	52.1		ug/L		104	70 - 130
Carbon tetrachloride	50.0	49.9		ug/L		100	70 - 130
2-Hexanone	100	104		ug/L		104	42 - 185
1,1,1,2-Tetrachloroethane	50.0	53.8		ug/L		108	70 - 130
Acetone	100	104		ug/L		104	26 - 180
Chloroform	50.0	52.4		ug/L		105	70 - 130
Benzene	50.0	48.7		ug/L		97	70 - 130
1,1,1-Trichloroethane	50.0	48.9		ug/L		98	70 - 130
Bromomethane	50.0	45.2		ug/L		90	23 - 165
Chloromethane	50.0	48.2		ug/L		96	70 - 130
Dibromomethane	50.0	49.9		ug/L		100	70 - 130
Chloroethane	50.0	47.2		ug/L		94	56 - 152
Vinyl chloride	50.0	49.5		ug/L		99	67 - 134
Methylene Chloride	50.0	52.5		ug/L		105	67 - 130
Carbon disulfide	50.0	51.4		ug/L		103	54 - 132
Bromoform	50.0	46.7		ug/L		93	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-222046/4
Matrix: Water
Analysis Batch: 222046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromodichloromethane	50.0	51.0		ug/L		102	70 - 130
1,1-Dichloroethane	50.0	52.0		ug/L		104	70 - 130
1,1-Dichloroethene	50.0	51.3		ug/L		103	66 - 131
Trichlorofluoromethane	50.0	47.3		ug/L		95	55 - 156
Dichlorodifluoromethane	50.0	49.4		ug/L		99	44 - 146
1,2-Dichloropropane	50.0	49.8		ug/L		100	70 - 130
2-Butanone	100	103		ug/L		103	49 - 172
1,1,2-Trichloroethane	50.0	49.9		ug/L		100	70 - 130
Trichloroethene	50.0	49.9		ug/L		100	70 - 130
1,1,2,2-Tetrachloroethane	50.0	50.4		ug/L		101	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*107*		*70 - 130*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8 (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 680-222046/5
Matrix: Water
Analysis Batch: 222046

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	50.0	50.5		ug/L		101	70 - 130	1	30
Styrene	50.0	50.9		ug/L		102	70 - 130	2	30
cis-1,3-Dichloropropene	50.0	51.1		ug/L		102	70 - 130	1	30
trans-1,3-Dichloropropene	50.0	51.7		ug/L		103	70 - 130	1	50
1,2-Dichloroethane	50.0	47.4		ug/L		95	70 - 130	0	30
4-Methyl-2-pentanone	100	100		ug/L		100	70 - 130	1	30
Toluene	50.0	49.9		ug/L		100	70 - 130	0	30
Chlorobenzene	50.0	50.5		ug/L		101	70 - 130	3	30
Dibromochloromethane	50.0	53.1		ug/L		106	70 - 130	3	50
Tetrachloroethene	50.0	51.6		ug/L		103	70 - 130	0	30
Xylenes, Total	150	154		ug/L		102	70 - 130	1	30
trans-1,2-Dichloroethene	50.0	50.9		ug/L		102	70 - 130	2	30
Carbon tetrachloride	50.0	50.5		ug/L		101	70 - 130	1	30
2-Hexanone	100	99.4		ug/L		99	42 - 185	4	30
1,1,1,2-Tetrachloroethane	50.0	52.7		ug/L		105	70 - 130	2	30
Acetone	100	99.0		ug/L		99	26 - 180	4	50
Chloroform	50.0	51.3		ug/L		103	70 - 130	2	30
Benzene	50.0	48.6		ug/L		97	70 - 130	0	30
1,1,1-Trichloroethane	50.0	49.1		ug/L		98	70 - 130	1	30
Bromomethane	50.0	46.7		ug/L		93	23 - 165	3	50
Chloromethane	50.0	48.5		ug/L		97	70 - 130	1	30
Dibromomethane	50.0	48.6		ug/L		97	70 - 130	3	30
Chloroethane	50.0	43.3		ug/L		87	56 - 152	9	40
Vinyl chloride	50.0	49.8		ug/L		100	67 - 134	1	30
Methylene Chloride	50.0	51.0		ug/L		102	67 - 130	3	30
Carbon disulfide	50.0	50.8		ug/L		102	54 - 132	1	30
Bromoform	50.0	45.4		ug/L		91	70 - 130	3	30
Bromodichloromethane	50.0	50.2		ug/L		100	70 - 130	2	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-222046/5
Matrix: Water
Analysis Batch: 222046

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethane	50.0	50.8		ug/L		102	70 - 130	2	30
1,1-Dichloroethene	50.0	50.0		ug/L		100	66 - 131	2	30
Trichlorofluoromethane	50.0	47.4		ug/L		95	55 - 156	0	30
Dichlorodifluoromethane	50.0	49.8		ug/L		100	44 - 146	1	50
1,2-Dichloropropane	50.0	48.5		ug/L		97	70 - 130	3	30
2-Butanone	100	100		ug/L		100	49 - 172	3	30
1,1,2-Trichloroethane	50.0	47.6		ug/L		95	70 - 130	5	30
Trichloroethene	50.0	50.1		ug/L		100	70 - 130	0	30
1,1,2,2-Tetrachloroethane	50.0	48.9		ug/L		98	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*105*		*70 - 130*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8 (Surr)	*103*		*70 - 130*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-221436/12-A
Matrix: Water
Analysis Batch: 222309

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 221436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	<5.0		50	5.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
4-Nitrophenol	<1.9		50	1.9	ug/L		11/19/11 15:31	12/01/11 05:30	1
Benzyl alcohol	<1.1		10	1.1	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitrosopiperidine	<0.88		10	0.88	ug/L		11/19/11 15:31	12/01/11 05:30	1
4-Bromophenyl phenyl ether	<0.77		10	0.77	ug/L		11/19/11 15:31	12/01/11 05:30	1
2,4-Dimethylphenol	<4.0		10	4.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitrosomethylethylamine	<3.3		10	3.3	ug/L		11/19/11 15:31	12/01/11 05:30	1
1,4-Dichlorobenzene	<0.54		10	0.54	ug/L		11/19/11 15:31	12/01/11 05:30	1
4-Chloroaniline	<2.2		20	2.2	ug/L		11/19/11 15:31	12/01/11 05:30	1
p-Phenylene diamine	<10		2000	10	ug/L		11/19/11 15:31	12/01/11 05:30	1
bis (2-chloroisopropyl) ether	<0.78		10	0.78	ug/L		11/19/11 15:31	12/01/11 05:30	1
Phenol	<0.83		10	0.83	ug/L		11/19/11 15:31	12/01/11 05:30	1
2-Picoline	<1.4		10	1.4	ug/L		11/19/11 15:31	12/01/11 05:30	1
Pyridine	<2.3		50	2.3	ug/L		11/19/11 15:31	12/01/11 05:30	1
Bis(2-chloroethyl)ether	<1.1		10	1.1	ug/L		11/19/11 15:31	12/01/11 05:30	1
Bis(2-chloroethoxy)methane	<0.94		10	0.94	ug/L		11/19/11 15:31	12/01/11 05:30	1
Bis(2-ethylhexyl) phthalate	<1.6		10	1.6	ug/L		11/19/11 15:31	12/01/11 05:30	1
Di-n-octyl phthalate	<1.4		10	1.4	ug/L		11/19/11 15:31	12/01/11 05:30	1
Hexachlorobenzene	<0.79		10	0.79	ug/L		11/19/11 15:31	12/01/11 05:30	1
3,3'-Dimethylbenzidine	<10		20	10	ug/L		11/19/11 15:31	12/01/11 05:30	1
Anthracene	<0.69		10	0.69	ug/L		11/19/11 15:31	12/01/11 05:30	1
Isosafrole	<0.50		10	0.50	ug/L		11/19/11 15:31	12/01/11 05:30	1
1,2,4-Trichlorobenzene	<0.56		10	0.56	ug/L		11/19/11 15:31	12/01/11 05:30	1
2,4-Dichlorophenol	<1.1		10	1.1	ug/L		11/19/11 15:31	12/01/11 05:30	1
2,4-Dinitrotoluene	<1.2		10	1.2	ug/L		11/19/11 15:31	12/01/11 05:30	1
alpha,alpha-Dimethyl phenethylamine	<35		2000	35	ug/L		11/19/11 15:31	12/01/11 05:30	1
1,4-Dioxane	<3.4		10	3.4	ug/L		11/19/11 15:31	12/01/11 05:30	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-221436/12-A
Matrix: Water
Analysis Batch: 222309

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 221436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o,o',o''-Triethylphosphorothioate	<1.0		10	1.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
Pyrene	<0.63		10	0.63	ug/L		11/19/11 15:31	12/01/11 05:30	1
1,4-Naphthoquinone	<0.62		10	0.62	ug/L		11/19/11 15:31	12/01/11 05:30	1
Dimethyl phthalate	<0.99		10	0.99	ug/L		11/19/11 15:31	12/01/11 05:30	1
Dibenzofuran	<0.79		10	0.79	ug/L		11/19/11 15:31	12/01/11 05:30	1
1-Naphthylamine	<1.1		10	1.1	ug/L		11/19/11 15:31	12/01/11 05:30	1
Aramite	<0.91		10	0.91	ug/L		11/19/11 15:31	12/01/11 05:30	1
Hexachloropropene	<1.4		10	1.4	ug/L		11/19/11 15:31	12/01/11 05:30	1
Benzo[g,h,i]perylene	<0.87		10	0.87	ug/L		11/19/11 15:31	12/01/11 05:30	1
Indeno[1,2,3-cd]pyrene	<1.0		10	1.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
Benzo[b]fluoranthene	<2.6		10	2.6	ug/L		11/19/11 15:31	12/01/11 05:30	1
Fluoranthene	<0.74		10	0.74	ug/L		11/19/11 15:31	12/01/11 05:30	1
Benzo[k]fluoranthene	<1.2		10	1.2	ug/L		11/19/11 15:31	12/01/11 05:30	1
Acenaphthylene	<0.85		10	0.85	ug/L		11/19/11 15:31	12/01/11 05:30	1
Chrysene	<0.51		10	0.51	ug/L		11/19/11 15:31	12/01/11 05:30	1
Diallate	<0.78		10	0.78	ug/L		11/19/11 15:31	12/01/11 05:30	1
Pronamide	<0.89		10	0.89	ug/L		11/19/11 15:31	12/01/11 05:30	1
Thionazin	<0.91		10	0.91	ug/L		11/19/11 15:31	12/01/11 05:30	1
Methyl parathion	<0.88		10	0.88	ug/L		11/19/11 15:31	12/01/11 05:30	1
Phorate	<0.87		10	0.87	ug/L		11/19/11 15:31	12/01/11 05:30	1
Disulfoton	<0.79		10	0.79	ug/L		11/19/11 15:31	12/01/11 05:30	1
Sulfotepp	<0.53		10	0.53	ug/L		11/19/11 15:31	12/01/11 05:30	1
Benzo[a]pyrene	<0.71		10	0.71	ug/L		11/19/11 15:31	12/01/11 05:30	1
2,4-Dinitrophenol	<10		50	10	ug/L		11/19/11 15:31	12/01/11 05:30	1
Famphur	<1.1		10	1.1	ug/L		11/19/11 15:31	12/01/11 05:30	1
4,6-Dinitro-2-methylphenol	<10		50	10	ug/L		11/19/11 15:31	12/01/11 05:30	1
Dibenz(a,h)anthracene	<1.0		10	1.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
2-Acetylaminofluorene	<1.6		10	1.6	ug/L		11/19/11 15:31	12/01/11 05:30	1
1,3-Dichlorobenzene	<0.59		10	0.59	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitrosodiethylamine	<0.93		10	0.93	ug/L		11/19/11 15:31	12/01/11 05:30	1
Ethyl Parathion	<1.3		10	1.3	ug/L		11/19/11 15:31	12/01/11 05:30	1
3-Methylcholanthrene	<1.4		10	1.4	ug/L		11/19/11 15:31	12/01/11 05:30	1
Benzo[a]anthracene	<0.55		10	0.55	ug/L		11/19/11 15:31	12/01/11 05:30	1
4-Nitroquinoline-1-oxide	<10		20	10	ug/L		11/19/11 15:31	12/01/11 05:30	1
7,12-Dimethylbenz(a)anthracene	<1.2		10	1.2	ug/L		11/19/11 15:31	12/01/11 05:30	1
2,3,4,6-Tetrachlorophenol	<0.72		10	0.72	ug/L		11/19/11 15:31	12/01/11 05:30	1
4-Chloro-3-methylphenol	<1.0		10	1.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitrosomorpholine	<0.84		10	0.84	ug/L		11/19/11 15:31	12/01/11 05:30	1
p-Dimethylamino azobenzene	<0.79		10	0.79	ug/L		11/19/11 15:31	12/01/11 05:30	1
Dimethoate	<0.75		10	0.75	ug/L		11/19/11 15:31	12/01/11 05:30	1
2,6-Dinitrotoluene	<1.1		10	1.1	ug/L		11/19/11 15:31	12/01/11 05:30	1
Pentachlorobenzene	<0.52		10	0.52	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitrosodi-n-propylamine	<0.72		10	0.72	ug/L		11/19/11 15:31	12/01/11 05:30	1
Phenacetin	<1.4		10	1.4	ug/L		11/19/11 15:31	12/01/11 05:30	1
Ethyl methanesulfonate	<0.96		10	0.96	ug/L		11/19/11 15:31	12/01/11 05:30	1
Aniline	<2.1		20	2.1	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitrosodimethylamine	<2.8		10	2.8	ug/L		11/19/11 15:31	12/01/11 05:30	1
Methyl methanesulfonate	<0.60		10	0.60	ug/L		11/19/11 15:31	12/01/11 05:30	1
Hexachloroethane	<0.76		10	0.76	ug/L		11/19/11 15:31	12/01/11 05:30	1
4-Chlorophenyl phenyl ether	<0.84		10	0.84	ug/L		11/19/11 15:31	12/01/11 05:30	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-221436/12-A
Matrix: Water
Analysis Batch: 222309

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 221436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorophene	<27		5000	27	ug/L		11/19/11 15:31	12/01/11 05:30	1
Hexachlorocyclopentadiene	<2.5		10	2.5	ug/L		11/19/11 15:31	12/01/11 05:30	1
Isophorone	<0.90		10	0.90	ug/L		11/19/11 15:31	12/01/11 05:30	1
Pentachloronitrobenzene	<0.78		10	0.78	ug/L		11/19/11 15:31	12/01/11 05:30	1
Acenaphthene	<0.76		10	0.76	ug/L		11/19/11 15:31	12/01/11 05:30	1
Diethyl phthalate	<0.88		10	0.88	ug/L		11/19/11 15:31	12/01/11 05:30	1
Di-n-butyl phthalate	<0.83		10	0.83	ug/L		11/19/11 15:31	12/01/11 05:30	1
Phenanthrene	<0.77		10	0.77	ug/L		11/19/11 15:31	12/01/11 05:30	1
Butyl benzyl phthalate	<1.2		10	1.2	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitrosodiphenylamine	<0.92		10	0.92	ug/L		11/19/11 15:31	12/01/11 05:30	1
Fluorene	<0.96		10	0.96	ug/L		11/19/11 15:31	12/01/11 05:30	1
2,6-Dichlorophenol	<0.73		10	0.73	ug/L		11/19/11 15:31	12/01/11 05:30	1
Hexachlorobutadiene	<0.62		10	0.62	ug/L		11/19/11 15:31	12/01/11 05:30	1
Pentachlorophenol	<2.0		50	2.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
2,4,6-Trichlorophenol	<0.85		10	0.85	ug/L		11/19/11 15:31	12/01/11 05:30	1
2-Nitroaniline	<1.3		50	1.3	ug/L		11/19/11 15:31	12/01/11 05:30	1
2-Nitrophenol	<0.76		10	0.76	ug/L		11/19/11 15:31	12/01/11 05:30	1
Dinoseb	<5.0		10	5.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
Naphthalene	<0.70		10	0.70	ug/L		11/19/11 15:31	12/01/11 05:30	1
2-Methylnaphthalene	<0.78		10	0.78	ug/L		11/19/11 15:31	12/01/11 05:30	1
2-Chloronaphthalene	<0.80		10	0.80	ug/L		11/19/11 15:31	12/01/11 05:30	1
2-Naphthylamine	<1.5		10	1.5	ug/L		11/19/11 15:31	12/01/11 05:30	1
Methapyrilene	<2.7		2000	2.7	ug/L		11/19/11 15:31	12/01/11 05:30	1
3,3'-Dichlorobenzidine	<30		60	30	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitrosodi-n-butylamine	<0.96		10	0.96	ug/L		11/19/11 15:31	12/01/11 05:30	1
4-Aminobiphenyl	<1.2		10	1.2	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitrosopyrrolidine	<1.0		10	1.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
Safrole	<0.80		10	0.80	ug/L		11/19/11 15:31	12/01/11 05:30	1
2-Methylphenol	<0.89		10	0.89	ug/L		11/19/11 15:31	12/01/11 05:30	1
1,2-Dichlorobenzene	<0.53		10	0.53	ug/L		11/19/11 15:31	12/01/11 05:30	1
o-Toluidine	<1.4		10	1.4	ug/L		11/19/11 15:31	12/01/11 05:30	1
2-Chlorophenol	<0.87		10	0.87	ug/L		11/19/11 15:31	12/01/11 05:30	1
1,2,4,5-Tetrachlorobenzene	<0.76		10	0.76	ug/L		11/19/11 15:31	12/01/11 05:30	1
2,4,5-Trichlorophenol	<1.2		10	1.2	ug/L		11/19/11 15:31	12/01/11 05:30	1
Acetophenone	<0.57		10	0.57	ug/L		11/19/11 15:31	12/01/11 05:30	1
Nitrobenzene	<0.73		10	0.73	ug/L		11/19/11 15:31	12/01/11 05:30	1
3-Nitroaniline	<5.0		50	5.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
1,3,5-Trinitrobenzene	<2.0		10	2.0	ug/L		11/19/11 15:31	12/01/11 05:30	1
N-Nitro-o-toluidine	<1.5		10	1.5	ug/L		11/19/11 15:31	12/01/11 05:30	1
1,3-Dinitrobenzene	<0.60		10	0.60	ug/L		11/19/11 15:31	12/01/11 05:30	1
3 & 4 Methylphenol	<1.3		10	1.3	ug/L		11/19/11 15:31	12/01/11 05:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*73*		*38 - 130*	*11/19/11 15:31*	*12/01/11 05:30*	*1*
2-Fluorophenol	*69*		*25 - 130*	*11/19/11 15:31*	*12/01/11 05:30*	*1*
Nitrobenzene-d5	*78*		*39 - 130*	*11/19/11 15:31*	*12/01/11 05:30*	*1*
Phenol-d5	*75*		*25 - 130*	*11/19/11 15:31*	*12/01/11 05:30*	*1*
Terphenyl-d14	*86*		*10 - 143*	*11/19/11 15:31*	*12/01/11 05:30*	*1*
2,4,6-Tribromophenol	*63*		*31 - 141*	*11/19/11 15:31*	*12/01/11 05:30*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-221436/13-A
Matrix: Water
Analysis Batch: 222309

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 221436

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Nitroaniline	100	79.7		ug/L		80	54 - 130
4-Nitrophenol	100	72.3		ug/L		72	38 - 130
Benzyl alcohol	100	74.2		ug/L		74	53 - 130
4-Bromophenyl phenyl ether	100	87.4		ug/L		87	61 - 130
2,4-Dimethylphenol	100	58.9		ug/L		59	40 - 130
1,4-Dichlorobenzene	100	55.7		ug/L		56	43 - 130
4-Chloroaniline	100	64.9		ug/L		65	42 - 130
bis (2-chloroisopropyl) ether	100	82.8		ug/L		83	55 - 130
Phenol	100	65.5		ug/L		66	29 - 130
Pyridine	100	42.1	J	ug/L		42	10 - 130
Bis(2-chloroethyl)ether	100	80.3		ug/L		80	56 - 130
Bis(2-chloroethoxy)methane	100	88.0		ug/L		88	64 - 130
Bis(2-ethylhexyl) phthalate	100	90.5		ug/L		91	62 - 130
Di-n-octyl phthalate	100	101		ug/L		101	64 - 130
Hexachlorobenzene	100	79.5		ug/L		80	52 - 130
Anthracene	100	76.2		ug/L		76	61 - 130
1,2,4-Trichlorobenzene	100	60.5		ug/L		60	42 - 130
2,4-Dichlorophenol	100	72.0		ug/L		72	54 - 130
2,4-Dinitrotoluene	100	81.0		ug/L		81	63 - 130
1,4-Dioxane	100	43.6		ug/L		44	35 - 130
Pyrene	100	76.1		ug/L		76	60 - 130
Dimethyl phthalate	100	88.6		ug/L		89	69 - 130
Dibenzofuran	100	73.6		ug/L		74	58 - 130
Benzo[g,h,i]perylene	100	81.7		ug/L		82	54 - 130
Indeno[1,2,3-cd]pyrene	100	89.6		ug/L		90	47 - 130
Benzo[b]fluoranthene	100	79.7		ug/L		80	51 - 130
Fluoranthene	100	81.4		ug/L		81	56 - 130
Benzo[k]fluoranthene	100	77.6		ug/L		78	53 - 130
Acenaphthylene	100	76.3		ug/L		76	60 - 130
Chrysene	100	79.8		ug/L		80	59 - 130
Benzo[a]pyrene	100	84.9		ug/L		85	61 - 130
2,4-Dinitrophenol	100	79.7		ug/L		80	20 - 165
4,6-Dinitro-2-methylphenol	100	80.1		ug/L		80	45 - 134
Dibenz(a,h)anthracene	100	81.6		ug/L		82	55 - 130
1,3-Dichlorobenzene	100	54.5		ug/L		55	41 - 130
Benzo[a]anthracene	100	81.6		ug/L		82	58 - 130
4-Chloro-3-methylphenol	100	79.0		ug/L		79	60 - 130
2,6-Dinitrotoluene	100	77.2		ug/L		77	65 - 130
N-Nitrosodi-n-propylamine	100	90.4		ug/L		90	64 - 130
N-Nitrosodimethylamine	100	70.5		ug/L		71	54 - 130
4-Chlorophenyl phenyl ether	100	80.8		ug/L		81	57 - 130
Hexachlorocyclopentadiene	100	36.3		ug/L		36	10 - 130
Isophorone	100	75.0		ug/L		75	59 - 130
Acenaphthene	100	73.6		ug/L		74	55 - 130
Diethyl phthalate	100	89.5		ug/L		89	70 - 130
Di-n-butyl phthalate	100	90.7		ug/L		91	66 - 130
Phenanthrene	100	79.1		ug/L		79	62 - 130
Butyl benzyl phthalate	100	93.1		ug/L		93	66 - 130
N-Nitrosodiphenylamine	100	88.3		ug/L		88	68 - 130

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-221436/13-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222309 — **Prep Batch: 221436**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluorene	100	76.6		ug/L		77	61 - 130
Hexachlorobutadiene	100	62.4		ug/L		62	36 - 130
Pentachlorophenol	100	70.4		ug/L		70	42 - 138
2,4,6-Trichlorophenol	100	69.9		ug/L		70	57 - 130
2-Nitroaniline	100	83.1		ug/L		83	60 - 130
2-Nitrophenol	100	67.5		ug/L		68	54 - 130
Naphthalene	100	68.1		ug/L		68	50 - 130
2-Methylnaphthalene	100	69.1		ug/L		69	52 - 130
2-Chloronaphthalene	100	68.3		ug/L		68	53 - 130
3,3'-Dichlorobenzidine	100	63.6		ug/L		64	27 - 130
2-Methylphenol	100	69.8		ug/L		70	55 - 130
1,2-Dichlorobenzene	100	57.0		ug/L		57	43 - 130
2-Chlorophenol	100	67.3		ug/L		67	57 - 130
2,4,5-Trichlorophenol	100	74.4		ug/L		74	61 - 130
Acetophenone	100	71.7		ug/L		72	54 - 130
Nitrobenzene	100	70.3		ug/L		70	56 - 130
3-Nitroaniline	100	76.0		ug/L		76	54 - 130
3 & 4 Methylphenol	100	72.7		ug/L		73	35 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*71*		*38 - 130*
2-Fluorophenol	*65*		*25 - 130*
Nitrobenzene-d5	*74*		*39 - 130*
Phenol-d5	*70*		*25 - 130*
Terphenyl-d14	*75*		*10 - 143*
2,4,6-Tribromophenol	*83*		*31 - 141*

Lab Sample ID: LCS 680-221436/20-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222309 — **Prep Batch: 221436**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,4,6-Tetrachlorophenol	100	93.5		ug/L		93	64 - 130
N-Nitrosodi-n-butylamine	100	92.6		ug/L		93	40 - 130
1,2,4,5-Tetrachlorobenzene	100	83.5		ug/L		83	51 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*78*		*38 - 130*
2-Fluorophenol	*69*		*25 - 130*
Nitrobenzene-d5	*78*		*39 - 130*
Phenol-d5	*77*		*25 - 130*
Terphenyl-d14	*86*		*10 - 143*
2,4,6-Tribromophenol	*91*		*31 - 141*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-221436/14-A
Matrix: Water
Analysis Batch: 222309

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 221436

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Nitroaniline	100	81.9		ug/L		82	54 - 130	3	50
4-Nitrophenol	100	75.2		ug/L		75	38 - 130	4	50
Benzyl alcohol	100	75.5		ug/L		75	53 - 130	2	50
4-Bromophenyl phenyl ether	100	91.5		ug/L		91	61 - 130	4	50
2,4-Dimethylphenol	100	59.6		ug/L		60	40 - 130	1	50
1,4-Dichlorobenzene	100	59.2		ug/L		59	43 - 130	6	50
4-Chloroaniline	100	64.6		ug/L		65	42 - 130	1	50
bis (2-chloroisopropyl) ether	100	85.3		ug/L		85	55 - 130	3	50
Phenol	100	67.5		ug/L		67	29 - 130	3	50
Pyridine	100	44.5	J	ug/L		45	10 - 130	6	50
Bis(2-chloroethyl)ether	100	82.9		ug/L		83	56 - 130	3	50
Bis(2-chloroethoxy)methane	100	89.0		ug/L		89	64 - 130	1	50
Bis(2-ethylhexyl) phthalate	100	93.6		ug/L		94	62 - 130	3	50
Di-n-octyl phthalate	100	102		ug/L		102	64 - 130	1	50
Hexachlorobenzene	100	81.4		ug/L		81	52 - 130	2	50
Anthracene	100	80.6		ug/L		81	61 - 130	6	50
1,2,4-Trichlorobenzene	100	61.7		ug/L		62	42 - 130	2	50
2,4-Dichlorophenol	100	72.2		ug/L		72	54 - 130	0	50
2,4-Dinitrotoluene	100	83.1		ug/L		83	63 - 130	3	50
1,4-Dioxane	100	48.9		ug/L		49	35 - 130	11	50
Pyrene	100	77.4		ug/L		77	60 - 130	2	50
Dimethyl phthalate	100	88.5		ug/L		88	69 - 130	0	50
Dibenzofuran	100	73.1		ug/L		73	58 - 130	1	50
Benzo[g,h,i]perylene	100	87.4		ug/L		87	54 - 130	7	50
Indeno[1,2,3-cd]pyrene	100	94.4		ug/L		94	47 - 130	5	50
Benzo[b]fluoranthene	100	76.7		ug/L		77	51 - 130	4	50
Fluoranthene	100	83.2		ug/L		83	56 - 130	2	50
Benzo[k]fluoranthene	100	82.6		ug/L		83	53 - 130	6	50
Acenaphthylene	100	78.0		ug/L		78	60 - 130	2	50
Chrysene	100	79.5		ug/L		80	59 - 130	0	50
Benzo[a]pyrene	100	86.5		ug/L		86	61 - 130	2	50
2,4-Dinitrophenol	100	82.2		ug/L		82	20 - 165	3	50
4,6-Dinitro-2-methylphenol	100	81.9		ug/L		82	45 - 134	2	50
Dibenz(a,h)anthracene	100	86.1		ug/L		86	55 - 130	5	50
1,3-Dichlorobenzene	100	58.1		ug/L		58	41 - 130	6	50
Benzo[a]anthracene	100	83.9		ug/L		84	58 - 130	3	50
4-Chloro-3-methylphenol	100	78.1		ug/L		78	60 - 130	1	50
2,6-Dinitrotoluene	100	77.7		ug/L		78	65 - 130	1	50
N-Nitrosodi-n-propylamine	100	92.7		ug/L		93	64 - 130	3	50
N-Nitrosodimethylamine	100	75.6		ug/L		76	54 - 130	7	50
4-Chlorophenyl phenyl ether	100	80.7		ug/L		81	57 - 130	0	50
Hexachlorocyclopentadiene	100	37.1		ug/L		37	10 - 130	2	50
Isophorone	100	76.5		ug/L		76	59 - 130	2	50
Acenaphthene	100	74.1		ug/L		74	55 - 130	1	50
Diethyl phthalate	100	89.9		ug/L		90	70 - 130	1	50
Di-n-butyl phthalate	100	92.9		ug/L		93	66 - 130	2	50
Phenanthrene	100	81.5		ug/L		81	62 - 130	3	50
Butyl benzyl phthalate	100	93.8		ug/L		94	66 - 130	1	50
N-Nitrosodiphenylamine	100	89.7		ug/L		90	68 - 130	2	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-221436/14-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222309 — **Prep Batch: 221436**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluorene	100	77.0		ug/L		77	61 - 130	0	50
Hexachlorobutadiene	100	65.1		ug/L		65	36 - 130	4	50
Pentachlorophenol	100	75.7		ug/L		76	42 - 138	7	50
2,4,6-Trichlorophenol	100	71.7		ug/L		72	57 - 130	3	50
2-Nitroaniline	100	85.2		ug/L		85	60 - 130	3	50
2-Nitrophenol	100	70.0		ug/L		70	54 - 130	4	50
Naphthalene	100	69.0		ug/L		69	50 - 130	1	50
2-Methylnaphthalene	100	70.5		ug/L		70	52 - 130	2	50
2-Chloronaphthalene	100	70.7		ug/L		71	53 - 130	3	50
3,3'-Dichlorobenzidine	100	63.3		ug/L		63	27 - 130	0	50
2-Methylphenol	100	72.6		ug/L		73	55 - 130	4	50
1,2-Dichlorobenzene	100	59.7		ug/L		60	43 - 130	5	50
2-Chlorophenol	100	68.6		ug/L		69	57 - 130	2	50
2,4,5-Trichlorophenol	100	76.1		ug/L		76	61 - 130	2	50
Acetophenone	100	74.4		ug/L		74	54 - 130	4	50
Nitrobenzene	100	72.7		ug/L		73	56 - 130	3	50
3-Nitroaniline	100	76.6		ug/L		77	54 - 130	1	50
3 & 4 Methylphenol	100	75.5		ug/L		75	35 - 130	4	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*38 - 130*
2-Fluorophenol	*69*		*25 - 130*
Nitrobenzene-d5	*75*		*39 - 130*
Phenol-d5	*71*		*25 - 130*
Terphenyl-d14	*78*		*10 - 143*
2,4,6-Tribromophenol	*85*		*31 - 141*

Lab Sample ID: LCSD 680-221436/21-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222309 — **Prep Batch: 221436**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,3,4,6-Tetrachlorophenol	100	91.7		ug/L		92	64 - 130	2	50
N-Nitrosodi-n-butylamine	100	96.9		ug/L		97	40 - 130	4	50
1,2,4,5-Tetrachlorobenzene	100	78.0		ug/L		78	51 - 130	7	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*76*		*38 - 130*
2-Fluorophenol	*71*		*25 - 130*
Nitrobenzene-d5	*85*		*39 - 130*
Phenol-d5	*76*		*25 - 130*
Terphenyl-d14	*81*		*10 - 143*
2,4,6-Tribromophenol	*91*		*31 - 141*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-221524/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222183 — **Prep Batch: 221524**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<5.3		20	5.3	ug/L		11/21/11 13:49	11/29/11 19:03	1
Arsenic	<4.6		20	4.6	ug/L		11/21/11 13:49	11/29/11 19:03	1
Barium	<2.3		10	2.3	ug/L		11/21/11 13:49	11/29/11 19:03	1
Beryllium	<0.20		4.0	0.20	ug/L		11/21/11 13:49	11/29/11 19:03	1
Cadmium	<2.0		5.0	2.0	ug/L		11/21/11 13:49	11/29/11 19:03	1
Chromium	2.30	J	10	1.2	ug/L		11/21/11 13:49	11/29/11 19:03	1
Cobalt	<0.95		10	0.95	ug/L		11/21/11 13:49	11/29/11 19:03	1
Copper	<1.9		20	1.9	ug/L		11/21/11 13:49	11/29/11 19:03	1
Lead	<4.0		10	4.0	ug/L		11/21/11 13:49	11/29/11 19:03	1
Nickel	<2.3		40	2.3	ug/L		11/21/11 13:49	11/29/11 19:03	1
Selenium	<6.4		20	6.4	ug/L		11/21/11 13:49	11/29/11 19:03	1
Silver	<0.89		10	0.89	ug/L		11/21/11 13:49	11/29/11 19:03	1
Thallium	<8.8		25	8.8	ug/L		11/21/11 13:49	11/29/11 19:03	1
Tin	<5.1		50	5.1	ug/L		11/21/11 13:49	11/29/11 19:03	1
Vanadium	<2.4		10	2.4	ug/L		11/21/11 13:49	11/29/11 19:03	1
Zinc	<8.7		20	8.7	ug/L		11/21/11 13:49	11/29/11 19:03	1

Lab Sample ID: LCS 680-221524/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222183 — **Prep Batch: 221524**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	500	510		ug/L		102	75 - 125
Arsenic	2000	2090		ug/L		105	75 - 125
Barium	2000	2180		ug/L		109	75 - 125
Beryllium	50.0	52.7		ug/L		105	75 - 125
Cadmium	50.0	53.2		ug/L		106	75 - 125
Chromium	200	217		ug/L		109	75 - 125
Cobalt	500	530		ug/L		106	75 - 125
Copper	250	266		ug/L		107	75 - 125
Lead	500	535		ug/L		107	75 - 125
Nickel	500	524		ug/L		105	75 - 125
Selenium	2000	2110		ug/L		105	75 - 125
Silver	50.0	53.4		ug/L		107	75 - 125
Thallium	2000	2200		ug/L		110	75 - 125
Tin	1000	1070		ug/L		107	75 - 125
Vanadium	500	534		ug/L		107	75 - 125
Zinc	500	533		ug/L		107	75 - 125

Lab Sample ID: 680-74506-14 MS — **Client Sample ID: ABLMW05F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222183 — **Prep Batch: 221524**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<5.3		500	520		ug/L		104	75 - 125
Arsenic	<4.6		2000	2120		ug/L		106	75 - 125
Barium	10		2000	2210		ug/L		110	75 - 125
Beryllium	<0.20		50.0	53.4		ug/L		107	75 - 125
Cadmium	<2.0		50.0	52.7		ug/L		105	75 - 125
Chromium	1.9	J B	200	216		ug/L		107	75 - 125

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 680-74506-14 MS — **Client Sample ID: ABLMW05F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222183 — **Prep Batch: 221524**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	72		500	596		ug/L		105	75 - 125
Copper	<1.9		250	269		ug/L		108	75 - 125
Lead	<4.0		500	528		ug/L		106	75 - 125
Nickel	<2.3		500	520		ug/L		104	75 - 125
Selenium	<6.4		2000	2120		ug/L		106	75 - 125
Silver	<0.89		50.0	53.6		ug/L		107	75 - 125
Thallium	<8.8		2000	2180		ug/L		109	75 - 125
Tin	<5.1		1000	1080		ug/L		108	75 - 125
Vanadium	<2.4		500	538		ug/L		108	75 - 125
Zinc	<8.7		500	532		ug/L		106	75 - 125

Lab Sample ID: 680-74506-14 MSD — **Client Sample ID: ABLMW05F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222183 — **Prep Batch: 221524**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<5.3		500	519		ug/L		104	75 - 125	0	20
Arsenic	<4.6		2000	2110		ug/L		106	75 - 125	0	20
Barium	10		2000	2190		ug/L		109	75 - 125	1	20
Beryllium	<0.20		50.0	53.0		ug/L		106	75 - 125	1	20
Cadmium	<2.0		50.0	52.5		ug/L		105	75 - 125	1	20
Chromium	1.9	J B	200	215		ug/L		107	75 - 125	0	20
Cobalt	72		500	594		ug/L		105	75 - 125	0	20
Copper	<1.9		250	266		ug/L		107	75 - 125	1	20
Lead	<4.0		500	525		ug/L		105	75 - 125	1	20
Nickel	<2.3		500	518		ug/L		104	75 - 125	0	20
Selenium	<6.4		2000	2090		ug/L		104	75 - 125	1	20
Silver	<0.89		50.0	53.6		ug/L		107	75 - 125	0	20
Thallium	<8.8		2000	2180		ug/L		109	75 - 125	0	20
Tin	<5.1		1000	1080		ug/L		108	75 - 125	0	20
Vanadium	<2.4		500	534		ug/L		107	75 - 125	1	20
Zinc	<8.7		500	531		ug/L		106	75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 680-221760/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222144 — **Prep Batch: 221760**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.091		0.20	0.091	ug/L		11/23/11 12:18	11/30/11 09:29	1

Lab Sample ID: LCS 680-221760/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222144 — **Prep Batch: 221760**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.67		ug/L		107	80 - 120

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-21889/18 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:18	1

Lab Sample ID: MB 180-21889/34 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 12:42	1

Lab Sample ID: MB 180-21889/66 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 13:30	1

Lab Sample ID: LCS 180-21889/16 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.0970		mg/L		97	82 - 132

Lab Sample ID: LCS 180-21889/32 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.0980		mg/L		98	82 - 132

Lab Sample ID: LCS 180-21889/64 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.100		mg/L		100	82 - 132

Lab Sample ID: LCSD 180-21889/17 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.0990		mg/L		99	82 - 132	2	20

Lab Sample ID: LCSD 180-21889/33 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.0990		mg/L		99	82 - 132	1	20

Method: 1677 - Cyanide, Available (Flow Injection) (Continued)

Lab Sample ID: LCSD 180-21889/65 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.101		mg/L		101	82 - 132	1	20

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-221722/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			11/22/11 11:10	1

Lab Sample ID: LCS 680-221722/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221722

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.6		mg/L		98	80 - 120

Lab Sample ID: 680-74506-13 DU — **Client Sample ID: ABLMW04D002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221722

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	0.62	J	0.853	J	mg/L		31	25

Lab Sample ID: MB 680-221889/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			11/24/11 05:10	1

Lab Sample ID: LCS 680-221889/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	18.7		mg/L		93	80 - 120

Lab Sample ID: 680-74506-14 MS — **Client Sample ID: ABLMW05F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221889

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.1		20.0	22.2		mg/L		105	80 - 120

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 680-74506-14 MSD — **Client Sample ID: ABLMW05F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221889

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	1.1		20.0	21.8		mg/L		103	80 - 120	2	25

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 680-221597/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221597

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.050		0.20	0.050	mg/L			11/21/11 13:12	1

Lab Sample ID: LCS 680-221597/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221597

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			5.00	4.66		mg/L		93	85 - 115		

Lab Sample ID: LCSD 680-221597/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221597

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride			5.00	4.72		mg/L		94	85 - 115	1	30

Lab Sample ID: 680-74506-14 MS — **Client Sample ID: ABLMW05F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221597

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	0.18	J	1.00	1.13		mg/L		95	85 - 115		

Lab Sample ID: 680-74506-14 MSD — **Client Sample ID: ABLMW05F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221597

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.18	J	1.00	1.14		mg/L		96	85 - 115	1	30

Lab Sample ID: 680-74506-5 DU — **Client Sample ID: ABLPZ18F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221597

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	27			27.0		mg/L				0	30

Lab Chronicle

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Client Sample ID: ABLPZ15F002 — Lab Sample ID: 680-74506-1

Date Collected: 11/15/11 11:45 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:27	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		10	221597	11/21/11 18:30	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 15:57	JR	TAL SAV

Client Sample ID: ABLPZ16F002 — Lab Sample ID: 680-74506-2

Date Collected: 11/15/11 11:25 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:29	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221597	11/21/11 13:27	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 16:14	JR	TAL SAV

Client Sample ID: ABLPZ17F002 — Lab Sample ID: 680-74506-3

Date Collected: 11/15/11 14:20 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:44	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		10	221597	11/21/11 18:33	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 16:32	JR	TAL SAV

Client Sample ID: ABLPZ17DF002 — Lab Sample ID: 680-74506-4

Date Collected: 11/15/11 14:40 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:45	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		10	221597	11/21/11 18:36	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 16:49	JR	TAL SAV

Client Sample ID: ABLPZ18F002 — Lab Sample ID: 680-74506-5

Date Collected: 11/16/11 08:40 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 13:33	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		10	221597	11/21/11 18:39	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 17:09	JR	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Client Sample ID: ABLPZ19F002 — Lab Sample ID: 680-74506-6

Date Collected: 11/15/11 16:30 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 F C		10	221597	11/21/11 18:45	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 17:26	JR	TAL SAV

Client Sample ID: Trip Blank — Lab Sample ID: 680-74506-8

Date Collected: 11/15/11 08:00 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	222046	11/27/11 16:47	RB	TAL SAV

Client Sample ID: ABLMW01F002 — Lab Sample ID: 680-74506-9

Date Collected: 11/14/11 14:30 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:21	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221597	11/21/11 13:57	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 17:44	JR	TAL SAV

Client Sample ID: ABLMW02F002 — Lab Sample ID: 680-74506-10

Date Collected: 11/15/11 09:15 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:47	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221597	11/21/11 14:04	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 18:33	JR	TAL SAV

Client Sample ID: ABLMW03F002 — Lab Sample ID: 680-74506-11

Date Collected: 11/15/11 11:35 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:48	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221597	11/21/11 14:07	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 18:50	JR	TAL SAV

Client Sample ID: ABLMW04F002 — Lab Sample ID: 680-74506-12

Date Collected: 11/15/11 14:20 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:50	PJ	TAL PIT

Lab Chronicle

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Client Sample ID: ABLMW04F002 — Lab Sample ID: 680-74506-12

Date Collected: 11/15/11 14:20 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 F C		1	221597	11/21/11 14:10	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 19:06	JR	TAL SAV

Client Sample ID: ABLMW04D002 — Lab Sample ID: 680-74506-13

Date Collected: 11/15/11 14:20 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:51	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221597	11/21/11 14:13	JAL	TAL SAV
Total/NA	Analysis	9060		1	221722	11/22/11 19:23	JR	TAL SAV

Client Sample ID: ABLMW05F002 — Lab Sample ID: 680-74506-14

Date Collected: 11/15/11 18:06 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	221988	11/28/11 13:14	RB	TAL SAV
Total/NA	Prep	3520C			221436	11/19/11 15:31	RBS	TAL SAV
Total/NA	Analysis	8270C		1	222309	12/01/11 06:59	CRH	TAL SAV
Total/NA	Prep	7470A			221760	11/23/11 12:18	JKL	TAL SAV
Total/NA	Analysis	7470A		1	222144	11/29/11 19:36	CE	TAL SAV
Total/NA	Prep	3010A			221524	11/21/11 13:49	RAM	TAL SAV
Total/NA	Analysis	6010C		1	222183	11/29/11 19:13	BCB	TAL SAV
Total/NA	Analysis	1677		1	21889	11/28/11 12:53	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221597	11/21/11 14:16	JAL	TAL SAV
Total/NA	Analysis	9060		1	221889	11/24/11 05:45	JR	TAL SAV

Client Sample ID: ABLMW06F002 — Lab Sample ID: 680-74506-15

Date Collected: 11/14/11 11:00 — **Matrix: Water**
Date Received: 11/17/11 09:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 12:23	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221597	11/21/11 14:26	JAL	TAL SAV
Total/NA	Analysis	9060		1	221889	11/24/11 06:32	JR	TAL SAV

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 034559

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location: TESTAMERICA-PITT FOR AMMA CYAN

Phone:
Fax:

PROJECT REFERENCE: ABL CAS GW	PROJECT NO.	PROJECT LOCATION (STATE): NC	PAGE 1 OF 2
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER: 137-XX	CONTRACT NO.	STANDARD REPORT DELIVERY ✓
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814939605	CLIENT FAX: 2814939607	DATE DUE
CLIENT NAME: ENVIRONEERING	CLIENT E-MAIL: mworden@environeering.com		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS: 810 HIGHWAY 6 SOUTH STE 200 HOUSTON TX 77079			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 2

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

REQUIRED ANALYSIS / NUMBER OF CONTAINERS SUBMITTED

	1677-AMMONIA CYANIDE	Fluoride	TOC	TRIP BLANK VOAs							
Matrix	—		H2O								

PRESERVATIVE

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	1677-AMMONIA CYANIDE	Fluoride	TOC	TRIP BLANK VOAs	REMARKS
11/15/11	1145	ABLPZ15F002	G	X				1	1	1	—	ASCORBIC ACID IN AMMONIA
11/15/11	1125	ABLPZ16F002	G	X				1	1	1	—	"
11/15/11	1420	ABLPZ17F002	G	X				1	1	1	—	"
11/15/11	1440	ABLPZ17DF002	G	X				1	1	1	—	"
11/16/11	0840	ABLPZ18F002	G	X				1	1	1	—	"
11/15/11	1630	ABLPZ19F002	G	X				—	1	1	—	"
11/15/11	0800	TRIP BLANK	G	X				—	—	—	2	"

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	11/16/11	1730						

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
FEDEX	11/16/11	1730						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	11/17/11	0822	YES ○ NO ○		680-74506	3.1/2.9°C

TAL 8240-680 (1008)

Serial Number 037821

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
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Alternate Laboratory Name/Location: TEST AMERICA PERT FOR AVAIL CN

Phone:
Fax:

PROJECT REFERENCE: ABL CMS GW	PROJECT NO.	PROJECT LOCATION (STATE): NC	PAGE 2 OF 2
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER: 137-XX	CONTRACT NO.	STANDARD REPORT DELIVERY ☒
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 7814939005	CLIENT FAX: 7814939007	DATE DUE
CLIENT NAME: ENVIRONEERING	CLIENT E-MAIL: mworden@environeeringinc.com		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 2

REQUIRED ANALYSIS

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	1677 AVAIL CYANIDE	FLUORIDE	TOC	APPIX VOCS	APPIX SVOCS	APPIX MONOSYL HC				REMARKS
								NaOH	–	HCL	HCL	HCL	HCL				
								NUMBER OF CONTAINERS SUBMITTED									
11/14/11	1430	ABL MW01 F002	G					1	1	1	–	–	–				ASCORBIC ACID ON AVAIL CN
11/15/11	0915	ABL MW02 F002	G					1	1	1	–	–	–				"
11/15/11	1135	ABL MW03 F002	G					1	1	1	–	–	–				"
11/15/11	1420	ABL MW04 F002	G					1	1	1	–	–	–				"
11/15/11	1420	ABL MW04 D002	G					1	1	1	–	–	–				" ; Dup
11/15/11	1806	ABL MW05 F002	G					1	1	1	3	2	1				"
11/14/11	1100	ABL MW06 F002	G					1	1	1	–	–	–				"
																	NO REACTIONS

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	11/16/11	1730						
RECEIVED BY: (SIGNATURE) FEDEX	DATE 11/16/11	TIME 1730	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	11/17/11	0422	YES ○ NO ○		680-74506	3.1 | 2.9°C

Certification Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC Secondary AB	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	Arkansas	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688

Certification Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74506-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	Virginia	NELAC	3	460189
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-74651-2
Client Project/Site: ABL CMS GW
Revision: 1

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
12/6/2011 1:41:55 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74651-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-74651-3	ABLPZ19F002	Water	11/21/11 12:00	11/23/11 09:52

Method Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74651-2

Method	Method Description	Protocol	Laboratory
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74651-2

Client Sample ID: ABLPZ19F002

Lab Sample ID: 680-74651-3

Date Collected: 11/21/11 12:00
Date Received: 11/23/11 09:52

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 15:25	1

QC Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74651-2

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-21889/132 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 15:14	1

Lab Sample ID: LCS 180-21889/130 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Available cyanide			0.100	0.0990		mg/L		99	82 - 132		

Lab Sample ID: LCSD 180-21889/131 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide			0.100	0.101		mg/L		101	82 - 132	2	20

Lab Chronicle

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74651-2

Client Sample ID: ABLPZ19F002

Lab Sample ID: 680-74651-3

Date Collected: 11/21/11 12:00

Matrix: Water

Date Received: 11/23/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 15:25	PJ	TAL PIT

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Serial Number 034094

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location: TESTAMERICA - PERT FOR AMMN CN

Phone:
Fax:

PROJECT REFERENCE: ABC CMS GW	PROJECT NO.	PROJECT LOCATION (STATE): NC	PAGE 1 OF 1
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER: 137-165	CONTRACT NO.	STANDARD REPORT DELIVERY ✓
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814939005	CLIENT FAX: 2814939007	DATE DUE
CLIENT NAME: ENVIRONEERING	CLIENT E-MAIL: mworden@environeering.com		EXPEDITED REPORT DELIVERY (SURCHARGE)
CLIENT ADDRESS: 810 HWY 6 South, STE 200 HOUSTON TX 77079			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

MATRIX TYPE — COMPOSITE (C) OR GRAB (G) INDICATE: AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

REQUIRED ANALYSIS: 1677-AMMN CYANIDE

PRESERVATIVE: None

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
11/21/11	1200	ABCPZ19F002	G	✓				1	POOR SAMPLE RECOVERY
									NO SULFIDE PRN
									ADDED ASCORBIC ACID

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	11/22/11	1800	[signature]					
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
FEDEX	11/22/11	1800	[signature]					

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth A Daughtry	11/23/11	0952	YES ○ NO ○		G80-24651	Temp 0.6°C

TAL 8240-680 (1008)

Certification Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74651-2

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC Secondary AB	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	Arkansas	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688

Certification Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-74651-2

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	Virginia	NELAC	3	460189
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-74579-1
Client Project/Site: OBL CMS GW

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
11/29/2011 5:01:21 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

Review your project results through TotalAccess

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74579-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-74579-1	OBLMW02F001	Water	11/18/11 12:00	11/19/11 09:45
680-74579-2	OBLMW04F001	Water	11/17/11 11:40	11/19/11 09:45
680-74579-3	OBLMW04D001	Water	11/17/11 12:50	11/19/11 09:45
680-74579-4	OBLMW06F001	Water	11/17/11 16:14	11/19/11 09:45

Method Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74579-1

Method	Method Description	Protocol	Laboratory
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV
SM 4500 F C	Fluoride	SM	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Definitions/Glossary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74579-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74579-1

Client Sample ID: OBLMW02F001

Lab Sample ID: 680-74579-1

Date Collected: 11/18/11 12:00
Date Received: 11/19/11 09:45

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.078		0.0020	0.00030	mg/L			11/28/11 14:47	1
Total Organic Carbon	2.8		1.0	0.50	mg/L			11/24/11 06:49	1
Fluoride	0.060	J	0.20	0.050	mg/L			11/23/11 11:27	1

Client Sample ID: OBLMW04F001

Lab Sample ID: 680-74579-2

Date Collected: 11/17/11 11:40
Date Received: 11/19/11 09:45

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.016		0.0020	0.00030	mg/L			11/28/11 14:08	1
Total Organic Carbon	0.93	J	1.0	0.50	mg/L			11/24/11 07:05	1
Fluoride	1.2		0.20	0.050	mg/L			11/23/11 11:30	1

Client Sample ID: OBLMW04D001

Lab Sample ID: 680-74579-3

Date Collected: 11/17/11 12:50
Date Received: 11/19/11 09:45

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.016		0.0020	0.00030	mg/L			11/28/11 14:10	1
Total Organic Carbon	0.88	J	1.0	0.50	mg/L			11/24/11 07:22	1
Fluoride	1.1		0.20	0.050	mg/L			11/23/11 11:33	1

Client Sample ID: OBLMW06F001

Lab Sample ID: 680-74579-4

Date Collected: 11/17/11 16:14
Date Received: 11/19/11 09:45

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 14:22	1
Total Organic Carbon	<0.50		1.0	0.50	mg/L			11/24/11 07:38	1
Fluoride	<0.050		0.20	0.050	mg/L			11/23/11 11:49	1

QC Sample Results

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74579-1

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-21889/115 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 14:44	1

Lab Sample ID: MB 180-21889/81 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 13:53	1

Lab Sample ID: MB 180-21889/99 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 14:20	1

Lab Sample ID: LCS 180-21889/113 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.100		mg/L		100	82 - 132

Lab Sample ID: LCS 180-21889/80 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.101		mg/L		101	82 - 132

Lab Sample ID: LCS 180-21889/97 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.101		mg/L		101	82 - 132

Lab Sample ID: LCSD 180-21889/114 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.102		mg/L		102	82 - 132	2	20

Lab Sample ID: LCSD 180-21889/98 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.102		mg/L		102	82 - 132	1	20

QC Sample Results

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74579-1

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-221889/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			11/24/11 05:10	1

Lab Sample ID: LCS 680-221889/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	18.7		mg/L		93	80 - 120

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 680-221786/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221786

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.050		0.20	0.050	mg/L			11/23/11 11:06	1

Lab Sample ID: LCS 680-221786/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221786

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	5.00	4.76		mg/L		95	85 - 115

Lab Sample ID: LCSD 680-221786/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221786

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	5.00	4.68		mg/L		94	85 - 115	2	30

Lab Sample ID: 680-74579-3 DU — **Client Sample ID: OBLMW04D001**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 221786

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	1.1		1.08		mg/L		0	30

Lab Chronicle

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74579-1

Client Sample ID: OBLMW02F001 — Lab Sample ID: 680-74579-1

Date Collected: 11/18/11 12:00 — **Matrix: Water**
Date Received: 11/19/11 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 14:47	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221786	11/23/11 11:27	JAL	TAL SAV
Total/NA	Analysis	9060		1	221889	11/24/11 06:49	JR	TAL SAV

Client Sample ID: OBLMW04F001 — Lab Sample ID: 680-74579-2

Date Collected: 11/17/11 11:40 — **Matrix: Water**
Date Received: 11/19/11 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 14:08	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221786	11/23/11 11:30	JAL	TAL SAV
Total/NA	Analysis	9060		1	221889	11/24/11 07:05	JR	TAL SAV

Client Sample ID: OBLMW04D001 — Lab Sample ID: 680-74579-3

Date Collected: 11/17/11 12:50 — **Matrix: Water**
Date Received: 11/19/11 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 14:10	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221786	11/23/11 11:33	JAL	TAL SAV
Total/NA	Analysis	9060		1	221889	11/24/11 07:22	JR	TAL SAV

Client Sample ID: OBLMW06F001 — Lab Sample ID: 680-74579-4

Date Collected: 11/17/11 16:14 — **Matrix: Water**
Date Received: 11/19/11 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 14:22	PJ	TAL PIT
Total/NA	Analysis	SM 4500 F C		1	221786	11/23/11 11:49	JAL	TAL SAV
Total/NA	Analysis	9060		1	221889	11/24/11 07:38	JR	TAL SAV

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 035637

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location: TEST AMERICA - PGH FOR NVAC CN

Phone:
Fax:

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION (STATE)
OBL CMS GW	137-	NC

TAL (LAB) PROJECT MANAGER	P.O. NUMBER	CONTRACT NO.
S. HOFFMAN	137-XX	

CLIENT (SITE) PM	CLIENT PHONE	CLIENT FAX
M. WORDEN	2814939805	2814939807

CLIENT NAME	CLIENT E-MAIL
ENVIRONEERING	mworden@environeering.inc.com

CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079

COMPANY CONTRACTING THIS WORK (if applicable):

PAGE 1 OF 1

STANDARD REPORT DELIVERY ☒

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

REQUIRED ANALYSIS: 1677 - Acetic Chloride; Formaldehyde; TOC

PRESERVATIVE: NaOH; HCl; None

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	1677 - Acetic Chloride	Formaldehyde	TOC	REMARKS
11/18/11	1200	OBLMW02F001	C	X				1	1	1	ASCORBIC ACID IN AN. CN
11/17/11	1140	OBLMW04F001	C	X				1	1	1	"
11/17/11	1200	OBLMW04D001	G	X				1	1	1	"
11/17/11	1614	OBLMW06F001	G	X				1	1	1	"
											NO SULF RXN ON ANY

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	11/18/11	1600	[signature]					

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature]	11/18/11	1600	[signature]					

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	11/19/11	0945	YES ○ NO ○		630-74579	0.6°C

TA1.8240-680 (1008)

Certification Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74579-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC Secondary AB	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	Arkansas	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688

Certification Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74579-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	Virginia	NELAC	3	460189
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-74651-1
Client Project/Site: OBL CMS GW

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
12/7/2011 5:12:23 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74651-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-74651-1	OBLMW05F001	Water	11/21/11 15:25	11/23/11 09:52
680-74651-2	OBLMW03F001	Water	11/22/11 10:55	11/23/11 09:52

Method Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74651-1

Method	Method Description	Protocol	Laboratory
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV
SM 4500 F C	Fluoride	SM	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Definitions/Glossary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74651-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74651-1

Client Sample ID: OBLMW05F001

Lab Sample ID: 680-74651-1

Date Collected: 11/21/11 15:25
Date Received: 11/23/11 09:52

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 15:23	1
Total Organic Carbon	**0.84**	**J**	1.0	0.50	mg/L			12/02/11 10:55	1
Fluoride	**0.090**	**J**	0.20	0.050	mg/L			12/07/11 10:55	1

Client Sample ID: OBLMW03F001

Lab Sample ID: 680-74651-2

Date Collected: 11/22/11 10:55
Date Received: 11/23/11 09:52

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.018**		0.0020	0.00030	mg/L			11/28/11 15:26	1
Total Organic Carbon	**1.4**		1.0	0.50	mg/L			12/02/11 10:55	1
Fluoride	**0.050**	**J**	0.20	0.050	mg/L			12/07/11 10:58	1

QC Sample Results

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74651-1

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-21889/132 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			11/28/11 15:14	1

Lab Sample ID: LCS 180-21889/130 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.0990		mg/L		99	82 - 132

Lab Sample ID: LCSD 180-21889/131 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.101		mg/L		101	82 - 132	2	20

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-222603/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222603

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			12/02/11 10:55	1

Lab Sample ID: LCS 680-222603/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	20.6		mg/L		103	80 - 120

Lab Sample ID: 680-74651-1 MS — **Client Sample ID: OBLMW05F001**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222603

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	0.84	J	20.0	22.0		mg/L		106	80 - 120

Lab Sample ID: 680-74651-1 MSD — **Client Sample ID: OBLMW05F001**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222603

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	0.84	J	20.0	21.4		mg/L		103	80 - 120	3	25

QC Sample Results

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74651-1

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 680-222876/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222876

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.050		0.20	0.050	mg/L			12/07/11 10:37	1

Lab Sample ID: LCS 680-222876/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222876

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			5.00	4.68		mg/L		94	85 - 115		

Lab Sample ID: LCSD 680-222876/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222876

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride			5.00	4.68		mg/L		94	85 - 115	0	30

Lab Sample ID: 680-74651-2 DU — **Client Sample ID: OBLMW03F001**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222876

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	0.050	J		<0.050		mg/L				NC	30

Lab Chronicle

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74651-1

Client Sample ID: OBLMW05F001

Lab Sample ID: 680-74651-1

Date Collected: 11/21/11 15:25

Matrix: Water

Date Received: 11/23/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 15:23	PJ	TAL PIT
Total/NA	Analysis	9060		1	222603	12/02/11 10:55	JR	TAL SAV
Total/NA	Analysis	SM 4500 F C		1	222876	12/07/11 10:55	JAL	TAL SAV

Client Sample ID: OBLMW03F001

Lab Sample ID: 680-74651-2

Date Collected: 11/22/11 10:55

Matrix: Water

Date Received: 11/23/11 09:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	21889	11/28/11 15:26	PJ	TAL PIT
Total/NA	Analysis	9060		1	222603	12/02/11 10:55	JR	TAL SAV
Total/NA	Analysis	SM 4500 F C		1	222876	12/07/11 10:58	JAL	TAL SAV

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 034558

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location: TESTAMERICA-PITT FOR ANALYSIS ON

Phone:
Fax:

PROJECT REFERENCE: OBL CMS GW	PROJECT NO.	PROJECT LOCATION (STATE): NC	PAGE 1 OF 1
TAL (LAB) PROJECT MANAGER: B.S. HOFFMAN	P.O. NUMBER: 137-165	CONTRACT NO.	STANDARD REPORT DELIVERY ✓
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814939005	CLIENT FAX: 2814939007	DATE DUE
CLIENT NAME: ENVIRONEERING	CLIENT E-MAIL: mworden@environeeringinc.com		EXPEDITED REPORT DELIVERY (SURCHARGE)
CLIENT ADDRESS: 810 IH4 6 SOUTH STE 200 HOUSTON TX 77079			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

REQUIRED ANALYSIS

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	1670 - Nitrate Nitrite (NO3/NO2)	TOC	Chloride							REMARKS
								NaOH	HCl	— PRESERVATIVE							
1525	11/22/11	OBLMW05F001	G	✓				1	1	1							
1055	11/22/11	OBLMW03F001	G	✓				1	1	1							

NUMBER OF CONTAINERS SUBMITTED

NO RXN ON BOTH - ASCORBIC ACID ADDED

2

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	11/22/11	1800						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
FEDEX	11/22/11	1800						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth A Daughtry	11/23/11	0952	YES ○ NO ○		L80-74651	Temp 0.6°C

TAL 8240-680 (1008)

12/7/2011

Certification Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74651-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC Secondary AB	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	Arkansas	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688

Certification Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-74651-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	Virginia	NELAC	3	460189
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-74852-1
Client Project/Site: ABP CMS GW/137-165

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
12/15/2011 4:43:34 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

Review your project results through TotalAccess

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 680-74852-1

Laboratory: TestAmerica Savannah

Narrative

Job Narrative
680-74852-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

GC/MS Semi VOA
Method(s) 8270C: The laboratory control sample (LCS) for batch222618 exceeded control limits for the following analyte(s): Famphur. Famphur has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method(s) SM 3500 FE D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 222723 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 353.2: The following sample(s) was received with greater than 50% of holding time expired: ABPMW09D002 (680-74852-3), ABPMW09F002 (680-74852-2), ABPMW10F002 (680-74852-4), ABPMW16F002 (680-74852-5). As such, the laboratory had insufficient time remaining to perform the analysis within holding time.

No other analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Sample Summary

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-74852-1	ABPMW04F002	Water	12/01/11 13:25	12/02/11 09:36
680-74852-2	ABPMW09F002	Water	11/30/11 13:10	12/02/11 09:36
680-74852-3	ABPMW09D002	Water	11/30/11 13:30	12/02/11 09:36
680-74852-4	ABPMW10F002	Water	11/30/11 15:30	12/02/11 09:36
680-74852-5	ABPMW16F002	Water	11/30/11 10:30	12/02/11 09:36
680-74852-6	ABPF02F002	Water	12/01/11 09:40	12/02/11 09:36
680-74852-7	ABPB016MW2F002	Water	12/01/11 12:20	12/02/11 09:36
680-74852-8	Trip Blank	Water	11/03/11 00:00	12/02/11 09:36

Method Summary

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
7470A	Mercury (CVAA)	SW846	TAL SAV
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
410.4	COD	MCAWW	TAL SAV
SM 2320B	Alkalinity	SM	TAL SAV
SM 3500 FE D	Iron, Ferrous	SM	TAL SAV
SM 4500 S2 F	Sulfide, Total	SM	TAL SAV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
H	Sample was prepped or analyzed beyond the specified holding time

GC/MS Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits
F	MS or MSD exceeds the control limits
E	Result exceeded calibration range.
F	RPD of the MS and MSD exceeds the control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: ABPMW04F002

Date Collected: 12/01/11 13:25
Date Received: 12/02/11 09:36

Lab Sample ID: 680-74852-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.11		1.0	0.11	ug/L			12/10/11 01:14	1
Styrene	<0.11		1.0	0.11	ug/L			12/10/11 01:14	1
cis-1,3-Dichloropropene	<0.11		1.0	0.11	ug/L			12/10/11 01:14	1
trans-1,3-Dichloropropene	<0.21		1.0	0.21	ug/L			12/10/11 01:14	1
Acrolein	<7.4		20	7.4	ug/L			12/10/11 01:14	1
Allyl chloride	<0.20		1.0	0.20	ug/L			12/10/11 01:14	1
1,2-Dichloroethane	<0.10		1.0	0.10	ug/L			12/10/11 01:14	1
Propionitrile	<4.6		20	4.6	ug/L			12/10/11 01:14	1
Acrylonitrile	<7.2		20	7.2	ug/L			12/10/11 01:14	1
Vinyl acetate	<0.28		2.0	0.28	ug/L			12/10/11 01:14	1
4-Methyl-2-pentanone	<1.0		10	1.0	ug/L			12/10/11 01:14	1
Toluene	<0.33		1.0	0.33	ug/L			12/10/11 01:14	1
Chlorobenzene	<0.25		1.0	0.25	ug/L			12/10/11 01:14	1
trans-1,4-Dichloro-2-butene	<0.50		2.0	0.50	ug/L			12/10/11 01:14	1
Dibromochloromethane	<0.10		1.0	0.10	ug/L			12/10/11 01:14	1
Methacrylonitrile	<3.3		20	3.3	ug/L			12/10/11 01:14	1
Chloroprene	<0.30		1.0	0.30	ug/L			12/10/11 01:14	1
Tetrachloroethene	<0.15		1.0	0.15	ug/L			12/10/11 01:14	1
Xylenes, Total	<0.20		2.0	0.20	ug/L			12/10/11 01:14	1
trans-1,2-Dichloroethene	<0.20		1.0	0.20	ug/L			12/10/11 01:14	1
Carbon tetrachloride	<0.50		1.0	0.50	ug/L			12/10/11 01:14	1
2-Hexanone	<1.0		10	1.0	ug/L			12/10/11 01:14	1
1,1,1,2-Tetrachloroethane	<0.33		1.0	0.33	ug/L			12/10/11 01:14	1
Acetone	<5.0		25	5.0	ug/L			12/10/11 01:14	1
Chloroform	<0.14		1.0	0.14	ug/L			12/10/11 01:14	1
Benzene	<0.25		1.0	0.25	ug/L			12/10/11 01:14	1
1,1,1-Trichloroethane	<0.50		1.0	0.50	ug/L			12/10/11 01:14	1
Bromomethane	<0.80		1.0	0.80	ug/L			12/10/11 01:14	1
Chloromethane	<0.33		1.0	0.33	ug/L			12/10/11 01:14	1
Iodomethane	<1.0		5.0	1.0	ug/L			12/10/11 01:14	1
Dibromomethane	<0.20		1.0	0.20	ug/L			12/10/11 01:14	1
Chloroethane	<1.0		1.0	1.0	ug/L			12/10/11 01:14	1
Vinyl chloride	<0.18		1.0	0.18	ug/L			12/10/11 01:14	1
Acetonitrile	<10		40	10	ug/L			12/10/11 01:14	1
Methylene Chloride	<1.0		5.0	1.0	ug/L			12/10/11 01:14	1
Carbon disulfide	<0.60		2.0	0.60	ug/L			12/10/11 01:14	1
Bromoform	<0.50		1.0	0.50	ug/L			12/10/11 01:14	1
Bromodichloromethane	<0.25		1.0	0.25	ug/L			12/10/11 01:14	1
1,1-Dichloroethane	<0.25		1.0	0.25	ug/L			12/10/11 01:14	1
1,1-Dichloroethene	**1.1**		1.0	0.11	ug/L			12/10/11 01:14	1
Trichlorofluoromethane	<0.25		1.0	0.25	ug/L			12/10/11 01:14	1
Dichlorodifluoromethane	<0.25		1.0	0.25	ug/L			12/10/11 01:14	1
Pentachloroethane	<1.2		5.0	1.2	ug/L			12/10/11 01:14	1
Isobutanol	<11		40	11	ug/L			12/10/11 01:14	1
1,2-Dichloropropane	<0.13		1.0	0.13	ug/L			12/10/11 01:14	1
2-Butanone	<1.0		10	1.0	ug/L			12/10/11 01:14	1
1,1,2-Trichloroethane	<0.13		1.0	0.13	ug/L			12/10/11 01:14	1
Trichloroethene	**40**		1.0	0.13	ug/L			12/10/11 01:14	1
1,1,2,2-Tetrachloroethane	<0.18		1.0	0.18	ug/L			12/10/11 01:14	1
Methyl methacrylate	<0.48		1.0	0.48	ug/L			12/10/11 01:14	1

Client Sample ID: ABPMW04F002
Date Collected: 12/01/11 13:25
Date Received: 12/02/11 09:36

Lab Sample ID: 680-74852-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl methacrylate	<0.25		1.0	0.25	ug/L			12/10/11 01:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*102*		*70 - 130*		*12/10/11 01:14*	*1*
Dibromofluoromethane	*96*		*70 - 130*		*12/10/11 01:14*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/10/11 01:14*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	<4.9		49	4.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
4-Nitrophenol	<1.9		49	1.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
Benzyl alcohol	**2.5**	**J B**	9.9	1.1	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitrosopiperidine	<0.87		9.9	0.87	ug/L		12/05/11 14:53	12/12/11 21:55	1
4-Bromophenyl phenyl ether	<0.76		9.9	0.76	ug/L		12/05/11 14:53	12/12/11 21:55	1
2,4-Dimethylphenol	<3.9		9.9	3.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitrosomethylethylamine	<3.3		9.9	3.3	ug/L		12/05/11 14:53	12/12/11 21:55	1
1,4-Dichlorobenzene	<0.53		9.9	0.53	ug/L		12/05/11 14:53	12/12/11 21:55	1
4-Chloroaniline	<2.2		20	2.2	ug/L		12/05/11 14:53	12/12/11 21:55	1
p-Phenylene diamine	<9.9		2000	9.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
bis (2-chloroisopropyl) ether	<0.77		9.9	0.77	ug/L		12/05/11 14:53	12/12/11 21:55	1
Phenol	<0.82		9.9	0.82	ug/L		12/05/11 14:53	12/12/11 21:55	1
2-Picoline	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 21:55	1
Pyridine	<2.3		49	2.3	ug/L		12/05/11 14:53	12/12/11 21:55	1
Bis(2-chloroethyl)ether	<1.1		9.9	1.1	ug/L		12/05/11 14:53	12/12/11 21:55	1
Bis(2-chloroethoxy)methane	<0.93		9.9	0.93	ug/L		12/05/11 14:53	12/12/11 21:55	1
Bis(2-ethylhexyl) phthalate	<1.6		9.9	1.6	ug/L		12/05/11 14:53	12/12/11 21:55	1
Di-n-octyl phthalate	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 21:55	1
Hexachlorobenzene	<0.78		9.9	0.78	ug/L		12/05/11 14:53	12/12/11 21:55	1
3,3'-Dimethylbenzidine	<9.9		20	9.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
Anthracene	<0.68		9.9	0.68	ug/L		12/05/11 14:53	12/12/11 21:55	1
Isosafrole	<0.49		9.9	0.49	ug/L		12/05/11 14:53	12/12/11 21:55	1
1,2,4-Trichlorobenzene	<0.55		9.9	0.55	ug/L		12/05/11 14:53	12/12/11 21:55	1
2,4-Dichlorophenol	<1.1		9.9	1.1	ug/L		12/05/11 14:53	12/12/11 21:55	1
2,4-Dinitrotoluene	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 21:55	1
alpha,alpha-Dimethyl phenethylamine	<35		2000	35	ug/L		12/05/11 14:53	12/12/11 21:55	1
1,4-Dioxane	<3.4		9.9	3.4	ug/L		12/05/11 14:53	12/12/11 21:55	1
o,o',o''-Triethylphosphorothioate	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 21:55	1
Pyrene	<0.62		9.9	0.62	ug/L		12/05/11 14:53	12/12/11 21:55	1
1,4-Naphthoquinone	<0.61		9.9	0.61	ug/L		12/05/11 14:53	12/12/11 21:55	1
Dimethyl phthalate	<0.98		9.9	0.98	ug/L		12/05/11 14:53	12/12/11 21:55	1
Dibenzofuran	<0.78		9.9	0.78	ug/L		12/05/11 14:53	12/12/11 21:55	1
1-Naphthylamine	<1.1		9.9	1.1	ug/L		12/05/11 14:53	12/12/11 21:55	1
Aramite	<0.90		9.9	0.90	ug/L		12/05/11 14:53	12/12/11 21:55	1
Hexachloropropene	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 21:55	1
Benzo[g,h,i]perylene	<0.86		9.9	0.86	ug/L		12/05/11 14:53	12/12/11 21:55	1
Indeno[1,2,3-cd]pyrene	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 21:55	1
Benzo[b]fluoranthene	<2.6		9.9	2.6	ug/L		12/05/11 14:53	12/12/11 21:55	1
Fluoranthene	<0.73		9.9	0.73	ug/L		12/05/11 14:53	12/12/11 21:55	1
Benzo[k]fluoranthene	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 21:55	1
Acenaphthylene	<0.84		9.9	0.84	ug/L		12/05/11 14:53	12/12/11 21:55	1
Chrysene	<0.50		9.9	0.50	ug/L		12/05/11 14:53	12/12/11 21:55	1

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: ABPMW04F002
Date Collected: 12/01/11 13:25
Date Received: 12/02/11 09:36

Lab Sample ID: 680-74852-1
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diallate	<0.77		9.9	0.77	ug/L		12/05/11 14:53	12/12/11 21:55	1
Pronamide	<0.88		9.9	0.88	ug/L		12/05/11 14:53	12/12/11 21:55	1
Thionazin	<0.90		9.9	0.90	ug/L		12/05/11 14:53	12/12/11 21:55	1
Methyl parathion	<0.87		9.9	0.87	ug/L		12/05/11 14:53	12/12/11 21:55	1
Phorate	<0.86		9.9	0.86	ug/L		12/05/11 14:53	12/12/11 21:55	1
Disulfoton	<0.78		9.9	0.78	ug/L		12/05/11 14:53	12/12/11 21:55	1
Sulfotepp	<0.52		9.9	0.52	ug/L		12/05/11 14:53	12/12/11 21:55	1
Benzo[a]pyrene	<0.70		9.9	0.70	ug/L		12/05/11 14:53	12/12/11 21:55	1
2,4-Dinitrophenol	<9.9		49	9.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
Famphur	<1.1	*	9.9	1.1	ug/L		12/05/11 14:53	12/12/11 21:55	1
4,6-Dinitro-2-methylphenol	<9.9		49	9.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
Dibenz(a,h)anthracene	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 21:55	1
2-Acetylaminofluorene	<1.6		9.9	1.6	ug/L		12/05/11 14:53	12/12/11 21:55	1
1,3-Dichlorobenzene	<0.58		9.9	0.58	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitrosodiethylamine	<0.92		9.9	0.92	ug/L		12/05/11 14:53	12/12/11 21:55	1
Ethyl Parathion	<1.3		9.9	1.3	ug/L		12/05/11 14:53	12/12/11 21:55	1
3-Methylcholanthrene	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 21:55	1
Benzo[a]anthracene	<0.54		9.9	0.54	ug/L		12/05/11 14:53	12/12/11 21:55	1
4-Nitroquinoline-1-oxide	<9.9		20	9.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
7,12-Dimethylbenz(a)anthracene	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 21:55	1
2,3,4,6-Tetrachlorophenol	<0.71		9.9	0.71	ug/L		12/05/11 14:53	12/12/11 21:55	1
4-Chloro-3-methylphenol	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitrosomorpholine	<0.83		9.9	0.83	ug/L		12/05/11 14:53	12/12/11 21:55	1
p-Dimethylamino azobenzene	<0.78		9.9	0.78	ug/L		12/05/11 14:53	12/12/11 21:55	1
Dimethoate	<0.74		9.9	0.74	ug/L		12/05/11 14:53	12/12/11 21:55	1
2,6-Dinitrotoluene	<1.1		9.9	1.1	ug/L		12/05/11 14:53	12/12/11 21:55	1
Pentachlorobenzene	<0.51		9.9	0.51	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitrosodi-n-propylamine	<0.71		9.9	0.71	ug/L		12/05/11 14:53	12/12/11 21:55	1
Phenacetin	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 21:55	1
Ethyl methanesulfonate	<0.95		9.9	0.95	ug/L		12/05/11 14:53	12/12/11 21:55	1
Aniline	<2.1		20	2.1	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitrosodimethylamine	<2.8		9.9	2.8	ug/L		12/05/11 14:53	12/12/11 21:55	1
Methyl methanesulfonate	<0.59		9.9	0.59	ug/L		12/05/11 14:53	12/12/11 21:55	1
Hexachloroethane	<0.75		9.9	0.75	ug/L		12/05/11 14:53	12/12/11 21:55	1
4-Chlorophenyl phenyl ether	<0.83		9.9	0.83	ug/L		12/05/11 14:53	12/12/11 21:55	1
Hexachlorophene	<27		4900	27	ug/L		12/05/11 14:53	12/12/11 21:55	1
Hexachlorocyclopentadiene	<2.5		9.9	2.5	ug/L		12/05/11 14:53	12/12/11 21:55	1
Isophorone	<0.89		9.9	0.89	ug/L		12/05/11 14:53	12/12/11 21:55	1
Pentachloronitrobenzene	<0.77		9.9	0.77	ug/L		12/05/11 14:53	12/12/11 21:55	1
Acenaphthene	<0.75		9.9	0.75	ug/L		12/05/11 14:53	12/12/11 21:55	1
Diethyl phthalate	<0.87		9.9	0.87	ug/L		12/05/11 14:53	12/12/11 21:55	1
Di-n-butyl phthalate	<0.82		9.9	0.82	ug/L		12/05/11 14:53	12/12/11 21:55	1
Phenanthrene	<0.76		9.9	0.76	ug/L		12/05/11 14:53	12/12/11 21:55	1
Butyl benzyl phthalate	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitrosodiphenylamine	<0.91		9.9	0.91	ug/L		12/05/11 14:53	12/12/11 21:55	1
Fluorene	<0.95		9.9	0.95	ug/L		12/05/11 14:53	12/12/11 21:55	1
2,6-Dichlorophenol	<0.72		9.9	0.72	ug/L		12/05/11 14:53	12/12/11 21:55	1
Hexachlorobutadiene	<0.61		9.9	0.61	ug/L		12/05/11 14:53	12/12/11 21:55	1
Pentachlorophenol	<2.0		49	2.0	ug/L		12/05/11 14:53	12/12/11 21:55	1
2,4,6-Trichlorophenol	<0.84		9.9	0.84	ug/L		12/05/11 14:53	12/12/11 21:55	1

Client Sample Results

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: ABPMW04F002

Date Collected: 12/01/11 13:25
Date Received: 12/02/11 09:36

Lab Sample ID: 680-74852-1

Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitroaniline	<1.3		49	1.3	ug/L		12/05/11 14:53	12/12/11 21:55	1
2-Nitrophenol	<0.75		9.9	0.75	ug/L		12/05/11 14:53	12/12/11 21:55	1
Dinoseb	<4.9		9.9	4.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
Naphthalene	<0.69		9.9	0.69	ug/L		12/05/11 14:53	12/12/11 21:55	1
2-Methylnaphthalene	<0.77		9.9	0.77	ug/L		12/05/11 14:53	12/12/11 21:55	1
2-Chloronaphthalene	<0.79		9.9	0.79	ug/L		12/05/11 14:53	12/12/11 21:55	1
2-Naphthylamine	<1.5		9.9	1.5	ug/L		12/05/11 14:53	12/12/11 21:55	1
Methapyrilene	<2.7		2000	2.7	ug/L		12/05/11 14:53	12/12/11 21:55	1
3,3'-Dichlorobenzidine	<30		59	30	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitrosodi-n-butylamine	<0.95		9.9	0.95	ug/L		12/05/11 14:53	12/12/11 21:55	1
4-Aminobiphenyl	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitrosopyrrolidine	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 21:55	1
Safrole	<0.79		9.9	0.79	ug/L		12/05/11 14:53	12/12/11 21:55	1
2-Methylphenol	<0.88		9.9	0.88	ug/L		12/05/11 14:53	12/12/11 21:55	1
1,2-Dichlorobenzene	<0.52		9.9	0.52	ug/L		12/05/11 14:53	12/12/11 21:55	1
o-Toluidine	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 21:55	1
2-Chlorophenol	<0.86		9.9	0.86	ug/L		12/05/11 14:53	12/12/11 21:55	1
1,2,4,5-Tetrachlorobenzene	<0.75		9.9	0.75	ug/L		12/05/11 14:53	12/12/11 21:55	1
2,4,5-Trichlorophenol	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 21:55	1
Acetophenone	<0.56		9.9	0.56	ug/L		12/05/11 14:53	12/12/11 21:55	1
Nitrobenzene	<0.72		9.9	0.72	ug/L		12/05/11 14:53	12/12/11 21:55	1
3-Nitroaniline	<4.9		49	4.9	ug/L		12/05/11 14:53	12/12/11 21:55	1
1,3,5-Trinitrobenzene	<2.0		9.9	2.0	ug/L		12/05/11 14:53	12/12/11 21:55	1
N-Nitro-o-toluidine	<1.5		9.9	1.5	ug/L		12/05/11 14:53	12/12/11 21:55	1
1,3-Dinitrobenzene	<0.59		9.9	0.59	ug/L		12/05/11 14:53	12/12/11 21:55	1
3 & 4 Methylphenol	<1.3		9.9	1.3	ug/L		12/05/11 14:53	12/12/11 21:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*57*		*38 - 130*	*12/05/11 14:53*	*12/12/11 21:55*	*1*
2-Fluorophenol	*55*		*25 - 130*	*12/05/11 14:53*	*12/12/11 21:55*	*1*
Nitrobenzene-d5	*60*		*39 - 130*	*12/05/11 14:53*	*12/12/11 21:55*	*1*
Phenol-d5	*48*		*25 - 130*	*12/05/11 14:53*	*12/12/11 21:55*	*1*
Terphenyl-d14	*78*		*10 - 143*	*12/05/11 14:53*	*12/12/11 21:55*	*1*
2,4,6-Tribromophenol	*84*		*31 - 141*	*12/05/11 14:53*	*12/12/11 21:55*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<5.3		20	5.3	ug/L		12/05/11 17:33	12/06/11 20:11	1
Arsenic	<4.6		20	4.6	ug/L		12/05/11 17:33	12/06/11 20:11	1
Barium	**3.0**	**J**	10	2.3	ug/L		12/05/11 17:33	12/06/11 20:11	1
Beryllium	**0.21**	**J**	4.0	0.20	ug/L		12/05/11 17:33	12/06/11 20:11	1
Cadmium	<2.0		5.0	2.0	ug/L		12/05/11 17:33	12/06/11 20:11	1
Chromium	**1.4**	**J**	10	1.2	ug/L		12/05/11 17:33	12/06/11 20:11	1
Cobalt	**35**		10	0.95	ug/L		12/05/11 17:33	12/06/11 20:11	1
Copper	**3.5**	**J**	20	1.9	ug/L		12/05/11 17:33	12/06/11 20:11	1
Lead	<4.0		10	4.0	ug/L		12/05/11 17:33	12/06/11 20:11	1
Nickel	**2.8**	**J**	40	2.3	ug/L		12/05/11 17:33	12/06/11 20:11	1
Selenium	<6.4		20	6.4	ug/L		12/05/11 17:33	12/06/11 20:11	1
Silver	<0.89		10	0.89	ug/L		12/05/11 17:33	12/06/11 20:11	1
Thallium	<8.8		25	8.8	ug/L		12/05/11 17:33	12/06/11 20:11	1
Tin	<5.1		50	5.1	ug/L		12/05/11 17:33	12/06/11 20:11	1

Client Sample ID: ABPMW04F002

Lab Sample ID: 680-74852-1

Date Collected: 12/01/11 13:25

Matrix: Water

Date Received: 12/02/11 09:36

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	5.4	J	10	2.4	ug/L		12/05/11 17:33	12/06/11 20:11	1
Zinc	<8.7		20	8.7	ug/L		12/05/11 17:33	12/06/11 20:11	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.091		0.20	0.091	ug/L		12/06/11 10:12	12/07/11 11:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.4	J	5.0	1.0	mg/L			12/06/11 19:54	5
Sulfate	42		5.0	2.6	mg/L			12/06/11 19:54	5
Nitrate as N	3.6		0.25	0.050	mg/L			12/02/11 16:39	5
Chemical Oxygen Demand	23		20	6.3	mg/L			12/05/11 09:40	1
Ferrous Iron	0.040	J HF	0.10	0.025	mg/L			12/05/11 10:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.0		1.0	1.0	mg/L			12/05/11 12:06	1

Client Sample ID: ABPMW09F002

Lab Sample ID: 680-74852-2

Date Collected: 11/30/11 13:10

Matrix: Water

Date Received: 12/02/11 09:36

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	86		1.0	0.13	ug/L			12/08/11 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*101*		*70 - 130*		*12/08/11 18:12*	*1*
Dibromofluoromethane	*95*		*70 - 130*		*12/08/11 18:12*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/08/11 18:12*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.7	J	5.0	1.0	mg/L			12/06/11 20:07	5
Sulfate	43		5.0	2.6	mg/L			12/06/11 20:07	5
Nitrate as N	4.0	H	0.25	0.050	mg/L			12/02/11 16:42	5
Chemical Oxygen Demand	32		20	6.3	mg/L			12/05/11 09:40	1
Ferrous Iron	<0.025	HF	0.10	0.025	mg/L			12/05/11 10:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.0		1.0	1.0	mg/L			12/05/11 12:06	1

Client Sample ID: ABPMW09D002

Lab Sample ID: 680-74852-3

Date Collected: 11/30/11 13:30

Matrix: Water

Date Received: 12/02/11 09:36

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.8	J	5.0	1.0	mg/L			12/06/11 20:19	5
Sulfate	44		5.0	2.6	mg/L			12/06/11 20:19	5
Nitrate as N	4.0	H	0.25	0.050	mg/L			12/02/11 16:44	5

Client Sample ID: ABPMW09D002 — Lab Sample ID: 680-74852-3

Date Collected: 11/30/11 13:30
Date Received: 12/02/11 09:36
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	**50**		20	6.3	mg/L			12/05/11 09:40	1
Ferrous Iron	<0.025	HF	0.10	0.025	mg/L			12/05/11 10:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.0		1.0	1.0	mg/L			12/05/11 12:06	1

Client Sample ID: ABPMW10F002 — Lab Sample ID: 680-74852-4

Date Collected: 11/30/11 15:30
Date Received: 12/02/11 09:36
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	**0.57**	**J**	1.0	0.14	ug/L			12/08/11 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*101*		*70 - 130*		*12/08/11 18:41*	*1*
Dibromofluoromethane	*96*		*70 - 130*		*12/08/11 18:41*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*12/08/11 18:41*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4.7**	**J**	5.0	1.0	mg/L			12/09/11 14:25	5
Sulfate	**36**		5.0	2.6	mg/L			12/09/11 14:25	5
Nitrate as N	**3.4**	**H**	0.25	0.050	mg/L			12/02/11 16:47	5
Chemical Oxygen Demand	**21**		20	6.3	mg/L			12/05/11 09:40	1
Ferrous Iron	<0.025	HF	0.10	0.025	mg/L			12/05/11 10:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.0		1.0	1.0	mg/L			12/05/11 13:31	1

Client Sample ID: ABPMW16F002 — Lab Sample ID: 680-74852-5

Date Collected: 11/30/11 10:30
Date Received: 12/02/11 09:36
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.11		1.0	0.11	ug/L			12/08/11 19:10	1
Styrene	<0.11		1.0	0.11	ug/L			12/08/11 19:10	1
cis-1,3-Dichloropropene	<0.11		1.0	0.11	ug/L			12/08/11 19:10	1
trans-1,3-Dichloropropene	<0.21		1.0	0.21	ug/L			12/08/11 19:10	1
Acrolein	<7.4		20	7.4	ug/L			12/08/11 19:10	1
Allyl chloride	<0.20		1.0	0.20	ug/L			12/08/11 19:10	1
1,2-Dichloroethane	<0.10		1.0	0.10	ug/L			12/08/11 19:10	1
Propionitrile	<4.6		20	4.6	ug/L			12/08/11 19:10	1
Acrylonitrile	<7.2		20	7.2	ug/L			12/08/11 19:10	1
Vinyl acetate	<0.28		2.0	0.28	ug/L			12/08/11 19:10	1
4-Methyl-2-pentanone	<1.0		10	1.0	ug/L			12/08/11 19:10	1
Toluene	<0.33		1.0	0.33	ug/L			12/08/11 19:10	1
Chlorobenzene	<0.25		1.0	0.25	ug/L			12/08/11 19:10	1
trans-1,4-Dichloro-2-butene	<0.50		2.0	0.50	ug/L			12/08/11 19:10	1
Dibromochloromethane	<0.10		1.0	0.10	ug/L			12/08/11 19:10	1

Client Sample ID: ABPMW16F002

Date Collected: 11/30/11 10:30
Date Received: 12/02/11 09:36

Lab Sample ID: 680-74852-5

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methacrylonitrile	<3.3		20	3.3	ug/L			12/08/11 19:10	1
Chloroprene	<0.30		1.0	0.30	ug/L			12/08/11 19:10	1
Tetrachloroethene	<0.15		1.0	0.15	ug/L			12/08/11 19:10	1
Xylenes, Total	<0.20		2.0	0.20	ug/L			12/08/11 19:10	1
trans-1,2-Dichloroethene	<0.20		1.0	0.20	ug/L			12/08/11 19:10	1
Carbon tetrachloride	<0.50		1.0	0.50	ug/L			12/08/11 19:10	1
2-Hexanone	<1.0		10	1.0	ug/L			12/08/11 19:10	1
1,1,1,2-Tetrachloroethane	<0.33		1.0	0.33	ug/L			12/08/11 19:10	1
Acetone	<5.0		25	5.0	ug/L			12/08/11 19:10	1
Chloroform	**0.46**	**J**	1.0	0.14	ug/L			12/08/11 19:10	1
Benzene	<0.25		1.0	0.25	ug/L			12/08/11 19:10	1
1,1,1-Trichloroethane	<0.50		1.0	0.50	ug/L			12/08/11 19:10	1
Bromomethane	<0.80		1.0	0.80	ug/L			12/08/11 19:10	1
Chloromethane	<0.33		1.0	0.33	ug/L			12/08/11 19:10	1
Iodomethane	<1.0		5.0	1.0	ug/L			12/08/11 19:10	1
Dibromomethane	<0.20		1.0	0.20	ug/L			12/08/11 19:10	1
Chloroethane	<1.0		1.0	1.0	ug/L			12/08/11 19:10	1
Vinyl chloride	<0.18		1.0	0.18	ug/L			12/08/11 19:10	1
Acetonitrile	<10		40	10	ug/L			12/08/11 19:10	1
Methylene Chloride	<1.0		5.0	1.0	ug/L			12/08/11 19:10	1
Carbon disulfide	<0.60		2.0	0.60	ug/L			12/08/11 19:10	1
Bromoform	<0.50		1.0	0.50	ug/L			12/08/11 19:10	1
Bromodichloromethane	<0.25		1.0	0.25	ug/L			12/08/11 19:10	1
1,1-Dichloroethane	<0.25		1.0	0.25	ug/L			12/08/11 19:10	1
1,1-Dichloroethene	**0.26**	**J**	1.0	0.11	ug/L			12/08/11 19:10	1
Trichlorofluoromethane	<0.25		1.0	0.25	ug/L			12/08/11 19:10	1
Dichlorodifluoromethane	<0.25		1.0	0.25	ug/L			12/08/11 19:10	1
Pentachloroethane	<1.2		5.0	1.2	ug/L			12/08/11 19:10	1
Isobutanol	<11		40	11	ug/L			12/08/11 19:10	1
1,2-Dichloropropane	<0.13		1.0	0.13	ug/L			12/08/11 19:10	1
2-Butanone	<1.0		10	1.0	ug/L			12/08/11 19:10	1
1,1,2-Trichloroethane	<0.13		1.0	0.13	ug/L			12/08/11 19:10	1
Trichloroethene	**19**		1.0	0.13	ug/L			12/08/11 19:10	1
1,1,2,2-Tetrachloroethane	<0.18		1.0	0.18	ug/L			12/08/11 19:10	1
Methyl methacrylate	<0.48		1.0	0.48	ug/L			12/08/11 19:10	1
Ethyl methacrylate	<0.25		1.0	0.25	ug/L			12/08/11 19:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*100*		*70 - 130*		*12/08/11 19:10*	*1*
Dibromofluoromethane	*94*		*70 - 130*		*12/08/11 19:10*	*1*
Toluene-d8 (Surr)	*103*		*70 - 130*		*12/08/11 19:10*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	<5.0		50	5.0	ug/L		12/05/11 14:53	12/12/11 22:23	1
4-Nitrophenol	<1.9		50	1.9	ug/L		12/05/11 14:53	12/12/11 22:23	1
Benzyl alcohol	**4.4**	**J B**	9.9	1.1	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitrosopiperidine	<0.87		9.9	0.87	ug/L		12/05/11 14:53	12/12/11 22:23	1
4-Bromophenyl phenyl ether	<0.77		9.9	0.77	ug/L		12/05/11 14:53	12/12/11 22:23	1
2,4-Dimethylphenol	<4.0		9.9	4.0	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitrosomethylethylamine	<3.3		9.9	3.3	ug/L		12/05/11 14:53	12/12/11 22:23	1

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: ABPMW16F002
Date Collected: 11/30/11 10:30
Date Received: 12/02/11 09:36

Lab Sample ID: 680-74852-5
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	<0.54		9.9	0.54	ug/L		12/05/11 14:53	12/12/11 22:23	1
4-Chloroaniline	<2.2		20	2.2	ug/L		12/05/11 14:53	12/12/11 22:23	1
p-Phenylene diamine	<9.9		2000	9.9	ug/L		12/05/11 14:53	12/12/11 22:23	1
bis (2-chloroisopropyl) ether	<0.78		9.9	0.78	ug/L		12/05/11 14:53	12/12/11 22:23	1
Phenol	<0.82		9.9	0.82	ug/L		12/05/11 14:53	12/12/11 22:23	1
2-Picoline	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 22:23	1
Pyridine	<2.3		50	2.3	ug/L		12/05/11 14:53	12/12/11 22:23	1
Bis(2-chloroethyl)ether	<1.1		9.9	1.1	ug/L		12/05/11 14:53	12/12/11 22:23	1
Bis(2-chloroethoxy)methane	<0.93		9.9	0.93	ug/L		12/05/11 14:53	12/12/11 22:23	1
Bis(2-ethylhexyl) phthalate	<1.6		9.9	1.6	ug/L		12/05/11 14:53	12/12/11 22:23	1
Di-n-octyl phthalate	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 22:23	1
Hexachlorobenzene	<0.79		9.9	0.79	ug/L		12/05/11 14:53	12/12/11 22:23	1
3,3'-Dimethylbenzidine	<9.9		20	9.9	ug/L		12/05/11 14:53	12/12/11 22:23	1
Anthracene	<0.69		9.9	0.69	ug/L		12/05/11 14:53	12/12/11 22:23	1
Isosafrole	<0.50		9.9	0.50	ug/L		12/05/11 14:53	12/12/11 22:23	1
1,2,4-Trichlorobenzene	<0.56		9.9	0.56	ug/L		12/05/11 14:53	12/12/11 22:23	1
2,4-Dichlorophenol	<1.1		9.9	1.1	ug/L		12/05/11 14:53	12/12/11 22:23	1
2,4-Dinitrotoluene	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 22:23	1
alpha,alpha-Dimethyl phenethylamine	<35		2000	35	ug/L		12/05/11 14:53	12/12/11 22:23	1
1,4-Dioxane	<3.4		9.9	3.4	ug/L		12/05/11 14:53	12/12/11 22:23	1
o,o',o''-Triethylphosphorothioate	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 22:23	1
Pyrene	<0.63		9.9	0.63	ug/L		12/05/11 14:53	12/12/11 22:23	1
1,4-Naphthoquinone	<0.62		9.9	0.62	ug/L		12/05/11 14:53	12/12/11 22:23	1
Dimethyl phthalate	<0.98		9.9	0.98	ug/L		12/05/11 14:53	12/12/11 22:23	1
Dibenzofuran	<0.79		9.9	0.79	ug/L		12/05/11 14:53	12/12/11 22:23	1
1-Naphthylamine	<1.1		9.9	1.1	ug/L		12/05/11 14:53	12/12/11 22:23	1
Aramite	<0.90		9.9	0.90	ug/L		12/05/11 14:53	12/12/11 22:23	1
Hexachloropropene	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 22:23	1
Benzo[g,h,i]perylene	<0.86		9.9	0.86	ug/L		12/05/11 14:53	12/12/11 22:23	1
Indeno[1,2,3-cd]pyrene	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 22:23	1
Benzo[b]fluoranthene	<2.6		9.9	2.6	ug/L		12/05/11 14:53	12/12/11 22:23	1
Fluoranthene	<0.74		9.9	0.74	ug/L		12/05/11 14:53	12/12/11 22:23	1
Benzo[k]fluoranthene	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 22:23	1
Acenaphthylene	<0.84		9.9	0.84	ug/L		12/05/11 14:53	12/12/11 22:23	1
Chrysene	<0.51		9.9	0.51	ug/L		12/05/11 14:53	12/12/11 22:23	1
Diallate	<0.78		9.9	0.78	ug/L		12/05/11 14:53	12/12/11 22:23	1
Pronamide	<0.88		9.9	0.88	ug/L		12/05/11 14:53	12/12/11 22:23	1
Thionazin	<0.90		9.9	0.90	ug/L		12/05/11 14:53	12/12/11 22:23	1
Methyl parathion	<0.87		9.9	0.87	ug/L		12/05/11 14:53	12/12/11 22:23	1
Phorate	<0.86		9.9	0.86	ug/L		12/05/11 14:53	12/12/11 22:23	1
Disulfoton	<0.79		9.9	0.79	ug/L		12/05/11 14:53	12/12/11 22:23	1
Sulfotepp	<0.53		9.9	0.53	ug/L		12/05/11 14:53	12/12/11 22:23	1
Benzo[a]pyrene	<0.71		9.9	0.71	ug/L		12/05/11 14:53	12/12/11 22:23	1
2,4-Dinitrophenol	<9.9		50	9.9	ug/L		12/05/11 14:53	12/12/11 22:23	1
Famphur	<1.1	*	9.9	1.1	ug/L		12/05/11 14:53	12/12/11 22:23	1
4,6-Dinitro-2-methylphenol	<9.9		50	9.9	ug/L		12/05/11 14:53	12/12/11 22:23	1
Dibenz(a,h)anthracene	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 22:23	1
2-Acetylaminofluorene	<1.6		9.9	1.6	ug/L		12/05/11 14:53	12/12/11 22:23	1
1,3-Dichlorobenzene	<0.59		9.9	0.59	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitrosodiethylamine	<0.92		9.9	0.92	ug/L		12/05/11 14:53	12/12/11 22:23	1

Client Sample ID: ABPMW16F002
Date Collected: 11/30/11 10:30
Date Received: 12/02/11 09:36

Lab Sample ID: 680-74852-5
Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl Parathion	<1.3		9.9	1.3	ug/L		12/05/11 14:53	12/12/11 22:23	1
3-Methylcholanthrene	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 22:23	1
Benzo[a]anthracene	<0.55		9.9	0.55	ug/L		12/05/11 14:53	12/12/11 22:23	1
4-Nitroquinoline-1-oxide	<9.9		20	9.9	ug/L		12/05/11 14:53	12/12/11 22:23	1
7,12-Dimethylbenz(a)anthracene	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 22:23	1
2,3,4,6-Tetrachlorophenol	<0.72		9.9	0.72	ug/L		12/05/11 14:53	12/12/11 22:23	1
4-Chloro-3-methylphenol	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitrosomorpholine	<0.83		9.9	0.83	ug/L		12/05/11 14:53	12/12/11 22:23	1
p-Dimethylamino azobenzene	<0.79		9.9	0.79	ug/L		12/05/11 14:53	12/12/11 22:23	1
Dimethoate	<0.75		9.9	0.75	ug/L		12/05/11 14:53	12/12/11 22:23	1
2,6-Dinitrotoluene	<1.1		9.9	1.1	ug/L		12/05/11 14:53	12/12/11 22:23	1
Pentachlorobenzene	<0.52		9.9	0.52	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitrosodi-n-propylamine	<0.72		9.9	0.72	ug/L		12/05/11 14:53	12/12/11 22:23	1
Phenacetin	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 22:23	1
Ethyl methanesulfonate	<0.95		9.9	0.95	ug/L		12/05/11 14:53	12/12/11 22:23	1
Aniline	<2.1		20	2.1	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitrosodimethylamine	<2.8		9.9	2.8	ug/L		12/05/11 14:53	12/12/11 22:23	1
Methyl methanesulfonate	<0.60		9.9	0.60	ug/L		12/05/11 14:53	12/12/11 22:23	1
Hexachloroethane	<0.76		9.9	0.76	ug/L		12/05/11 14:53	12/12/11 22:23	1
4-Chlorophenyl phenyl ether	<0.83		9.9	0.83	ug/L		12/05/11 14:53	12/12/11 22:23	1
Hexachlorophene	<27		5000	27	ug/L		12/05/11 14:53	12/12/11 22:23	1
Hexachlorocyclopentadiene	<2.5		9.9	2.5	ug/L		12/05/11 14:53	12/12/11 22:23	1
Isophorone	<0.89		9.9	0.89	ug/L		12/05/11 14:53	12/12/11 22:23	1
Pentachloronitrobenzene	<0.78		9.9	0.78	ug/L		12/05/11 14:53	12/12/11 22:23	1
Acenaphthene	<0.76		9.9	0.76	ug/L		12/05/11 14:53	12/12/11 22:23	1
Diethyl phthalate	<0.87		9.9	0.87	ug/L		12/05/11 14:53	12/12/11 22:23	1
Di-n-butyl phthalate	<0.82		9.9	0.82	ug/L		12/05/11 14:53	12/12/11 22:23	1
Phenanthrene	<0.77		9.9	0.77	ug/L		12/05/11 14:53	12/12/11 22:23	1
Butyl benzyl phthalate	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitrosodiphenylamine	<0.91		9.9	0.91	ug/L		12/05/11 14:53	12/12/11 22:23	1
Fluorene	<0.95		9.9	0.95	ug/L		12/05/11 14:53	12/12/11 22:23	1
2,6-Dichlorophenol	<0.73		9.9	0.73	ug/L		12/05/11 14:53	12/12/11 22:23	1
Hexachlorobutadiene	<0.62		9.9	0.62	ug/L		12/05/11 14:53	12/12/11 22:23	1
Pentachlorophenol	<2.0		50	2.0	ug/L		12/05/11 14:53	12/12/11 22:23	1
2,4,6-Trichlorophenol	<0.84		9.9	0.84	ug/L		12/05/11 14:53	12/12/11 22:23	1
2-Nitroaniline	<1.3		50	1.3	ug/L		12/05/11 14:53	12/12/11 22:23	1
2-Nitrophenol	<0.76		9.9	0.76	ug/L		12/05/11 14:53	12/12/11 22:23	1
Dinoseb	<5.0		9.9	5.0	ug/L		12/05/11 14:53	12/12/11 22:23	1
Naphthalene	<0.70		9.9	0.70	ug/L		12/05/11 14:53	12/12/11 22:23	1
2-Methylnaphthalene	<0.78		9.9	0.78	ug/L		12/05/11 14:53	12/12/11 22:23	1
2-Chloronaphthalene	<0.80		9.9	0.80	ug/L		12/05/11 14:53	12/12/11 22:23	1
2-Naphthylamine	<1.5		9.9	1.5	ug/L		12/05/11 14:53	12/12/11 22:23	1
Methapyrilene	<2.7		2000	2.7	ug/L		12/05/11 14:53	12/12/11 22:23	1
3,3'-Dichlorobenzidine	<30		60	30	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitrosodi-n-butylamine	<0.95		9.9	0.95	ug/L		12/05/11 14:53	12/12/11 22:23	1
4-Aminobiphenyl	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitrosopyrrolidine	<0.99		9.9	0.99	ug/L		12/05/11 14:53	12/12/11 22:23	1
Safrole	<0.80		9.9	0.80	ug/L		12/05/11 14:53	12/12/11 22:23	1
2-Methylphenol	<0.88		9.9	0.88	ug/L		12/05/11 14:53	12/12/11 22:23	1
1,2-Dichlorobenzene	<0.53		9.9	0.53	ug/L		12/05/11 14:53	12/12/11 22:23	1

Client Sample Results

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: ABPMW16F002

Date Collected: 11/30/11 10:30
Date Received: 12/02/11 09:36

Lab Sample ID: 680-74852-5

Matrix: Water

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Toluidine	<1.4		9.9	1.4	ug/L		12/05/11 14:53	12/12/11 22:23	1
2-Chlorophenol	<0.86		9.9	0.86	ug/L		12/05/11 14:53	12/12/11 22:23	1
1,2,4,5-Tetrachlorobenzene	<0.76		9.9	0.76	ug/L		12/05/11 14:53	12/12/11 22:23	1
2,4,5-Trichlorophenol	<1.2		9.9	1.2	ug/L		12/05/11 14:53	12/12/11 22:23	1
Acetophenone	<0.57		9.9	0.57	ug/L		12/05/11 14:53	12/12/11 22:23	1
Nitrobenzene	<0.73		9.9	0.73	ug/L		12/05/11 14:53	12/12/11 22:23	1
3-Nitroaniline	<5.0		50	5.0	ug/L		12/05/11 14:53	12/12/11 22:23	1
1,3,5-Trinitrobenzene	<2.0		9.9	2.0	ug/L		12/05/11 14:53	12/12/11 22:23	1
N-Nitro-o-toluidine	<1.5		9.9	1.5	ug/L		12/05/11 14:53	12/12/11 22:23	1
1,3-Dinitrobenzene	<0.60		9.9	0.60	ug/L		12/05/11 14:53	12/12/11 22:23	1
3 & 4 Methylphenol	<1.3		9.9	1.3	ug/L		12/05/11 14:53	12/12/11 22:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*55*		*38 - 130*	*12/05/11 14:53*	*12/12/11 22:23*	*1*
2-Fluorophenol	*59*		*25 - 130*	*12/05/11 14:53*	*12/12/11 22:23*	*1*
Nitrobenzene-d5	*65*		*39 - 130*	*12/05/11 14:53*	*12/12/11 22:23*	*1*
Phenol-d5	*53*		*25 - 130*	*12/05/11 14:53*	*12/12/11 22:23*	*1*
Terphenyl-d14	*77*		*10 - 143*	*12/05/11 14:53*	*12/12/11 22:23*	*1*
2,4,6-Tribromophenol	*74*		*31 - 141*	*12/05/11 14:53*	*12/12/11 22:23*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<5.3		20	5.3	ug/L		12/05/11 17:33	12/06/11 20:16	1
Arsenic	**10**	**J**	20	4.6	ug/L		12/05/11 17:33	12/06/11 20:16	1
Barium	**2.6**	**J**	10	2.3	ug/L		12/05/11 17:33	12/06/11 20:16	1
Beryllium	<0.20		4.0	0.20	ug/L		12/05/11 17:33	12/06/11 20:16	1
Cadmium	<2.0		5.0	2.0	ug/L		12/05/11 17:33	12/06/11 20:16	1
Chromium	**1.4**	**J**	10	1.2	ug/L		12/05/11 17:33	12/06/11 20:16	1
Cobalt	**52**		10	0.95	ug/L		12/05/11 17:33	12/06/11 20:16	1
Copper	**1.9**	**J**	20	1.9	ug/L		12/05/11 17:33	12/06/11 20:16	1
Lead	<4.0		10	4.0	ug/L		12/05/11 17:33	12/06/11 20:16	1
Nickel	<2.3		40	2.3	ug/L		12/05/11 17:33	12/06/11 20:16	1
Selenium	<6.4		20	6.4	ug/L		12/05/11 17:33	12/06/11 20:16	1
Silver	<0.89		10	0.89	ug/L		12/05/11 17:33	12/06/11 20:16	1
Thallium	<8.8		25	8.8	ug/L		12/05/11 17:33	12/06/11 20:16	1
Tin	<5.1		50	5.1	ug/L		12/05/11 17:33	12/06/11 20:16	1
Vanadium	<2.4		10	2.4	ug/L		12/05/11 17:33	12/06/11 20:16	1
Zinc	<8.7		20	8.7	ug/L		12/05/11 17:33	12/06/11 20:16	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.091		0.20	0.091	ug/L		12/06/11 10:12	12/07/11 11:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.4**		5.0	1.0	mg/L			12/09/11 14:37	5
Sulfate	**33**		5.0	2.6	mg/L			12/09/11 14:37	5
Nitrate as N	**3.2**	**H**	0.25	0.050	mg/L			12/02/11 16:50	5
Chemical Oxygen Demand	**19**	**J**	20	6.3	mg/L			12/05/11 09:40	1
Ferrous Iron	<0.025	HF	0.10	0.025	mg/L			12/05/11 10:49	1

Client Sample Results

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: ABPMW16F002

Lab Sample ID: 680-74852-5
Date Collected: 11/30/11 10:30
Matrix: Water
Date Received: 12/02/11 09:36

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.0		1.0	1.0	mg/L			12/05/11 13:31	1

Client Sample ID: ABPF02F002

Lab Sample ID: 680-74852-6
Date Collected: 12/01/11 09:40
Matrix: Water
Date Received: 12/02/11 09:36

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	<1.0		5.0	1.0	ug/L			12/08/11 19:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*101*		*70 - 130*		*12/08/11 19:39*	*1*
Dibromofluoromethane	*94*		*70 - 130*		*12/08/11 19:39*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/08/11 19:39*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	<1.5		9.5	1.5	ug/L		12/05/11 14:53	12/12/11 22:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.9**		5.0	1.0	mg/L			12/09/11 14:50	5
Sulfate	**110**		5.0	2.6	mg/L			12/09/11 14:50	5
Nitrate as N	**1.8**		0.050	0.010	mg/L			12/02/11 15:54	1
Chemical Oxygen Demand	**28**		20	6.3	mg/L			12/05/11 09:40	1
Ferrous Iron	**0.19**	**HF**	0.10	0.025	mg/L			12/05/11 10:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	**12**		5.0	5.0	mg/L			12/03/11 16:05	1
Sulfide	<1.0		1.0	1.0	mg/L			12/05/11 13:31	1

Client Sample ID: ABPB016MW2F002

Lab Sample ID: 680-74852-7
Date Collected: 12/01/11 12:20
Matrix: Water
Date Received: 12/02/11 09:36

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	<1.0		5.0	1.0	ug/L			12/08/11 20:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*103*		*70 - 130*		*12/08/11 20:08*	*1*
Dibromofluoromethane	*93*		*70 - 130*		*12/08/11 20:08*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/08/11 20:08*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	<1.5		9.4	1.5	ug/L		12/05/11 14:53	12/12/11 23:22	1
Di-n-octyl phthalate	<1.3		9.4	1.3	ug/L		12/05/11 14:53	12/12/11 23:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7.6**		5.0	1.0	mg/L			12/13/11 10:40	5

Client Sample ID: ABPB016MW2F002

Lab Sample ID: 680-74852-7

Date Collected: 12/01/11 12:20

Matrix: Water

Date Received: 12/02/11 09:36

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	39		5.0	2.6	mg/L			12/13/11 10:40	5
Nitrate as N	3.1		0.25	0.050	mg/L			12/02/11 16:52	5
Chemical Oxygen Demand	19	J	20	6.3	mg/L			12/05/11 09:40	1
Ferrous Iron	<0.025	HF	0.10	0.025	mg/L			12/05/11 10:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	83		5.0	5.0	mg/L			12/03/11 16:11	1
Sulfide	<1.0		1.0	1.0	mg/L			12/05/11 13:31	1

Client Sample ID: Trip Blank

Lab Sample ID: 680-74852-8

Date Collected: 11/03/11 00:00

Matrix: Water

Date Received: 12/02/11 09:36

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.11	H	1.0	0.11	ug/L			12/09/11 20:38	1
Styrene	<0.11	H	1.0	0.11	ug/L			12/09/11 20:38	1
cis-1,3-Dichloropropene	<0.11	H	1.0	0.11	ug/L			12/09/11 20:38	1
trans-1,3-Dichloropropene	<0.21	H	1.0	0.21	ug/L			12/09/11 20:38	1
Acrolein	<7.4	H	20	7.4	ug/L			12/09/11 20:38	1
Allyl chloride	<0.20	H	1.0	0.20	ug/L			12/09/11 20:38	1
1,2-Dichloroethane	<0.10	H	1.0	0.10	ug/L			12/09/11 20:38	1
Propionitrile	<4.6	H	20	4.6	ug/L			12/09/11 20:38	1
Acrylonitrile	<7.2	H	20	7.2	ug/L			12/09/11 20:38	1
Vinyl acetate	<0.28	H	2.0	0.28	ug/L			12/09/11 20:38	1
4-Methyl-2-pentanone	<1.0	H	10	1.0	ug/L			12/09/11 20:38	1
Toluene	<0.33	H	1.0	0.33	ug/L			12/09/11 20:38	1
Chlorobenzene	<0.25	H	1.0	0.25	ug/L			12/09/11 20:38	1
trans-1,4-Dichloro-2-butene	<0.50	H	2.0	0.50	ug/L			12/09/11 20:38	1
Dibromochloromethane	<0.10	H	1.0	0.10	ug/L			12/09/11 20:38	1
Methacrylonitrile	<3.3	H	20	3.3	ug/L			12/09/11 20:38	1
Chloroprene	<0.30	H	1.0	0.30	ug/L			12/09/11 20:38	1
Tetrachloroethene	<0.15	H	1.0	0.15	ug/L			12/09/11 20:38	1
Xylenes, Total	<0.20	H	2.0	0.20	ug/L			12/09/11 20:38	1
trans-1,2-Dichloroethene	<0.20	H	1.0	0.20	ug/L			12/09/11 20:38	1
Carbon tetrachloride	<0.50	H	1.0	0.50	ug/L			12/09/11 20:38	1
2-Hexanone	<1.0	H	10	1.0	ug/L			12/09/11 20:38	1
1,1,1,2-Tetrachloroethane	<0.33	H	1.0	0.33	ug/L			12/09/11 20:38	1
Acetone	<5.0	H	25	5.0	ug/L			12/09/11 20:38	1
Chloroform	<0.14	H	1.0	0.14	ug/L			12/09/11 20:38	1
Benzene	<0.25	H	1.0	0.25	ug/L			12/09/11 20:38	1
1,1,1-Trichloroethane	<0.50	H	1.0	0.50	ug/L			12/09/11 20:38	1
Bromomethane	<0.80	H	1.0	0.80	ug/L			12/09/11 20:38	1
Chloromethane	<0.33	H	1.0	0.33	ug/L			12/09/11 20:38	1
Iodomethane	<1.0	H	5.0	1.0	ug/L			12/09/11 20:38	1
Dibromomethane	<0.20	H	1.0	0.20	ug/L			12/09/11 20:38	1
Chloroethane	<1.0	H	1.0	1.0	ug/L			12/09/11 20:38	1
Vinyl chloride	<0.18	H	1.0	0.18	ug/L			12/09/11 20:38	1
Acetonitrile	<10	H	40	10	ug/L			12/09/11 20:38	1
Methylene Chloride	<1.0	H	5.0	1.0	ug/L			12/09/11 20:38	1

Client Sample Results

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: Trip Blank

Date Collected: 11/03/11 00:00
Date Received: 12/02/11 09:36

Lab Sample ID: 680-74852-8

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	<0.60	H	2.0	0.60	ug/L			12/09/11 20:38	1
Bromoform	<0.50	H	1.0	0.50	ug/L			12/09/11 20:38	1
Bromodichloromethane	<0.25	H	1.0	0.25	ug/L			12/09/11 20:38	1
1,1-Dichloroethane	<0.25	H	1.0	0.25	ug/L			12/09/11 20:38	1
1,1-Dichloroethene	<0.11	H	1.0	0.11	ug/L			12/09/11 20:38	1
Trichlorofluoromethane	<0.25	H	1.0	0.25	ug/L			12/09/11 20:38	1
Dichlorodifluoromethane	<0.25	H	1.0	0.25	ug/L			12/09/11 20:38	1
Pentachloroethane	<1.2	H	5.0	1.2	ug/L			12/09/11 20:38	1
Isobutanol	<11	H	40	11	ug/L			12/09/11 20:38	1
1,2-Dichloropropane	<0.13	H	1.0	0.13	ug/L			12/09/11 20:38	1
2-Butanone	<1.0	H	10	1.0	ug/L			12/09/11 20:38	1
1,1,2-Trichloroethane	<0.13	H	1.0	0.13	ug/L			12/09/11 20:38	1
Trichloroethene	<0.13	H	1.0	0.13	ug/L			12/09/11 20:38	1
1,1,2,2-Tetrachloroethane	<0.18	H	1.0	0.18	ug/L			12/09/11 20:38	1
Methyl methacrylate	<0.48	H	1.0	0.48	ug/L			12/09/11 20:38	1
Ethyl methacrylate	<0.25	H	1.0	0.25	ug/L			12/09/11 20:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*100*		*70 - 130*		*12/09/11 20:38*	*1*
Dibromofluoromethane	*98*		*70 - 130*		*12/09/11 20:38*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*12/09/11 20:38*	*1*

Surrogate Summary

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
680-74852-1	ABPMW04F002	102	96	101
680-74852-2	ABPMW09F002	101	95	101
680-74852-4	ABPMW10F002	101	96	105
680-74852-5	ABPMW16F002	100	94	103
680-74852-6	ABPF02F002	101	94	101
680-74852-7	ABPB016MW2F002	103	93	101
680-74852-8	Trip Blank	100	98	101
LCS 680-222977/4	Lab Control Sample	96	105	99
LCS 680-223215/19	Lab Control Sample	93	93	91
LCSD 680-222977/5	Lab Control Sample Dup	105	113	104
LCSD 680-223215/18	Lab Control Sample Dup	99	104	99
MB 680-222977/24	Method Blank	104	95	99
MB 680-223215/14	Method Blank	102	97	100

Surrogate Legend

BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPH	TBP
Lab Sample ID	Client Sample ID	(38-130)	(25-130)	(39-130)	(25-130)	(10-143)	(31-141)
680-74852-1	ABPMW04F002	57	55	60	48	78	84
680-74852-5	ABPMW16F002	55	59	65	53	77	74
680-74852-5 MS	ABPMW16F002	54	42	61	45	75	78
680-74852-5 MSD	ABPMW16F002	65	63	73	61	77	91
LCS 680-222618/12-A	Lab Control Sample	81	72	80	76	92	92
LCS 680-222618/16-A	Lab Control Sample	72	67	82	65	80	106
LCSD 680-222618/13-A	Lab Control Sample Dup	76	70	78	76	85	91
MB 680-222618/11-A	Method Blank	71	69	77	75	88	82
MB 680-222618/11-A	Method Blank	73	69	117	65	88	93

Surrogate Legend

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol
NBZ = Nitrobenzene-d5
PHL = Phenol-d5
TPH = Terphenyl-d14
TBP = 2,4,6-Tribromophenol

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-222977/24
Matrix: Water
Analysis Batch: 222977

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.11		1.0	0.11	ug/L			12/08/11 12:51	1
Styrene	<0.11		1.0	0.11	ug/L			12/08/11 12:51	1
cis-1,3-Dichloropropene	<0.11		1.0	0.11	ug/L			12/08/11 12:51	1
trans-1,3-Dichloropropene	<0.21		1.0	0.21	ug/L			12/08/11 12:51	1
Acrolein	<7.4		20	7.4	ug/L			12/08/11 12:51	1
Allyl chloride	<0.20		1.0	0.20	ug/L			12/08/11 12:51	1
1,2-Dichloroethane	<0.10		1.0	0.10	ug/L			12/08/11 12:51	1
Propionitrile	<4.6		20	4.6	ug/L			12/08/11 12:51	1
Acrylonitrile	<7.2		20	7.2	ug/L			12/08/11 12:51	1
Vinyl acetate	<0.28		2.0	0.28	ug/L			12/08/11 12:51	1
4-Methyl-2-pentanone	<1.0		10	1.0	ug/L			12/08/11 12:51	1
Toluene	<0.33		1.0	0.33	ug/L			12/08/11 12:51	1
Chlorobenzene	<0.25		1.0	0.25	ug/L			12/08/11 12:51	1
trans-1,4-Dichloro-2-butene	<0.50		2.0	0.50	ug/L			12/08/11 12:51	1
Dibromochloromethane	<0.10		1.0	0.10	ug/L			12/08/11 12:51	1
Methacrylonitrile	<3.3		20	3.3	ug/L			12/08/11 12:51	1
Chloroprene	<0.30		1.0	0.30	ug/L			12/08/11 12:51	1
Tetrachloroethene	<0.15		1.0	0.15	ug/L			12/08/11 12:51	1
Xylenes, Total	<0.20		2.0	0.20	ug/L			12/08/11 12:51	1
trans-1,2-Dichloroethene	<0.20		1.0	0.20	ug/L			12/08/11 12:51	1
Carbon tetrachloride	<0.50		1.0	0.50	ug/L			12/08/11 12:51	1
2-Hexanone	<1.0		10	1.0	ug/L			12/08/11 12:51	1
1,1,1,2-Tetrachloroethane	<0.33		1.0	0.33	ug/L			12/08/11 12:51	1
Acetone	<5.0		25	5.0	ug/L			12/08/11 12:51	1
Chloroform	<0.14		1.0	0.14	ug/L			12/08/11 12:51	1
Benzene	<0.25		1.0	0.25	ug/L			12/08/11 12:51	1
1,1,1-Trichloroethane	<0.50		1.0	0.50	ug/L			12/08/11 12:51	1
Bromomethane	<0.80		1.0	0.80	ug/L			12/08/11 12:51	1
Chloromethane	<0.33		1.0	0.33	ug/L			12/08/11 12:51	1
Iodomethane	<1.0		5.0	1.0	ug/L			12/08/11 12:51	1
Dibromomethane	<0.20		1.0	0.20	ug/L			12/08/11 12:51	1
Chloroethane	<1.0		1.0	1.0	ug/L			12/08/11 12:51	1
Vinyl chloride	<0.18		1.0	0.18	ug/L			12/08/11 12:51	1
Acetonitrile	<10		40	10	ug/L			12/08/11 12:51	1
Methylene Chloride	<1.0		5.0	1.0	ug/L			12/08/11 12:51	1
Carbon disulfide	<0.60		2.0	0.60	ug/L			12/08/11 12:51	1
Bromoform	<0.50		1.0	0.50	ug/L			12/08/11 12:51	1
Bromodichloromethane	<0.25		1.0	0.25	ug/L			12/08/11 12:51	1
1,1-Dichloroethane	<0.25		1.0	0.25	ug/L			12/08/11 12:51	1
1,1-Dichloroethene	<0.11		1.0	0.11	ug/L			12/08/11 12:51	1
Trichlorofluoromethane	<0.25		1.0	0.25	ug/L			12/08/11 12:51	1
Dichlorodifluoromethane	<0.25		1.0	0.25	ug/L			12/08/11 12:51	1
Pentachloroethane	<1.2		5.0	1.2	ug/L			12/08/11 12:51	1
Isobutanol	<11		40	11	ug/L			12/08/11 12:51	1
1,2-Dichloropropane	<0.13		1.0	0.13	ug/L			12/08/11 12:51	1
2-Butanone	<1.0		10	1.0	ug/L			12/08/11 12:51	1
1,1,2-Trichloroethane	<0.13		1.0	0.13	ug/L			12/08/11 12:51	1
Trichloroethene	<0.13		1.0	0.13	ug/L			12/08/11 12:51	1
1,1,2,2-Tetrachloroethane	<0.18		1.0	0.18	ug/L			12/08/11 12:51	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-222977/24
Matrix: Water
Analysis Batch: 222977

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl methacrylate	<0.48		1.0	0.48	ug/L			12/08/11 12:51	1
Ethyl methacrylate	<0.25		1.0	0.25	ug/L			12/08/11 12:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*104*		*70 - 130*		*12/08/11 12:51*	*1*
Dibromofluoromethane	*95*		*70 - 130*		*12/08/11 12:51*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*12/08/11 12:51*	*1*

Lab Sample ID: LCS 680-222977/4
Matrix: Water
Analysis Batch: 222977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	50.0	48.7		ug/L		97	70 - 130
Styrene	50.0	50.4		ug/L		101	70 - 130
cis-1,3-Dichloropropene	50.0	51.9		ug/L		104	70 - 130
trans-1,3-Dichloropropene	50.0	51.8		ug/L		104	70 - 130
1,2-Dichloroethane	50.0	47.6		ug/L		95	70 - 130
4-Methyl-2-pentanone	100	98.0		ug/L		98	70 - 130
Toluene	50.0	49.2		ug/L		98	70 - 130
Chlorobenzene	50.0	47.0		ug/L		94	70 - 130
Dibromochloromethane	50.0	50.5		ug/L		101	70 - 130
Tetrachloroethene	50.0	50.2		ug/L		100	70 - 130
Xylenes, Total	150	148		ug/L		99	70 - 130
trans-1,2-Dichloroethene	50.0	56.7		ug/L		113	70 - 130
Carbon tetrachloride	50.0	53.0		ug/L		106	70 - 130
2-Hexanone	100	94.3		ug/L		94	42 - 185
1,1,1,2-Tetrachloroethane	50.0	48.5		ug/L		97	70 - 130
Acetone	100	86.0		ug/L		86	26 - 180
Chloroform	50.0	51.3		ug/L		103	70 - 130
Benzene	50.0	50.6		ug/L		101	70 - 130
1,1,1-Trichloroethane	50.0	49.7		ug/L		99	70 - 130
Bromomethane	50.0	39.6		ug/L		79	23 - 165
Chloromethane	50.0	56.3		ug/L		113	70 - 130
Dibromomethane	50.0	49.4		ug/L		99	70 - 130
Chloroethane	50.0	43.4		ug/L		87	56 - 152
Vinyl chloride	50.0	54.8		ug/L		110	67 - 134
Methylene Chloride	50.0	55.5		ug/L		111	67 - 130
Carbon disulfide	50.0	57.5		ug/L		115	54 - 132
Bromoform	50.0	43.2		ug/L		86	70 - 130
Bromodichloromethane	50.0	50.8		ug/L		102	70 - 130
1,1-Dichloroethane	50.0	52.2		ug/L		104	70 - 130
1,1-Dichloroethene	50.0	56.6		ug/L		113	66 - 131
Trichlorofluoromethane	50.0	54.9		ug/L		110	55 - 156
Dichlorodifluoromethane	50.0	60.1		ug/L		120	44 - 146
1,2-Dichloropropane	50.0	49.7		ug/L		99	70 - 130
2-Butanone	100	90.1		ug/L		90	49 - 172
1,1,2-Trichloroethane	50.0	50.6		ug/L		101	70 - 130
Trichloroethene	50.0	50.4		ug/L		101	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-222977/4
Matrix: Water
Analysis Batch: 222977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2,2-Tetrachloroethane	50.0	47.9		ug/L		96	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*96*		*70 - 130*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8 (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 680-222977/5
Matrix: Water
Analysis Batch: 222977

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	50.0	52.7		ug/L		105	70 - 130	8	30
Styrene	50.0	54.0		ug/L		108	70 - 130	7	30
cis-1,3-Dichloropropene	50.0	54.9		ug/L		110	70 - 130	6	30
trans-1,3-Dichloropropene	50.0	54.8		ug/L		110	70 - 130	6	50
1,2-Dichloroethane	50.0	48.9		ug/L		98	70 - 130	3	30
4-Methyl-2-pentanone	100	101		ug/L		101	70 - 130	3	30
Toluene	50.0	52.8		ug/L		106	70 - 130	7	30
Chlorobenzene	50.0	50.7		ug/L		101	70 - 130	7	30
Dibromochloromethane	50.0	54.9		ug/L		110	70 - 130	8	50
Tetrachloroethene	50.0	54.7		ug/L		109	70 - 130	9	30
Xylenes, Total	150	162		ug/L		108	70 - 130	9	30
trans-1,2-Dichloroethene	50.0	62.0		ug/L		124	70 - 130	9	30
Carbon tetrachloride	50.0	55.8		ug/L		112	70 - 130	5	30
2-Hexanone	100	101		ug/L		101	42 - 185	6	30
1,1,1,2-Tetrachloroethane	50.0	53.1		ug/L		106	70 - 130	9	30
Acetone	100	91.8		ug/L		92	26 - 180	7	50
Chloroform	50.0	56.2		ug/L		112	70 - 130	9	30
Benzene	50.0	52.4		ug/L		105	70 - 130	4	30
1,1,1-Trichloroethane	50.0	52.6		ug/L		105	70 - 130	6	30
Bromomethane	50.0	45.1		ug/L		90	23 - 165	13	50
Chloromethane	50.0	60.4		ug/L		121	70 - 130	7	30
Dibromomethane	50.0	51.9		ug/L		104	70 - 130	5	30
Chloroethane	50.0	47.6		ug/L		95	56 - 152	9	40
Vinyl chloride	50.0	59.1		ug/L		118	67 - 134	8	30
Methylene Chloride	50.0	59.7		ug/L		119	67 - 130	7	30
Carbon disulfide	50.0	62.3		ug/L		125	54 - 132	8	30
Bromoform	50.0	46.8		ug/L		94	70 - 130	8	30
Bromodichloromethane	50.0	52.9		ug/L		106	70 - 130	4	30
1,1-Dichloroethane	50.0	56.4		ug/L		113	70 - 130	8	30
1,1-Dichloroethene	50.0	61.6		ug/L		123	66 - 131	9	30
Trichlorofluoromethane	50.0	57.9		ug/L		116	55 - 156	5	30
Dichlorodifluoromethane	50.0	65.0		ug/L		130	44 - 146	8	50
1,2-Dichloropropane	50.0	51.4		ug/L		103	70 - 130	3	30
2-Butanone	100	102		ug/L		102	49 - 172	12	30
1,1,2-Trichloroethane	50.0	52.8		ug/L		106	70 - 130	4	30
Trichloroethene	50.0	53.0		ug/L		106	70 - 130	5	30
1,1,2,2-Tetrachloroethane	50.0	51.6		ug/L		103	70 - 130	7	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-222977/5
Matrix: Water
Analysis Batch: 222977

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*105*		*70 - 130*
Dibromofluoromethane	*113*		*70 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

Lab Sample ID: MB 680-223215/14
Matrix: Water
Analysis Batch: 223215

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.11		1.0	0.11	ug/L			12/09/11 19:52	1
Styrene	<0.11		1.0	0.11	ug/L			12/09/11 19:52	1
cis-1,3-Dichloropropene	<0.11		1.0	0.11	ug/L			12/09/11 19:52	1
trans-1,3-Dichloropropene	<0.21		1.0	0.21	ug/L			12/09/11 19:52	1
Acrolein	<7.4		20	7.4	ug/L			12/09/11 19:52	1
Allyl chloride	<0.20		1.0	0.20	ug/L			12/09/11 19:52	1
1,2-Dichloroethane	<0.10		1.0	0.10	ug/L			12/09/11 19:52	1
Propionitrile	<4.6		20	4.6	ug/L			12/09/11 19:52	1
Acrylonitrile	<7.2		20	7.2	ug/L			12/09/11 19:52	1
Vinyl acetate	<0.28		2.0	0.28	ug/L			12/09/11 19:52	1
4-Methyl-2-pentanone	<1.0		10	1.0	ug/L			12/09/11 19:52	1
Toluene	<0.33		1.0	0.33	ug/L			12/09/11 19:52	1
Chlorobenzene	<0.25		1.0	0.25	ug/L			12/09/11 19:52	1
trans-1,4-Dichloro-2-butene	<0.50		2.0	0.50	ug/L			12/09/11 19:52	1
Dibromochloromethane	<0.10		1.0	0.10	ug/L			12/09/11 19:52	1
Methacrylonitrile	<3.3		20	3.3	ug/L			12/09/11 19:52	1
Chloroprene	<0.30		1.0	0.30	ug/L			12/09/11 19:52	1
Tetrachloroethene	<0.15		1.0	0.15	ug/L			12/09/11 19:52	1
Xylenes, Total	<0.20		2.0	0.20	ug/L			12/09/11 19:52	1
trans-1,2-Dichloroethene	<0.20		1.0	0.20	ug/L			12/09/11 19:52	1
Carbon tetrachloride	<0.50		1.0	0.50	ug/L			12/09/11 19:52	1
2-Hexanone	<1.0		10	1.0	ug/L			12/09/11 19:52	1
1,1,1,2-Tetrachloroethane	<0.33		1.0	0.33	ug/L			12/09/11 19:52	1
Acetone	<5.0		25	5.0	ug/L			12/09/11 19:52	1
Chloroform	<0.14		1.0	0.14	ug/L			12/09/11 19:52	1
Benzene	<0.25		1.0	0.25	ug/L			12/09/11 19:52	1
1,1,1-Trichloroethane	<0.50		1.0	0.50	ug/L			12/09/11 19:52	1
Bromomethane	<0.80		1.0	0.80	ug/L			12/09/11 19:52	1
Chloromethane	<0.33		1.0	0.33	ug/L			12/09/11 19:52	1
Iodomethane	<1.0		5.0	1.0	ug/L			12/09/11 19:52	1
Dibromomethane	<0.20		1.0	0.20	ug/L			12/09/11 19:52	1
Chloroethane	<1.0		1.0	1.0	ug/L			12/09/11 19:52	1
Vinyl chloride	<0.18		1.0	0.18	ug/L			12/09/11 19:52	1
Acetonitrile	<10		40	10	ug/L			12/09/11 19:52	1
Methylene Chloride	<1.0		5.0	1.0	ug/L			12/09/11 19:52	1
Carbon disulfide	<0.60		2.0	0.60	ug/L			12/09/11 19:52	1
Bromoform	<0.50		1.0	0.50	ug/L			12/09/11 19:52	1
Bromodichloromethane	<0.25		1.0	0.25	ug/L			12/09/11 19:52	1
1,1-Dichloroethane	<0.25		1.0	0.25	ug/L			12/09/11 19:52	1
1,1-Dichloroethene	<0.11		1.0	0.11	ug/L			12/09/11 19:52	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-223215/14
Matrix: Water
Analysis Batch: 223215

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	<0.25		1.0	0.25	ug/L			12/09/11 19:52	1
Dichlorodifluoromethane	<0.25		1.0	0.25	ug/L			12/09/11 19:52	1
Pentachloroethane	<1.2		5.0	1.2	ug/L			12/09/11 19:52	1
Isobutanol	<11		40	11	ug/L			12/09/11 19:52	1
1,2-Dichloropropane	<0.13		1.0	0.13	ug/L			12/09/11 19:52	1
2-Butanone	<1.0		10	1.0	ug/L			12/09/11 19:52	1
1,1,2-Trichloroethane	<0.13		1.0	0.13	ug/L			12/09/11 19:52	1
Trichloroethene	<0.13		1.0	0.13	ug/L			12/09/11 19:52	1
1,1,2,2-Tetrachloroethane	<0.18		1.0	0.18	ug/L			12/09/11 19:52	1
Methyl methacrylate	<0.48		1.0	0.48	ug/L			12/09/11 19:52	1
Ethyl methacrylate	<0.25		1.0	0.25	ug/L			12/09/11 19:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*102*		*70 - 130*		*12/09/11 19:52*	*1*
Dibromofluoromethane	*97*		*70 - 130*		*12/09/11 19:52*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*12/09/11 19:52*	*1*

Lab Sample ID: LCS 680-223215/19
Matrix: Water
Analysis Batch: 223215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	50.0	46.9		ug/L		94	70 - 130
Styrene	50.0	48.3		ug/L		97	70 - 130
cis-1,3-Dichloropropene	50.0	47.4		ug/L		95	70 - 130
trans-1,3-Dichloropropene	50.0	46.5		ug/L		93	70 - 130
1,2-Dichloroethane	50.0	42.7		ug/L		85	70 - 130
4-Methyl-2-pentanone	100	90.2		ug/L		90	70 - 130
Toluene	50.0	45.9		ug/L		92	70 - 130
Chlorobenzene	50.0	45.8		ug/L		92	70 - 130
Dibromochloromethane	50.0	47.7		ug/L		95	70 - 130
Tetrachloroethene	50.0	48.1		ug/L		96	70 - 130
Xylenes, Total	150	142		ug/L		95	70 - 130
trans-1,2-Dichloroethene	50.0	53.0		ug/L		106	70 - 130
Carbon tetrachloride	50.0	48.4		ug/L		97	70 - 130
2-Hexanone	100	88.9		ug/L		89	42 - 185
1,1,1,2-Tetrachloroethane	50.0	47.5		ug/L		95	70 - 130
Acetone	100	80.5		ug/L		80	26 - 180
Chloroform	50.0	46.8		ug/L		94	70 - 130
Benzene	50.0	46.0		ug/L		92	70 - 130
1,1,1-Trichloroethane	50.0	45.4		ug/L		91	70 - 130
Bromomethane	50.0	49.1		ug/L		98	23 - 165
Chloromethane	50.0	50.0		ug/L		100	70 - 130
Dibromomethane	50.0	45.8		ug/L		92	70 - 130
Chloroethane	50.0	38.8		ug/L		78	56 - 152
Vinyl chloride	50.0	48.6		ug/L		97	67 - 134
Methylene Chloride	50.0	51.9		ug/L		104	67 - 130
Carbon disulfide	50.0	51.0		ug/L		102	54 - 132
Bromoform	50.0	40.7		ug/L		81	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-223215/19
Matrix: Water
Analysis Batch: 223215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromodichloromethane	50.0	46.5		ug/L		93	70 - 130
1,1-Dichloroethane	50.0	47.3		ug/L		95	70 - 130
1,1-Dichloroethene	50.0	51.8		ug/L		104	66 - 131
Trichlorofluoromethane	50.0	50.1		ug/L		100	55 - 156
Dichlorodifluoromethane	50.0	53.1		ug/L		106	44 - 146
1,2-Dichloropropane	50.0	45.5		ug/L		91	70 - 130
2-Butanone	100	86.3		ug/L		86	49 - 172
1,1,2-Trichloroethane	50.0	47.1		ug/L		94	70 - 130
Trichloroethene	50.0	46.3		ug/L		93	70 - 130
1,1,2,2-Tetrachloroethane	50.0	45.5		ug/L		91	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*93*		*70 - 130*
Dibromofluoromethane	*93*		*70 - 130*
Toluene-d8 (Surr)	*91*		*70 - 130*

Lab Sample ID: LCSD 680-223215/18
Matrix: Water
Analysis Batch: 223215

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	50.0	51.3		ug/L		103	70 - 130	9	30
Styrene	50.0	52.1		ug/L		104	70 - 130	8	30
cis-1,3-Dichloropropene	50.0	50.7		ug/L		101	70 - 130	7	30
trans-1,3-Dichloropropene	50.0	49.8		ug/L		100	70 - 130	7	50
1,2-Dichloroethane	50.0	46.7		ug/L		93	70 - 130	9	30
4-Methyl-2-pentanone	100	96.4		ug/L		96	70 - 130	7	30
Toluene	50.0	50.1		ug/L		100	70 - 130	9	30
Chlorobenzene	50.0	49.5		ug/L		99	70 - 130	8	30
Dibromochloromethane	50.0	52.3		ug/L		105	70 - 130	9	50
Tetrachloroethene	50.0	52.9		ug/L		106	70 - 130	10	30
Xylenes, Total	150	153		ug/L		102	70 - 130	7	30
trans-1,2-Dichloroethene	50.0	57.8		ug/L		116	70 - 130	9	30
Carbon tetrachloride	50.0	53.7		ug/L		107	70 - 130	10	30
2-Hexanone	100	96.9		ug/L		97	42 - 185	9	30
1,1,1,2-Tetrachloroethane	50.0	51.0		ug/L		102	70 - 130	7	30
Acetone	100	83.4		ug/L		83	26 - 180	4	50
Chloroform	50.0	52.0		ug/L		104	70 - 130	10	30
Benzene	50.0	49.9		ug/L		100	70 - 130	8	30
1,1,1-Trichloroethane	50.0	50.1		ug/L		100	70 - 130	10	30
Bromomethane	50.0	60.8		ug/L		122	23 - 165	21	50
Chloromethane	50.0	55.9		ug/L		112	70 - 130	11	30
Dibromomethane	50.0	49.4		ug/L		99	70 - 130	8	30
Chloroethane	50.0	45.1		ug/L		90	56 - 152	15	40
Vinyl chloride	50.0	55.1		ug/L		110	67 - 134	12	30
Methylene Chloride	50.0	55.3		ug/L		111	67 - 130	6	30
Carbon disulfide	50.0	57.7		ug/L		115	54 - 132	12	30
Bromoform	50.0	44.3		ug/L		89	70 - 130	8	30
Bromodichloromethane	50.0	49.9		ug/L		100	70 - 130	7	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-223215/18
Matrix: Water
Analysis Batch: 223215

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethane	50.0	52.4		ug/L		105	70 - 130	10	30
1,1-Dichloroethene	50.0	57.4		ug/L		115	66 - 131	10	30
Trichlorofluoromethane	50.0	56.8		ug/L		114	55 - 156	13	30
Dichlorodifluoromethane	50.0	62.7		ug/L		125	44 - 146	17	50
1,2-Dichloropropane	50.0	50.3		ug/L		101	70 - 130	10	30
2-Butanone	100	91.2		ug/L		91	49 - 172	6	30
1,1,2-Trichloroethane	50.0	50.0		ug/L		100	70 - 130	6	30
Trichloroethene	50.0	50.3		ug/L		101	70 - 130	8	30
1,1,2,2-Tetrachloroethane	50.0	48.7		ug/L		97	70 - 130	7	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*99*		*70 - 130*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8 (Surr)	*99*		*70 - 130*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-222618/11-A
Matrix: Water
Analysis Batch: 223108

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222618

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	<5.0		50	5.0	ug/L		12/05/11 14:53	12/09/11 01:04	1
4-Nitrophenol	<1.9		50	1.9	ug/L		12/05/11 14:53	12/09/11 01:04	1
Benzyl alcohol	1.53	J	10	1.1	ug/L		12/05/11 14:53	12/09/11 01:04	1
4-Bromophenyl phenyl ether	<0.77		10	0.77	ug/L		12/05/11 14:53	12/09/11 01:04	1
2,4-Dimethylphenol	<4.0		10	4.0	ug/L		12/05/11 14:53	12/09/11 01:04	1
1,4-Dichlorobenzene	<0.54		10	0.54	ug/L		12/05/11 14:53	12/09/11 01:04	1
4-Chloroaniline	<2.2		20	2.2	ug/L		12/05/11 14:53	12/09/11 01:04	1
bis (2-chloroisopropyl) ether	<0.78		10	0.78	ug/L		12/05/11 14:53	12/09/11 01:04	1
Phenol	<0.83		10	0.83	ug/L		12/05/11 14:53	12/09/11 01:04	1
Pyridine	<2.3		50	2.3	ug/L		12/05/11 14:53	12/09/11 01:04	1
Bis(2-chloroethyl)ether	<1.1		10	1.1	ug/L		12/05/11 14:53	12/09/11 01:04	1
Bis(2-chloroethoxy)methane	<0.94		10	0.94	ug/L		12/05/11 14:53	12/09/11 01:04	1
Bis(2-ethylhexyl) phthalate	<1.6		10	1.6	ug/L		12/05/11 14:53	12/09/11 01:04	1
Di-n-octyl phthalate	<1.4		10	1.4	ug/L		12/05/11 14:53	12/09/11 01:04	1
Hexachlorobenzene	<0.79		10	0.79	ug/L		12/05/11 14:53	12/09/11 01:04	1
Anthracene	<0.69		10	0.69	ug/L		12/05/11 14:53	12/09/11 01:04	1
1,2,4-Trichlorobenzene	<0.56		10	0.56	ug/L		12/05/11 14:53	12/09/11 01:04	1
2,4-Dichlorophenol	<1.1		10	1.1	ug/L		12/05/11 14:53	12/09/11 01:04	1
2,4-Dinitrotoluene	<1.2		10	1.2	ug/L		12/05/11 14:53	12/09/11 01:04	1
1,4-Dioxane	<3.4		10	3.4	ug/L		12/05/11 14:53	12/09/11 01:04	1
Pyrene	<0.63		10	0.63	ug/L		12/05/11 14:53	12/09/11 01:04	1
Dimethyl phthalate	<0.99		10	0.99	ug/L		12/05/11 14:53	12/09/11 01:04	1
Dibenzofuran	<0.79		10	0.79	ug/L		12/05/11 14:53	12/09/11 01:04	1
Benzo[g,h,i]perylene	<0.87		10	0.87	ug/L		12/05/11 14:53	12/09/11 01:04	1
Indeno[1,2,3-cd]pyrene	<1.0		10	1.0	ug/L		12/05/11 14:53	12/09/11 01:04	1
Benzo[b]fluoranthene	<2.6		10	2.6	ug/L		12/05/11 14:53	12/09/11 01:04	1
Fluoranthene	<0.74		10	0.74	ug/L		12/05/11 14:53	12/09/11 01:04	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-222618/11-A
Matrix: Water
Analysis Batch: 223108

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222618

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	<1.2		10	1.2	ug/L		12/05/11 14:53	12/09/11 01:04	1
Acenaphthylene	<0.85		10	0.85	ug/L		12/05/11 14:53	12/09/11 01:04	1
Chrysene	<0.51		10	0.51	ug/L		12/05/11 14:53	12/09/11 01:04	1
Benzo[a]pyrene	<0.71		10	0.71	ug/L		12/05/11 14:53	12/09/11 01:04	1
2,4-Dinitrophenol	<10		50	10	ug/L		12/05/11 14:53	12/09/11 01:04	1
4,6-Dinitro-2-methylphenol	<10		50	10	ug/L		12/05/11 14:53	12/09/11 01:04	1
Dibenz(a,h)anthracene	<1.0		10	1.0	ug/L		12/05/11 14:53	12/09/11 01:04	1
1,3-Dichlorobenzene	<0.59		10	0.59	ug/L		12/05/11 14:53	12/09/11 01:04	1
Benzo[a]anthracene	<0.55		10	0.55	ug/L		12/05/11 14:53	12/09/11 01:04	1
4-Chloro-3-methylphenol	<1.0		10	1.0	ug/L		12/05/11 14:53	12/09/11 01:04	1
2,6-Dinitrotoluene	<1.1		10	1.1	ug/L		12/05/11 14:53	12/09/11 01:04	1
N-Nitrosodi-n-propylamine	<0.72		10	0.72	ug/L		12/05/11 14:53	12/09/11 01:04	1
Aniline	<2.1		20	2.1	ug/L		12/05/11 14:53	12/09/11 01:04	1
N-Nitrosodimethylamine	<2.8		10	2.8	ug/L		12/05/11 14:53	12/09/11 01:04	1
Hexachloroethane	<0.76		10	0.76	ug/L		12/05/11 14:53	12/09/11 01:04	1
4-Chlorophenyl phenyl ether	<0.84		10	0.84	ug/L		12/05/11 14:53	12/09/11 01:04	1
Hexachlorocyclopentadiene	<2.5		10	2.5	ug/L		12/05/11 14:53	12/09/11 01:04	1
Isophorone	<0.90		10	0.90	ug/L		12/05/11 14:53	12/09/11 01:04	1
Acenaphthene	<0.76		10	0.76	ug/L		12/05/11 14:53	12/09/11 01:04	1
Diethyl phthalate	<0.88		10	0.88	ug/L		12/05/11 14:53	12/09/11 01:04	1
Di-n-butyl phthalate	<0.83		10	0.83	ug/L		12/05/11 14:53	12/09/11 01:04	1
Phenanthrene	<0.77		10	0.77	ug/L		12/05/11 14:53	12/09/11 01:04	1
Butyl benzyl phthalate	<1.2		10	1.2	ug/L		12/05/11 14:53	12/09/11 01:04	1
N-Nitrosodiphenylamine	<0.92		10	0.92	ug/L		12/05/11 14:53	12/09/11 01:04	1
Fluorene	<0.96		10	0.96	ug/L		12/05/11 14:53	12/09/11 01:04	1
Hexachlorobutadiene	<0.62		10	0.62	ug/L		12/05/11 14:53	12/09/11 01:04	1
Pentachlorophenol	<2.0		50	2.0	ug/L		12/05/11 14:53	12/09/11 01:04	1
2,4,6-Trichlorophenol	<0.85		10	0.85	ug/L		12/05/11 14:53	12/09/11 01:04	1
2-Nitroaniline	<1.3		50	1.3	ug/L		12/05/11 14:53	12/09/11 01:04	1
2-Nitrophenol	<0.76		10	0.76	ug/L		12/05/11 14:53	12/09/11 01:04	1
Dinoseb	<5.0		10	5.0	ug/L		12/05/11 14:53	12/09/11 01:04	1
Naphthalene	<0.70		10	0.70	ug/L		12/05/11 14:53	12/09/11 01:04	1
2-Methylnaphthalene	<0.78		10	0.78	ug/L		12/05/11 14:53	12/09/11 01:04	1
2-Chloronaphthalene	<0.80		10	0.80	ug/L		12/05/11 14:53	12/09/11 01:04	1
3,3'-Dichlorobenzidine	<30		60	30	ug/L		12/05/11 14:53	12/09/11 01:04	1
2-Methylphenol	<0.89		10	0.89	ug/L		12/05/11 14:53	12/09/11 01:04	1
1,2-Dichlorobenzene	<0.53		10	0.53	ug/L		12/05/11 14:53	12/09/11 01:04	1
2-Chlorophenol	<0.87		10	0.87	ug/L		12/05/11 14:53	12/09/11 01:04	1
2,4,5-Trichlorophenol	<1.2		10	1.2	ug/L		12/05/11 14:53	12/09/11 01:04	1
Acetophenone	<0.57		10	0.57	ug/L		12/05/11 14:53	12/09/11 01:04	1
Nitrobenzene	<0.73		10	0.73	ug/L		12/05/11 14:53	12/09/11 01:04	1
3-Nitroaniline	<5.0		50	5.0	ug/L		12/05/11 14:53	12/09/11 01:04	1
3 & 4 Methylphenol	<1.3		10	1.3	ug/L		12/05/11 14:53	12/09/11 01:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*38 - 130*	*12/05/11 14:53*	*12/09/11 01:04*	*1*
2-Fluorophenol	*69*		*25 - 130*	*12/05/11 14:53*	*12/09/11 01:04*	*1*
Nitrobenzene-d5	*77*		*39 - 130*	*12/05/11 14:53*	*12/09/11 01:04*	*1*
Phenol-d5	*75*		*25 - 130*	*12/05/11 14:53*	*12/09/11 01:04*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-222618/11-A
Matrix: Water
Analysis Batch: 223108

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222618

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*88*		*10 - 143*	*12/05/11 14:53*	*12/09/11 01:04*	*1*
2,4,6-Tribromophenol	*82*		*31 - 141*	*12/05/11 14:53*	*12/09/11 01:04*	*1*

Lab Sample ID: MB 680-222618/11-A
Matrix: Water
Analysis Batch: 223421

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222618

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	<5.0		50	5.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
4-Nitrophenol	<1.9		50	1.9	ug/L		12/05/11 14:53	12/12/11 21:25	1
Benzyl alcohol	1.36	J	10	1.1	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitrosopiperidine	<0.88		10	0.88	ug/L		12/05/11 14:53	12/12/11 21:25	1
4-Bromophenyl phenyl ether	<0.77		10	0.77	ug/L		12/05/11 14:53	12/12/11 21:25	1
2,4-Dimethylphenol	<4.0		10	4.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitrosomethylethylamine	<3.3		10	3.3	ug/L		12/05/11 14:53	12/12/11 21:25	1
1,4-Dichlorobenzene	<0.54		10	0.54	ug/L		12/05/11 14:53	12/12/11 21:25	1
4-Chloroaniline	<2.2		20	2.2	ug/L		12/05/11 14:53	12/12/11 21:25	1
p-Phenylene diamine	<10		2000	10	ug/L		12/05/11 14:53	12/12/11 21:25	1
bis (2-chloroisopropyl) ether	<0.78		10	0.78	ug/L		12/05/11 14:53	12/12/11 21:25	1
Phenol	<0.83		10	0.83	ug/L		12/05/11 14:53	12/12/11 21:25	1
2-Picoline	<1.4		10	1.4	ug/L		12/05/11 14:53	12/12/11 21:25	1
Pyridine	<2.3		50	2.3	ug/L		12/05/11 14:53	12/12/11 21:25	1
Bis(2-chloroethyl)ether	<1.1		10	1.1	ug/L		12/05/11 14:53	12/12/11 21:25	1
Bis(2-chloroethoxy)methane	<0.94		10	0.94	ug/L		12/05/11 14:53	12/12/11 21:25	1
Bis(2-ethylhexyl) phthalate	<1.6		10	1.6	ug/L		12/05/11 14:53	12/12/11 21:25	1
Di-n-octyl phthalate	<1.4		10	1.4	ug/L		12/05/11 14:53	12/12/11 21:25	1
Hexachlorobenzene	<0.79		10	0.79	ug/L		12/05/11 14:53	12/12/11 21:25	1
3,3'-Dimethylbenzidine	<10		20	10	ug/L		12/05/11 14:53	12/12/11 21:25	1
Anthracene	<0.69		10	0.69	ug/L		12/05/11 14:53	12/12/11 21:25	1
Isosafrole	<0.50		10	0.50	ug/L		12/05/11 14:53	12/12/11 21:25	1
1,2,4-Trichlorobenzene	<0.56		10	0.56	ug/L		12/05/11 14:53	12/12/11 21:25	1
2,4-Dichlorophenol	<1.1		10	1.1	ug/L		12/05/11 14:53	12/12/11 21:25	1
2,4-Dinitrotoluene	<1.2		10	1.2	ug/L		12/05/11 14:53	12/12/11 21:25	1
alpha,alpha-Dimethyl phenethylamine	<35		2000	35	ug/L		12/05/11 14:53	12/12/11 21:25	1
1,4-Dioxane	<3.4		10	3.4	ug/L		12/05/11 14:53	12/12/11 21:25	1
o,o',o''-Triethylphosphorothioate	<1.0		10	1.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
Pyrene	<0.63		10	0.63	ug/L		12/05/11 14:53	12/12/11 21:25	1
1,4-Naphthoquinone	<0.62		10	0.62	ug/L		12/05/11 14:53	12/12/11 21:25	1
Dimethyl phthalate	<0.99		10	0.99	ug/L		12/05/11 14:53	12/12/11 21:25	1
Dibenzofuran	<0.79		10	0.79	ug/L		12/05/11 14:53	12/12/11 21:25	1
1-Naphthylamine	<1.1		10	1.1	ug/L		12/05/11 14:53	12/12/11 21:25	1
Aramite	<0.91		10	0.91	ug/L		12/05/11 14:53	12/12/11 21:25	1
Hexachloropropene	<1.4		10	1.4	ug/L		12/05/11 14:53	12/12/11 21:25	1
Benzo[g,h,i]perylene	<0.87		10	0.87	ug/L		12/05/11 14:53	12/12/11 21:25	1
Indeno[1,2,3-cd]pyrene	<1.0		10	1.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
Benzo[b]fluoranthene	<2.6		10	2.6	ug/L		12/05/11 14:53	12/12/11 21:25	1
Fluoranthene	<0.74		10	0.74	ug/L		12/05/11 14:53	12/12/11 21:25	1
Benzo[k]fluoranthene	<1.2		10	1.2	ug/L		12/05/11 14:53	12/12/11 21:25	1
Acenaphthylene	<0.85		10	0.85	ug/L		12/05/11 14:53	12/12/11 21:25	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-222618/11-A
Matrix: Water
Analysis Batch: 223421

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222618

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	<0.51		10	0.51	ug/L		12/05/11 14:53	12/12/11 21:25	1
Diallate	<0.78		10	0.78	ug/L		12/05/11 14:53	12/12/11 21:25	1
Pronamide	<0.89		10	0.89	ug/L		12/05/11 14:53	12/12/11 21:25	1
Thionazin	<0.91		10	0.91	ug/L		12/05/11 14:53	12/12/11 21:25	1
Methyl parathion	<0.88		10	0.88	ug/L		12/05/11 14:53	12/12/11 21:25	1
Phorate	<0.87		10	0.87	ug/L		12/05/11 14:53	12/12/11 21:25	1
Disulfoton	<0.79		10	0.79	ug/L		12/05/11 14:53	12/12/11 21:25	1
Sulfotepp	<0.53		10	0.53	ug/L		12/05/11 14:53	12/12/11 21:25	1
Benzo[a]pyrene	<0.71		10	0.71	ug/L		12/05/11 14:53	12/12/11 21:25	1
2,4-Dinitrophenol	<10		50	10	ug/L		12/05/11 14:53	12/12/11 21:25	1
Famphur	<1.1		10	1.1	ug/L		12/05/11 14:53	12/12/11 21:25	1
4,6-Dinitro-2-methylphenol	<10		50	10	ug/L		12/05/11 14:53	12/12/11 21:25	1
Dibenz(a,h)anthracene	<1.0		10	1.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
2-Acetylaminofluorene	<1.6		10	1.6	ug/L		12/05/11 14:53	12/12/11 21:25	1
1,3-Dichlorobenzene	<0.59		10	0.59	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitrosodiethylamine	<0.93		10	0.93	ug/L		12/05/11 14:53	12/12/11 21:25	1
Ethyl Parathion	<1.3		10	1.3	ug/L		12/05/11 14:53	12/12/11 21:25	1
3-Methylcholanthrene	<1.4		10	1.4	ug/L		12/05/11 14:53	12/12/11 21:25	1
Benzo[a]anthracene	<0.55		10	0.55	ug/L		12/05/11 14:53	12/12/11 21:25	1
4-Nitroquinoline-1-oxide	<10		20	10	ug/L		12/05/11 14:53	12/12/11 21:25	1
7,12-Dimethylbenz(a)anthracene	<1.2		10	1.2	ug/L		12/05/11 14:53	12/12/11 21:25	1
2,3,4,6-Tetrachlorophenol	<0.72		10	0.72	ug/L		12/05/11 14:53	12/12/11 21:25	1
4-Chloro-3-methylphenol	<1.0		10	1.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitrosomorpholine	<0.84		10	0.84	ug/L		12/05/11 14:53	12/12/11 21:25	1
p-Dimethylamino azobenzene	<0.79		10	0.79	ug/L		12/05/11 14:53	12/12/11 21:25	1
Dimethoate	<0.75		10	0.75	ug/L		12/05/11 14:53	12/12/11 21:25	1
2,6-Dinitrotoluene	<1.1		10	1.1	ug/L		12/05/11 14:53	12/12/11 21:25	1
Pentachlorobenzene	<0.52		10	0.52	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitrosodi-n-propylamine	<0.72		10	0.72	ug/L		12/05/11 14:53	12/12/11 21:25	1
Phenacetin	<1.4		10	1.4	ug/L		12/05/11 14:53	12/12/11 21:25	1
Ethyl methanesulfonate	<0.96		10	0.96	ug/L		12/05/11 14:53	12/12/11 21:25	1
Aniline	<2.1		20	2.1	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitrosodimethylamine	<2.8		10	2.8	ug/L		12/05/11 14:53	12/12/11 21:25	1
Methyl methanesulfonate	<0.60		10	0.60	ug/L		12/05/11 14:53	12/12/11 21:25	1
Hexachloroethane	<0.76		10	0.76	ug/L		12/05/11 14:53	12/12/11 21:25	1
4-Chlorophenyl phenyl ether	<0.84		10	0.84	ug/L		12/05/11 14:53	12/12/11 21:25	1
Hexachlorophene	<27		5000	27	ug/L		12/05/11 14:53	12/12/11 21:25	1
Hexachlorocyclopentadiene	<2.5		10	2.5	ug/L		12/05/11 14:53	12/12/11 21:25	1
Isophorone	<0.90		10	0.90	ug/L		12/05/11 14:53	12/12/11 21:25	1
Pentachloronitrobenzene	<0.78		10	0.78	ug/L		12/05/11 14:53	12/12/11 21:25	1
Acenaphthene	<0.76		10	0.76	ug/L		12/05/11 14:53	12/12/11 21:25	1
Diethyl phthalate	<0.88		10	0.88	ug/L		12/05/11 14:53	12/12/11 21:25	1
Di-n-butyl phthalate	<0.83		10	0.83	ug/L		12/05/11 14:53	12/12/11 21:25	1
Phenanthrene	<0.77		10	0.77	ug/L		12/05/11 14:53	12/12/11 21:25	1
Butyl benzyl phthalate	<1.2		10	1.2	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitrosodiphenylamine	<0.92		10	0.92	ug/L		12/05/11 14:53	12/12/11 21:25	1
Fluorene	<0.96		10	0.96	ug/L		12/05/11 14:53	12/12/11 21:25	1
2,6-Dichlorophenol	<0.73		10	0.73	ug/L		12/05/11 14:53	12/12/11 21:25	1
Hexachlorobutadiene	<0.62		10	0.62	ug/L		12/05/11 14:53	12/12/11 21:25	1
Pentachlorophenol	<2.0		50	2.0	ug/L		12/05/11 14:53	12/12/11 21:25	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-222618/11-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223421 — **Prep Batch: 222618**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,6-Trichlorophenol	<0.85		10	0.85	ug/L		12/05/11 14:53	12/12/11 21:25	1
2-Nitroaniline	<1.3		50	1.3	ug/L		12/05/11 14:53	12/12/11 21:25	1
2-Nitrophenol	<0.76		10	0.76	ug/L		12/05/11 14:53	12/12/11 21:25	1
Dinoseb	<5.0		10	5.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
Naphthalene	<0.70		10	0.70	ug/L		12/05/11 14:53	12/12/11 21:25	1
2-Methylnaphthalene	<0.78		10	0.78	ug/L		12/05/11 14:53	12/12/11 21:25	1
2-Chloronaphthalene	<0.80		10	0.80	ug/L		12/05/11 14:53	12/12/11 21:25	1
2-Naphthylamine	<1.5		10	1.5	ug/L		12/05/11 14:53	12/12/11 21:25	1
Methapyrilene	<2.7		2000	2.7	ug/L		12/05/11 14:53	12/12/11 21:25	1
3,3'-Dichlorobenzidine	<30		60	30	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitrosodi-n-butylamine	<0.96		10	0.96	ug/L		12/05/11 14:53	12/12/11 21:25	1
4-Aminobiphenyl	<1.2		10	1.2	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitrosopyrrolidine	<1.0		10	1.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
Safrole	<0.80		10	0.80	ug/L		12/05/11 14:53	12/12/11 21:25	1
2-Methylphenol	<0.89		10	0.89	ug/L		12/05/11 14:53	12/12/11 21:25	1
1,2-Dichlorobenzene	<0.53		10	0.53	ug/L		12/05/11 14:53	12/12/11 21:25	1
o-Toluidine	<1.4		10	1.4	ug/L		12/05/11 14:53	12/12/11 21:25	1
2-Chlorophenol	<0.87		10	0.87	ug/L		12/05/11 14:53	12/12/11 21:25	1
1,2,4,5-Tetrachlorobenzene	<0.76		10	0.76	ug/L		12/05/11 14:53	12/12/11 21:25	1
2,4,5-Trichlorophenol	<1.2		10	1.2	ug/L		12/05/11 14:53	12/12/11 21:25	1
Acetophenone	<0.57		10	0.57	ug/L		12/05/11 14:53	12/12/11 21:25	1
Nitrobenzene	<0.73		10	0.73	ug/L		12/05/11 14:53	12/12/11 21:25	1
3-Nitroaniline	<5.0		50	5.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
1,3,5-Trinitrobenzene	<2.0		10	2.0	ug/L		12/05/11 14:53	12/12/11 21:25	1
N-Nitro-o-toluidine	<1.5		10	1.5	ug/L		12/05/11 14:53	12/12/11 21:25	1
1,3-Dinitrobenzene	<0.60		10	0.60	ug/L		12/05/11 14:53	12/12/11 21:25	1
3 & 4 Methylphenol	<1.3		10	1.3	ug/L		12/05/11 14:53	12/12/11 21:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*73*		*38 - 130*	*12/05/11 14:53*	*12/12/11 21:25*	*1*
2-Fluorophenol	*69*		*25 - 130*	*12/05/11 14:53*	*12/12/11 21:25*	*1*
Nitrobenzene-d5	*117*		*39 - 130*	*12/05/11 14:53*	*12/12/11 21:25*	*1*
Phenol-d5	*65*		*25 - 130*	*12/05/11 14:53*	*12/12/11 21:25*	*1*
Terphenyl-d14	*88*		*10 - 143*	*12/05/11 14:53*	*12/12/11 21:25*	*1*
2,4,6-Tribromophenol	*93*		*31 - 141*	*12/05/11 14:53*	*12/12/11 21:25*	*1*

Lab Sample ID: LCS 680-222618/12-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223108 — **Prep Batch: 222618**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4-Nitroaniline	100	89.4		ug/L		89	54 - 130
4-Nitrophenol	100	89.6		ug/L		90	38 - 130
Benzyl alcohol	100	85.2		ug/L		85	53 - 130
4-Bromophenyl phenyl ether	100	96.7		ug/L		97	61 - 130
2,4-Dimethylphenol	100	69.6		ug/L		70	40 - 130
1,4-Dichlorobenzene	100	67.0		ug/L		67	43 - 130
4-Chloroaniline	100	61.5		ug/L		61	42 - 130
bis (2-chloroisopropyl) ether	100	87.8		ug/L		88	55 - 130

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-222618/12-A
Matrix: Water
Analysis Batch: 223108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222618

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	100	74.0		ug/L		74	29 - 130
Pyridine	100	61.7		ug/L		62	10 - 130
Bis(2-chloroethyl)ether	100	86.8		ug/L		87	56 - 130
Bis(2-chloroethoxy)methane	100	95.4		ug/L		95	64 - 130
Bis(2-ethylhexyl) phthalate	100	100		ug/L		100	62 - 130
Di-n-octyl phthalate	100	106		ug/L		106	64 - 130
Hexachlorobenzene	100	86.2		ug/L		86	52 - 130
Anthracene	100	87.6		ug/L		88	61 - 130
1,2,4-Trichlorobenzene	100	72.3		ug/L		72	42 - 130
2,4-Dichlorophenol	100	82.6		ug/L		83	54 - 130
2,4-Dinitrotoluene	100	91.4		ug/L		91	63 - 130
1,4-Dioxane	100	57.3		ug/L		57	35 - 130
Pyrene	100	93.6		ug/L		94	60 - 130
Dimethyl phthalate	100	95.9		ug/L		96	69 - 130
Dibenzofuran	100	82.8		ug/L		83	58 - 130
Benzo[g,h,i]perylene	100	92.1		ug/L		92	54 - 130
Indeno[1,2,3-cd]pyrene	100	96.1		ug/L		96	47 - 130
Benzo[b]fluoranthene	100	86.8		ug/L		87	51 - 130
Fluoranthene	100	90.3		ug/L		90	56 - 130
Benzo[k]fluoranthene	100	95.5		ug/L		96	53 - 130
Acenaphthylene	100	87.3		ug/L		87	60 - 130
Chrysene	100	92.0		ug/L		92	59 - 130
Benzo[a]pyrene	100	97.2		ug/L		97	61 - 130
2,4-Dinitrophenol	100	103		ug/L		103	20 - 165
4,6-Dinitro-2-methylphenol	100	94.7		ug/L		95	45 - 134
Dibenz(a,h)anthracene	100	93.4		ug/L		93	55 - 130
1,3-Dichlorobenzene	100	65.3		ug/L		65	41 - 130
Benzo[a]anthracene	100	93.5		ug/L		94	58 - 130
4-Chloro-3-methylphenol	100	83.3		ug/L		83	60 - 130
2,6-Dinitrotoluene	100	90.9		ug/L		91	65 - 130
N-Nitrosodi-n-propylamine	100	89.1		ug/L		89	64 - 130
N-Nitrosodimethylamine	100	83.4		ug/L		83	54 - 130
4-Chlorophenyl phenyl ether	100	92.8		ug/L		93	57 - 130
Hexachlorocyclopentadiene	100	45.6		ug/L		46	10 - 130
Isophorone	100	83.0		ug/L		83	59 - 130
Acenaphthene	100	84.8		ug/L		85	55 - 130
Diethyl phthalate	100	97.4		ug/L		97	70 - 130
Di-n-butyl phthalate	100	96.9		ug/L		97	66 - 130
Phenanthrene	100	89.8		ug/L		90	62 - 130
Butyl benzyl phthalate	100	103		ug/L		103	66 - 130
N-Nitrosodiphenylamine	100	95.2		ug/L		95	68 - 130
Fluorene	100	88.5		ug/L		88	61 - 130
Hexachlorobutadiene	100	76.2		ug/L		76	36 - 130
Pentachlorophenol	100	95.4		ug/L		95	42 - 138
2,4,6-Trichlorophenol	100	85.0		ug/L		85	57 - 130
2-Nitroaniline	100	90.1		ug/L		90	60 - 130
2-Nitrophenol	100	80.8		ug/L		81	54 - 130
Naphthalene	100	77.6		ug/L		78	50 - 130
2-Methylnaphthalene	100	76.7		ug/L		77	52 - 130
2-Chloronaphthalene	100	80.1		ug/L		80	53 - 130

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-222618/12-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223108 — **Prep Batch: 222618**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
3,3'-Dichlorobenzidine	100	62.4		ug/L		62	27 - 130
2-Methylphenol	100	75.1		ug/L		75	55 - 130
1,2-Dichlorobenzene	100	67.6		ug/L		68	43 - 130
2-Chlorophenol	100	74.1		ug/L		74	57 - 130
2,4,5-Trichlorophenol	100	87.9		ug/L		88	61 - 130
Acetophenone	100	80.1		ug/L		80	54 - 130
Nitrobenzene	100	80.3		ug/L		80	56 - 130
3-Nitroaniline	100	72.1		ug/L		72	54 - 130
3 & 4 Methylphenol	100	81.4		ug/L		81	35 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*81*		*38 - 130*
2-Fluorophenol	*72*		*25 - 130*
Nitrobenzene-d5	*80*		*39 - 130*
Phenol-d5	*76*		*25 - 130*
Terphenyl-d14	*92*		*10 - 143*
2,4,6-Tribromophenol	*92*		*31 - 141*

Lab Sample ID: LCS 680-222618/16-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223497 — **Prep Batch: 222618**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,3,4,6-Tetrachlorophenol	100	107		ug/L		107	64 - 130
N-Nitrosodi-n-butylamine	100	83.3		ug/L		83	40 - 130
1,2,4,5-Tetrachlorobenzene	100	75.3		ug/L		75	51 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*38 - 130*
2-Fluorophenol	*67*		*25 - 130*
Nitrobenzene-d5	*82*		*39 - 130*
Phenol-d5	*65*		*25 - 130*
Terphenyl-d14	*80*		*10 - 143*
2,4,6-Tribromophenol	*106*		*31 - 141*

Lab Sample ID: LCSD 680-222618/13-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223159 — **Prep Batch: 222618**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Nitroaniline	100	88.7		ug/L		89	54 - 130	1	50
4-Nitrophenol	100	82.2		ug/L		82	38 - 130	9	50
Benzyl alcohol	100	78.0		ug/L		78	53 - 130	9	50
4-Bromophenyl phenyl ether	100	88.7		ug/L		89	61 - 130	9	50
2,4-Dimethylphenol	100	65.1		ug/L		65	40 - 130	7	50
1,4-Dichlorobenzene	100	62.9		ug/L		63	43 - 130	6	50
4-Chloroaniline	100	63.6		ug/L		64	42 - 130	3	50
bis (2-chloroisopropyl) ether	100	87.7		ug/L		88	55 - 130	0	50
Phenol	100	71.9		ug/L		72	29 - 130	3	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-222618/13-A
Matrix: Water
Analysis Batch: 223159

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 222618

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pyridine	100	59.1		ug/L		59	10 - 130	4	50
Bis(2-chloroethyl)ether	100	83.4		ug/L		83	56 - 130	4	50
Bis(2-chloroethoxy)methane	100	89.3		ug/L		89	64 - 130	7	50
Bis(2-ethylhexyl) phthalate	100	92.4		ug/L		92	62 - 130	8	50
Di-n-octyl phthalate	100	103		ug/L		103	64 - 130	3	50
Hexachlorobenzene	100	77.9		ug/L		78	52 - 130	10	50
Anthracene	100	80.7		ug/L		81	61 - 130	8	50
1,2,4-Trichlorobenzene	100	67.9		ug/L		68	42 - 130	6	50
2,4-Dichlorophenol	100	73.8		ug/L		74	54 - 130	11	50
2,4-Dinitrotoluene	100	89.1		ug/L		89	63 - 130	3	50
1,4-Dioxane	100	54.6		ug/L		55	35 - 130	5	50
Pyrene	100	85.7		ug/L		86	60 - 130	9	50
Dimethyl phthalate	100	91.7		ug/L		92	69 - 130	4	50
Dibenzofuran	100	78.7		ug/L		79	58 - 130	5	50
Benzo[g,h,i]perylene	100	87.3		ug/L		87	54 - 130	5	50
Indeno[1,2,3-cd]pyrene	100	88.0		ug/L		88	47 - 130	9	50
Benzo[b]fluoranthene	100	85.1		ug/L		85	51 - 130	2	50
Fluoranthene	100	89.8		ug/L		90	56 - 130	1	50
Benzo[k]fluoranthene	100	89.2		ug/L		89	53 - 130	7	50
Acenaphthylene	100	81.9		ug/L		82	60 - 130	6	50
Chrysene	100	86.3		ug/L		86	59 - 130	6	50
Benzo[a]pyrene	100	92.2		ug/L		92	61 - 130	5	50
2,4-Dinitrophenol	100	87.3		ug/L		87	20 - 165	17	50
4,6-Dinitro-2-methylphenol	100	82.0		ug/L		82	45 - 134	14	50
Dibenz(a,h)anthracene	100	88.7		ug/L		89	55 - 130	5	50
1,3-Dichlorobenzene	100	62.0		ug/L		62	41 - 130	5	50
Benzo[a]anthracene	100	87.6		ug/L		88	58 - 130	7	50
4-Chloro-3-methylphenol	100	82.1		ug/L		82	60 - 130	1	50
2,6-Dinitrotoluene	100	85.0		ug/L		85	65 - 130	7	50
N-Nitrosodi-n-propylamine	100	89.8		ug/L		90	64 - 130	1	50
N-Nitrosodimethylamine	100	80.4		ug/L		80	54 - 130	4	50
4-Chlorophenyl phenyl ether	100	87.6		ug/L		88	57 - 130	6	50
Hexachlorocyclopentadiene	100	40.1		ug/L		40	10 - 130	13	50
Isophorone	100	79.5		ug/L		79	59 - 130	4	50
Acenaphthene	100	80.6		ug/L		81	55 - 130	5	50
Diethyl phthalate	100	94.9		ug/L		95	70 - 130	3	50
Di-n-butyl phthalate	100	93.8		ug/L		94	66 - 130	3	50
Phenanthrene	100	83.7		ug/L		84	62 - 130	7	50
Butyl benzyl phthalate	100	98.9		ug/L		99	66 - 130	4	50
N-Nitrosodiphenylamine	100	87.4		ug/L		87	68 - 130	8	50
Fluorene	100	85.2		ug/L		85	61 - 130	4	50
Hexachlorobutadiene	100	69.7		ug/L		70	36 - 130	9	50
Pentachlorophenol	100	83.2		ug/L		83	42 - 138	14	50
2,4,6-Trichlorophenol	100	73.3		ug/L		73	57 - 130	15	50
2-Nitroaniline	100	84.9		ug/L		85	60 - 130	6	50
2-Nitrophenol	100	72.0		ug/L		72	54 - 130	11	50
Naphthalene	100	72.8		ug/L		73	50 - 130	6	50
2-Methylnaphthalene	100	74.0		ug/L		74	52 - 130	4	50
2-Chloronaphthalene	100	73.3		ug/L		73	53 - 130	9	50
3,3'-Dichlorobenzidine	100	68.7		ug/L		69	27 - 130	10	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-222618/13-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223159 — **Prep Batch: 222618**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2-Methylphenol			100	72.2		ug/L		72	55 - 130	4	50
1,2-Dichlorobenzene			100	64.8		ug/L		65	43 - 130	4	50
2-Chlorophenol			100	72.1		ug/L		72	57 - 130	3	50
2,4,5-Trichlorophenol			100	79.5		ug/L		80	61 - 130	10	50
Acetophenone			100	76.3		ug/L		76	54 - 130	5	50
Nitrobenzene			100	78.1		ug/L		78	56 - 130	3	50
3-Nitroaniline			100	77.0		ug/L		77	54 - 130	7	50
3 & 4 Methylphenol			100	78.7		ug/L		79	35 - 130	3	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*76*		*38 - 130*
2-Fluorophenol	*70*		*25 - 130*
Nitrobenzene-d5	*78*		*39 - 130*
Phenol-d5	*76*		*25 - 130*
Terphenyl-d14	*85*		*10 - 143*
2,4,6-Tribromophenol	*91*		*31 - 141*

Lab Sample ID: 680-74852-5 MS — **Client Sample ID: ABPMW16F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223497 — **Prep Batch: 222618**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,3,4,6-Tetrachlorophenol	<0.72		99.5	80.4		ug/L		81	64 - 130		
N-Nitrosodi-n-butylamine	<0.95		99.5	57.0		ug/L		57	40 - 130		
1,2,4,5-Tetrachlorobenzene	<0.76		99.5	60.3		ug/L		61	51 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*54*		*38 - 130*
2-Fluorophenol	*42*		*25 - 130*
Nitrobenzene-d5	*61*		*39 - 130*
Phenol-d5	*45*		*25 - 130*
Terphenyl-d14	*75*		*10 - 143*
2,4,6-Tribromophenol	*78*		*31 - 141*

Lab Sample ID: 680-74852-5 MSD — **Client Sample ID: ABPMW16F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223497 — **Prep Batch: 222618**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,3,4,6-Tetrachlorophenol	<0.72		92.5	84.9		ug/L		92	64 - 130	5	50
N-Nitrosodi-n-butylamine	<0.95		92.5	64.9		ug/L		70	40 - 130	13	50
1,2,4,5-Tetrachlorobenzene	<0.76		92.5	64.9		ug/L		70	51 - 130	7	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*65*		*38 - 130*
2-Fluorophenol	*63*		*25 - 130*
Nitrobenzene-d5	*73*		*39 - 130*
Phenol-d5	*61*		*25 - 130*
Terphenyl-d14	*77*		*10 - 143*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-74852-5 MSD
Matrix: Water
Analysis Batch: 223497

Client Sample ID: ABPMW16F002
Prep Type: Total/NA
Prep Batch: 222618

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol	*91*		*31 - 141*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-222706/1-A
Matrix: Water
Analysis Batch: 222858

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 222706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<5.3		20	5.3	ug/L		12/05/11 17:33	12/06/11 19:03	1
Arsenic	<4.6		20	4.6	ug/L		12/05/11 17:33	12/06/11 19:03	1
Barium	<2.3		10	2.3	ug/L		12/05/11 17:33	12/06/11 19:03	1
Beryllium	<0.20		4.0	0.20	ug/L		12/05/11 17:33	12/06/11 19:03	1
Cadmium	<2.0		5.0	2.0	ug/L		12/05/11 17:33	12/06/11 19:03	1
Chromium	<1.2		10	1.2	ug/L		12/05/11 17:33	12/06/11 19:03	1
Cobalt	<0.95		10	0.95	ug/L		12/05/11 17:33	12/06/11 19:03	1
Copper	<1.9		20	1.9	ug/L		12/05/11 17:33	12/06/11 19:03	1
Lead	<4.0		10	4.0	ug/L		12/05/11 17:33	12/06/11 19:03	1
Nickel	<2.3		40	2.3	ug/L		12/05/11 17:33	12/06/11 19:03	1
Selenium	<6.4		20	6.4	ug/L		12/05/11 17:33	12/06/11 19:03	1
Silver	<0.89		10	0.89	ug/L		12/05/11 17:33	12/06/11 19:03	1
Thallium	<8.8		25	8.8	ug/L		12/05/11 17:33	12/06/11 19:03	1
Tin	<5.1		50	5.1	ug/L		12/05/11 17:33	12/06/11 19:03	1
Vanadium	<2.4		10	2.4	ug/L		12/05/11 17:33	12/06/11 19:03	1
Zinc	<8.7		20	8.7	ug/L		12/05/11 17:33	12/06/11 19:03	1

Lab Sample ID: LCS 680-222706/2-A
Matrix: Water
Analysis Batch: 222858

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 222706

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	500	516		ug/L		103	75 - 125
Arsenic	2000	2110		ug/L		105	75 - 125
Barium	2000	2200		ug/L		110	75 - 125
Beryllium	50.0	53.3		ug/L		107	75 - 125
Cadmium	50.0	53.1		ug/L		106	75 - 125
Chromium	200	218		ug/L		109	75 - 125
Cobalt	500	536		ug/L		107	75 - 125
Copper	250	268		ug/L		107	75 - 125
Lead	500	539		ug/L		108	75 - 125
Nickel	500	532		ug/L		106	75 - 125
Selenium	2000	2130		ug/L		107	75 - 125
Silver	50.0	53.9		ug/L		108	75 - 125
Thallium	2000	2230		ug/L		112	75 - 125
Tin	1000	1020		ug/L		102	75 - 125
Vanadium	500	538		ug/L		108	75 - 125
Zinc	500	539		ug/L		108	75 - 125

QC Sample Results

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 680-222734/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222934 — **Prep Batch: 222734**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.091		0.20	0.091	ug/L		12/06/11 10:12	12/07/11 11:16	1

Lab Sample ID: LCS 680-222734/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222934 — **Prep Batch: 222734**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.42		ug/L		97	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-222951/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222951

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		5.0	1.0	mg/L			12/06/11 15:21	5
Sulfate	<2.6		5.0	2.6	mg/L			12/06/11 15:21	5

Lab Sample ID: LCS 680-222951/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222951

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.2		mg/L		98	90 - 110
Sulfate	50.0	49.9		mg/L		100	90 - 110

Lab Sample ID: LCSD 680-222951/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222951

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	50.0	49.2		mg/L		98	90 - 110	0	30
Sulfate	50.0	49.8		mg/L		100	90 - 110	0	30

Lab Sample ID: MB 680-223172/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223172

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		5.0	1.0	mg/L			12/09/11 08:40	5
Sulfate	<2.6		5.0	2.6	mg/L			12/09/11 08:40	5

Lab Sample ID: LCS 680-223172/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223172

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.0		mg/L		98	90 - 110
Sulfate	50.0	50.1		mg/L		100	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 680-223172/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223172

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	50.0	49.1		mg/L		98	90 - 110	0	30
Sulfate	50.0	50.1		mg/L		100	90 - 110	0	30

Lab Sample ID: MB 680-223547/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223547

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		5.0	1.0	mg/L			12/13/11 09:32	5
Sulfate	<2.6		5.0	2.6	mg/L			12/13/11 09:32	5

Lab Sample ID: LCS 680-223547/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223547

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.1		mg/L		98	90 - 110
Sulfate	50.0	50.1		mg/L		100	90 - 110

Lab Sample ID: LCSD 680-223547/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 223547

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	50.0	49.0		mg/L		98	90 - 110	0	30
Sulfate	50.0	50.2		mg/L		100	90 - 110	0	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-222595/14 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222595

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.010		0.050	0.010	mg/L			12/02/11 15:39	1

Lab Sample ID: LCS 680-222595/15 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222595

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.497	0.505		mg/L		102	90 - 110

Method: 410.4 - COD

Lab Sample ID: MB 680-222644/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222644

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<6.3		20	6.3	mg/L			12/05/11 09:40	1

Lab Sample ID: LCS 680-222644/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222644

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	100	103		mg/L		103	90 - 110

Lab Sample ID: 680-74852-3 MS — **Client Sample ID: ABPMW09D002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222645

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	50		100	141		mg/L		91	90 - 110

Lab Sample ID: 680-74852-3 MSD — **Client Sample ID: ABPMW09D002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222645

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	50		100	141		mg/L		91	90 - 110	0	30

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 680-222730/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222730

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<5.0		5.0	5.0	mg/L			12/03/11 14:29	1

Lab Sample ID: LCS 680-222730/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222730

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	183	163		mg/L		89	80 - 120

Lab Sample ID: LCSD 680-222730/32 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222730

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	183	164		mg/L		89	80 - 120	0	30

Method: SM 3500 FE D - Iron, Ferrous

Lab Sample ID: MB 680-222723/13 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222723

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ferrous Iron	<0.025		0.10	0.025	mg/L			12/05/11 10:52	1

Lab Sample ID: LCS 680-222723/12 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222723

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	2.00	1.98		mg/L		99	80 - 120

Lab Sample ID: 680-74852-1 MS — **Client Sample ID: ABPMW04F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222723

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	0.040	J HF	2.00	1.10	F	mg/L		53	80 - 120

Lab Sample ID: 680-74852-1 MSD — **Client Sample ID: ABPMW04F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222723

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ferrous Iron	0.040	J HF	2.00	1.08	F	mg/L		52	80 - 120	2	20

Method: SM 4500 S2 F - Sulfide, Total

Lab Sample ID: MB 680-222650/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222650

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.0		1.0	1.0	mg/L			12/05/11 12:06	1

Lab Sample ID: LCS 680-222650/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222650

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	9.66	9.19		mg/L		95	75 - 125

Lab Sample ID: MB 680-222660/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 222660

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<1.0		1.0	1.0	mg/L			12/05/11 13:31	1

Method: SM 4500 S2 F - Sulfide, Total (Continued)

Lab Sample ID: LCS 680-222660/2
Matrix: Water
Analysis Batch: 222660

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfide			9.66	9.25		mg/L		96	75 - 125		

Lab Chronicle

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: ABPMW04F002 — Lab Sample ID: 680-74852-1

Date Collected: 12/01/11 13:25 — **Matrix: Water**
Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	223215	12/10/11 01:14	AJMC	TAL SAV
Total/NA	Prep	3520C			222618	12/05/11 14:53	RBS	TAL SAV
Total/NA	Analysis	8270C		1	223421	12/12/11 21:55	LH	TAL SAV
Total/NA	Prep	3010A			222706	12/05/11 17:33	RAM	TAL SAV
Total/NA	Analysis	6010C		1	222858	12/06/11 20:11	BCB	TAL SAV
Total/NA	Prep	7470A			222734	12/06/11 10:12	JKL	TAL SAV
Total/NA	Analysis	7470A		1	222934	12/07/11 11:53	JKL	TAL SAV
Total/NA	Analysis	353.2		5	222595	12/02/11 16:39	JNC	TAL SAV
Total/NA	Analysis	410.4		1	222644	12/05/11 09:40	PAT	TAL SAV
Total/NA	Analysis	SM 4500 S2 F		1	222650	12/05/11 12:06	DAM	TAL SAV
Total/NA	Analysis	SM 3500 FE D		1	222723	12/05/11 10:49	JNC	TAL SAV
Total/NA	Analysis	300.0		5	222951	12/06/11 19:54	SMP	TAL SAV

Client Sample ID: ABPMW09F002 — Lab Sample ID: 680-74852-2

Date Collected: 11/30/11 13:10 — **Matrix: Water**
Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	222977	12/08/11 18:12	AJMC	TAL SAV
Total/NA	Analysis	353.2		5	222595	12/02/11 16:42	JNC	TAL SAV
Total/NA	Analysis	410.4		1	222644	12/05/11 09:40	PAT	TAL SAV
Total/NA	Analysis	SM 4500 S2 F		1	222650	12/05/11 12:06	DAM	TAL SAV
Total/NA	Analysis	SM 3500 FE D		1	222723	12/05/11 10:49	JNC	TAL SAV
Total/NA	Analysis	300.0		5	222951	12/06/11 20:07	SMP	TAL SAV

Client Sample ID: ABPMW09D002 — Lab Sample ID: 680-74852-3

Date Collected: 11/30/11 13:30 — **Matrix: Water**
Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	353.2		5	222595	12/02/11 16:44	JNC	TAL SAV
Total/NA	Analysis	410.4		1	222645	12/05/11 09:40	PAT	TAL SAV
Total/NA	Analysis	SM 4500 S2 F		1	222650	12/05/11 12:06	DAM	TAL SAV
Total/NA	Analysis	SM 3500 FE D		1	222723	12/05/11 10:49	JNC	TAL SAV
Total/NA	Analysis	300.0		5	222951	12/06/11 20:19	SMP	TAL SAV

Client Sample ID: ABPMW10F002 — Lab Sample ID: 680-74852-4

Date Collected: 11/30/11 15:30 — **Matrix: Water**
Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	222977	12/08/11 18:41	AJMC	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: ABPMW10F002 — Lab Sample ID: 680-74852-4

Date Collected: 11/30/11 15:30
Date Received: 12/02/11 09:36
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	353.2		5	222595	12/02/11 16:47	JNC	TAL SAV
Total/NA	Analysis	410.4		1	222645	12/05/11 09:40	PAT	TAL SAV
Total/NA	Analysis	SM 4500 S2 F		1	222660	12/05/11 13:31	DAM	TAL SAV
Total/NA	Analysis	SM 3500 FE D		1	222723	12/05/11 10:49	JNC	TAL SAV
Total/NA	Analysis	300.0		5	223172	12/09/11 14:25	SMP	TAL SAV

Client Sample ID: ABPMW16F002 — Lab Sample ID: 680-74852-5

Date Collected: 11/30/11 10:30
Date Received: 12/02/11 09:36
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	222977	12/08/11 19:10	AJMC	TAL SAV
Total/NA	Prep	3520C			222618	12/05/11 14:53	RBS	TAL SAV
Total/NA	Analysis	8270C		1	223421	12/12/11 22:23	LH	TAL SAV
Total/NA	Prep	3010A			222706	12/05/11 17:33	RAM	TAL SAV
Total/NA	Analysis	6010C		1	222858	12/06/11 20:16	BCB	TAL SAV
Total/NA	Prep	7470A			222734	12/06/11 10:12	JKL	TAL SAV
Total/NA	Analysis	7470A		1	222934	12/07/11 11:56	JKL	TAL SAV
Total/NA	Analysis	353.2		5	222595	12/02/11 16:50	JNC	TAL SAV
Total/NA	Analysis	410.4		1	222645	12/05/11 09:40	PAT	TAL SAV
Total/NA	Analysis	SM 4500 S2 F		1	222660	12/05/11 13:31	DAM	TAL SAV
Total/NA	Analysis	SM 3500 FE D		1	222723	12/05/11 10:49	JNC	TAL SAV
Total/NA	Analysis	300.0		5	223172	12/09/11 14:37	SMP	TAL SAV

Client Sample ID: ABPF02F002 — Lab Sample ID: 680-74852-6

Date Collected: 12/01/11 09:40
Date Received: 12/02/11 09:36
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	222977	12/08/11 19:39	AJMC	TAL SAV
Total/NA	Prep	3520C			222618	12/05/11 14:53	RBS	TAL SAV
Total/NA	Analysis	8270C		1	223421	12/12/11 22:53	LH	TAL SAV
Total/NA	Analysis	353.2		1	222595	12/02/11 15:54	JNC	TAL SAV
Total/NA	Analysis	410.4		1	222645	12/05/11 09:40	PAT	TAL SAV
Total/NA	Analysis	SM 4500 S2 F		1	222660	12/05/11 13:31	DAM	TAL SAV
Total/NA	Analysis	SM 3500 FE D		1	222723	12/05/11 10:49	JNC	TAL SAV
Total/NA	Analysis	SM 2320B		1	222730	12/03/11 16:05	TH	TAL SAV
Total/NA	Analysis	300.0		5	223172	12/09/11 14:50	SMP	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Client Sample ID: ABPB016MW2F002

Lab Sample ID: 680-74852-7

Date Collected: 12/01/11 12:20

Matrix: Water

Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	222977	12/08/11 20:08	AJMC	TAL SAV
Total/NA	Prep	3520C			222618	12/05/11 14:53	RBS	TAL SAV
Total/NA	Analysis	8270C		1	223421	12/12/11 23:22	LH	TAL SAV
Total/NA	Analysis	353.2		5	222595	12/02/11 16:52	JNC	TAL SAV
Total/NA	Analysis	410.4		1	222645	12/05/11 09:40	PAT	TAL SAV
Total/NA	Analysis	SM 4500 S2 F		1	222660	12/05/11 13:31	DAM	TAL SAV
Total/NA	Analysis	SM 3500 FE D		1	222723	12/05/11 10:49	JNC	TAL SAV
Total/NA	Analysis	SM 2320B		1	222730	12/03/11 16:11	TH	TAL SAV
Total/NA	Analysis	300.0		5	223547	12/13/11 10:40	SMP	TAL SAV

Client Sample ID: Trip Blank

Lab Sample ID: 680-74852-8

Date Collected: 11/03/11 00:00

Matrix: Water

Date Received: 12/02/11 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	223215	12/09/11 20:38	AJMC	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 047267

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: ABP CMS GW	PROJECT NO.: KB	PROJECT LOCATION (STATE): NC
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER: 137-165	CONTRACT NO.:
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814939005	CLIENT FAX: 2814939007
CLIENT NAME: ENVIROENGINEERING	CLIENT E-MAIL: mworden@environeering inc.com	
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 2

STANDARD REPORT DELIVERY ☒

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

PRESERVATIVE

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	300.0 28D Sulfate/Chloride	353.2 COD	7320B Alkalinity	4500-S2-F Sulfide	3500 Fe Ferrous Iron	8260B App IX VOCs	8270C App IX SVOCs	6010C 7470 App IX Metals	VOCs		REMARKS
								1	H_2SO_4	1	NaOH ZnAc	1	HCl	1	HNO_3	HCl		
								NUMBER OF CONTAINERS SUBMITTED										
12/1/11	1325	ABP MW04 F002	G	X				1	1	1	2	1	3	2	1	1		HOLD ALKALENITY
11/30/11	1310	ABP MW09 F002	G	X				1	1	1	2	1	–	–	–	–		" "
11/30/11	1330	ABP MW09 D002	G	X				1	1	1	2	1	–	–	–	–		" "
11/30/11	1530	ABP MW10 F002	G	X				1	1	1	2	1	–	–	–	–		" "
11/30/11	1030	ABP MW16 F002	G	X				1	1	1	2	1	3	2	1	–		" "
12/1/11	0940	ABP FO2 F002	G	X				1	1	1	2	1	–	–	–	–		
12/1/11	1220	ABP B016MW2 F002	G	X				1	1	1	2	1	–	–	–	–		
11/3/11	–	TRIP BLANK	G	X				–	–	–	–	–	–	–	–	3		

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	12/1/11	1915						
RECEIVED BY: (SIGNATURE) FEDEX	DATE 12/1/11	TIME 1915	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth A Daughty	12/02/11	0936	YES ○ NO ○		680-74852	Temp 1.6°C, 1.3°C, 0.9°C

TAL 8240-680 (1008)

Serial Number 034557

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: ABP CMS GW	PROJECT NO.	PROJECT LOCATION (STATE): NC	PAGE 2 OF 2
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER: 137-165	CONTRACT NO.	STANDARD REPORT DELIVERY ✓
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814935005	CLIENT FAX: 2814935007	DATE DUE
CLIENT NAME: ENVIROENERGY	CLIENT E-MAIL: mworden@environergyinc.com		EXPEDITED REPORT DELIVERY (SURCHARGE)
CLIENT ADDRESS: 810 HWY 6 SUITE SEE 200 HOUSTON TX 77079			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 3

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

REQUIRED ANALYSIS: 8260B TCE ONLY; 8260B Dichloromethane ONLY; 8260B Acetone ONLY; 8270C BES 2 Methylene Chloride ONLY; 8270C D.n-Octyl & Bis 2 Ethylhexyl ONLY

PRESERVATIVE

NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID	8260B TCE ONLY	8260B Dichloromethane ONLY	8260B Acetone ONLY	8270C BES 2 Methylene Chloride ONLY	8270C D.n-Octyl & Bis 2 Ethylhexyl ONLY	REMARKS
12/1/11	1325	ABP MW04 F002	G	X				1	1	1	1	1	
11/30/11	1310	ABP MW09 F002		X				3	1	1	1	1	
11/30/11	1330	ABP MW09 D002		X				1	1	1	1	1	
11/30/11	1530	ABP MW10 F002		X				1	1	3	1	1	
11/30/11	1030	ABP MW16 F002		X				1	1	1	1	1	
12/1/11	0940	ABP F02 F002		X				1	3	1	2	2	
12/1/11	1220	ABP B016MW2 F002		X				1	3	1	1	2	
11/3/11	—	TRIP BLANK		X				1	1	1	1	1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	12/1/11	1915						
RECEIVED BY: (SIGNATURE) FEDEX	DATE 12/1/11	TIME 1915	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
Beth a Daughty	12/02/11	0936	YES ○ NO ○		680-74852	Temp 1.6°C, 1.3°C, 0.9°C

TAL 8240-680 (1008)

Certification Summary

Client: Environeering Inc
Project/Site: ABP CMS GW/137-165

TestAmerica Job ID: 680-74852-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	Arkansas DOH	6	N/A
TestAmerica Savannah	Arkansas	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Delaware	State Program	3	N/A
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	Georgia	Georgia EPD	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	Kentucky UST	4	18
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina	North Carolina DENR	4	269
TestAmerica Savannah	North Carolina	North Carolina PHL	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	USDA		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC	3	460161
TestAmerica Savannah	Virginia	State Program	3	302
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	West Virginia DEP	3	94
TestAmerica Savannah	West Virginia	West Virginia DHHR (DW)	3	9950C
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-6095-1
Client Project/Site: Alcoa - Badin Surface Water Sampling
Revision: 1

For:
BHE Environmental Inc./ Alcoa Work
11733 Chesterdale Road
Cincinnati, Ohio 45246-3405

Attn: Mr. Matt Bruck

Authorized for release by:
12/9/2011 1:11:44 PM

Whitney Ritari
Project Manager I
whitney.ritari@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 180-6095-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-6095-1

This report was revised to reflect the correct sample identification.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 21876 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

GC/MS Semi VOA
No analytical or quality issues were noted.

GC Semi VOA
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Definitions/Glossary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	ACLASS	DoD ELAP		ADE-1422
TestAmerica Pittsburgh	Arkansas	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina	North Carolina DENR	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	USDA		P330-10-00139
TestAmerica Pittsburgh	USDA	USDA		P-Soil-01
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	Virginia	NELAC	3	460189
TestAmerica Pittsburgh	West Virginia	West Virginia DEP	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800
TestAmerica North Canton	ACLASS	DoD ELAP		ADE-1437
TestAmerica North Canton	California	NELAC	9	01144CA
TestAmerica North Canton	Connecticut	State Program	1	PH-0590
TestAmerica North Canton	Florida	NELAC	4	E87225
TestAmerica North Canton	Georgia	Georgia EPD	4	N/A
TestAmerica North Canton	Illinois	NELAC	5	200004
TestAmerica North Canton	Kansas	NELAC	7	E-10336
TestAmerica North Canton	Kentucky	State Program	4	58
TestAmerica North Canton	Minnesota	NELAC	5	039-999-348
TestAmerica North Canton	Nevada	State Program	9	OH-000482008A
TestAmerica North Canton	New Jersey	NELAC	2	OH001
TestAmerica North Canton	New York	NELAC	2	10975
TestAmerica North Canton	Ohio	OVAP	5	CL0024
TestAmerica North Canton	Pennsylvania	NELAC	3	68-00340
TestAmerica North Canton	USDA	USDA		P330-11-00328
TestAmerica North Canton	Virginia	NELAC Secondary AB	3	460175
TestAmerica North Canton	West Virginia	West Virginia DEP	3	210
TestAmerica North Canton	Wisconsin	State Program	5	999518190

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-6095-1	ABKSWL07F001	Water	11/16/11 15:55	11/19/11 10:00
180-6095-2	OBLSWL01F001	Water	11/17/11 09:30	11/19/11 10:00
180-6095-3	ABKSWL05F001	Water	11/16/11 14:40	11/19/11 10:00
180-6095-4	ABKSWL06F001	Water	11/16/11 14:10	11/19/11 10:00
180-6095-5	ABKSWL03F001	Water	11/16/11 15:50	11/19/11 10:00
180-6095-6	ABKSWL04F001	Water	11/16/11 15:00	11/19/11 10:00
180-6095-7	ABKSWL01F001	Water	11/16/11 16:35	11/19/11 10:00
180-6095-8	ABKSWL02F001	Water	11/16/11 16:14	11/19/11 10:00
180-6095-9	ABLSWL01F001	Water	11/18/11 08:30	11/19/11 10:00

Method Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PIT
8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL PIT
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
SM 4500 F C	Fluoride	SM	TAL NC

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NC = TestAmerica North Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Client Sample ID: ABKSWL07F001

Date Collected: 11/16/11 15:55
Date Received: 11/19/11 10:00

Lab Sample ID: 180-6095-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*62 - 123*		*11/28/11 16:20*	*1*
Toluene-d8 (Surr)	*108*		*80 - 120*		*11/28/11 16:20*	*1*
4-Bromofluorobenzene (Surr)	*89*		*75 - 120*		*11/28/11 16:20*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*11/28/11 16:20*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.0	0.14	ug/L		11/21/11 11:53	11/23/11 00:02	1
Acenaphthylene	ND		2.0	0.15	ug/L		11/21/11 11:53	11/23/11 00:02	1
Anthracene	ND		2.0	0.15	ug/L		11/21/11 11:53	11/23/11 00:02	1
Benzo[a]anthracene	ND		2.0	0.15	ug/L		11/21/11 11:53	11/23/11 00:02	1
Benzo[a]pyrene	ND		2.0	0.13	ug/L		11/21/11 11:53	11/23/11 00:02	1
Benzo[b]fluoranthene	ND		2.0	0.16	ug/L		11/21/11 11:53	11/23/11 00:02	1
Benzo[g,h,i]perylene	ND		2.0	0.15	ug/L		11/21/11 11:53	11/23/11 00:02	1
Benzo[k]fluoranthene	ND		2.0	0.55	ug/L		11/21/11 11:53	11/23/11 00:02	1
Chrysene	ND		2.0	0.14	ug/L		11/21/11 11:53	11/23/11 00:02	1
Dibenz(a,h)anthracene	ND		2.0	0.16	ug/L		11/21/11 11:53	11/23/11 00:02	1
Fluoranthene	ND		2.0	0.16	ug/L		11/21/11 11:53	11/23/11 00:02	1
Fluorene	ND		2.0	0.22	ug/L		11/21/11 11:53	11/23/11 00:02	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.20	ug/L		11/21/11 11:53	11/23/11 00:02	1
Naphthalene	ND		2.0	0.14	ug/L		11/21/11 11:53	11/23/11 00:02	1
Phenanthrene	ND		2.0	0.43	ug/L		11/21/11 11:53	11/23/11 00:02	1
Pyrene	ND		2.0	0.16	ug/L		11/21/11 11:53	11/23/11 00:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*40*		*37 - 104*	*11/21/11 11:53*	*11/23/11 00:02*	*1*
2-Fluorobiphenyl	*45*		*35 - 108*	*11/21/11 11:53*	*11/23/11 00:02*	*1*
Terphenyl-d14	*47*		*25 - 130*	*11/21/11 11:53*	*11/23/11 00:02*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.42	0.10	ug/L		11/21/11 06:50	11/23/11 16:32	1
PCB-1221	ND		0.42	0.10	ug/L		11/21/11 06:50	11/23/11 16:32	1
PCB-1232	ND		0.42	0.12	ug/L		11/21/11 06:50	11/23/11 16:32	1
PCB-1242	ND		0.42	0.077	ug/L		11/21/11 06:50	11/23/11 16:32	1
PCB-1248	ND		0.42	0.095	ug/L		11/21/11 06:50	11/23/11 16:32	1
PCB-1254	ND		0.42	0.095	ug/L		11/21/11 06:50	11/23/11 16:32	1
PCB-1260	ND		0.42	0.056	ug/L		11/21/11 06:50	11/23/11 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*91*		*35 - 140*	*11/21/11 06:50*	*11/23/11 16:32*	*1*
DCB Decachlorobiphenyl (Surr)	*99*		*35 - 140*	*11/21/11 06:50*	*11/23/11 16:32*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:09	1
Fluoride	**0.12**	**B**	0.050	0.0068	mg/L			11/29/11 11:40	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Client Sample ID: OBLSWL01F001

Date Collected: 11/17/11 09:30
Date Received: 11/19/11 10:00

Lab Sample ID: 180-6095-2

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*62 - 123*		*11/28/11 16:44*	*1*
Toluene-d8 (Surr)	*107*		*80 - 120*		*11/28/11 16:44*	*1*
4-Bromofluorobenzene (Surr)	*88*		*75 - 120*		*11/28/11 16:44*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*11/28/11 16:44*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.1	0.15	ug/L		11/23/11 10:43	11/25/11 19:10	1
Acenaphthylene	ND		2.1	0.16	ug/L		11/23/11 10:43	11/25/11 19:10	1
Anthracene	ND		2.1	0.16	ug/L		11/23/11 10:43	11/25/11 19:10	1
Benzo[a]anthracene	ND		2.1	0.15	ug/L		11/23/11 10:43	11/25/11 19:10	1
Benzo[a]pyrene	ND		2.1	0.14	ug/L		11/23/11 10:43	11/25/11 19:10	1
Benzo[b]fluoranthene	ND		2.1	0.17	ug/L		11/23/11 10:43	11/25/11 19:10	1
Benzo[g,h,i]perylene	ND		2.1	0.16	ug/L		11/23/11 10:43	11/25/11 19:10	1
Benzo[k]fluoranthene	ND		2.1	0.58	ug/L		11/23/11 10:43	11/25/11 19:10	1
Chrysene	ND		2.1	0.15	ug/L		11/23/11 10:43	11/25/11 19:10	1
Dibenz(a,h)anthracene	ND		2.1	0.16	ug/L		11/23/11 10:43	11/25/11 19:10	1
Fluoranthene	ND		2.1	0.17	ug/L		11/23/11 10:43	11/25/11 19:10	1
Fluorene	ND		2.1	0.23	ug/L		11/23/11 10:43	11/25/11 19:10	1
Indeno[1,2,3-cd]pyrene	ND		2.1	0.21	ug/L		11/23/11 10:43	11/25/11 19:10	1
Naphthalene	ND		2.1	0.15	ug/L		11/23/11 10:43	11/25/11 19:10	1
Phenanthrene	ND		2.1	0.45	ug/L		11/23/11 10:43	11/25/11 19:10	1
Pyrene	ND		2.1	0.17	ug/L		11/23/11 10:43	11/25/11 19:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*47*		*37 - 104*	*11/23/11 10:43*	*11/25/11 19:10*	*1*
2-Fluorobiphenyl	*48*		*35 - 108*	*11/23/11 10:43*	*11/25/11 19:10*	*1*
Terphenyl-d14	*34*		*25 - 130*	*11/23/11 10:43*	*11/25/11 19:10*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.40	0.10	ug/L		11/21/11 06:50	11/23/11 17:01	1
PCB-1221	ND		0.40	0.10	ug/L		11/21/11 06:50	11/23/11 17:01	1
PCB-1232	ND		0.40	0.12	ug/L		11/21/11 06:50	11/23/11 17:01	1
PCB-1242	ND		0.40	0.075	ug/L		11/21/11 06:50	11/23/11 17:01	1
PCB-1248	ND		0.40	0.092	ug/L		11/21/11 06:50	11/23/11 17:01	1
PCB-1254	ND		0.40	0.092	ug/L		11/21/11 06:50	11/23/11 17:01	1
PCB-1260	ND		0.40	0.055	ug/L		11/21/11 06:50	11/23/11 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*93*		*35 - 140*	*11/21/11 06:50*	*11/23/11 17:01*	*1*
DCB Decachlorobiphenyl (Surr)	*101*		*35 - 140*	*11/21/11 06:50*	*11/23/11 17:01*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 14:07	1
Fluoride	**0.11**	**B**	0.050	0.0068	mg/L			11/29/11 11:48	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Client Sample ID: ABKSWL05F001

Date Collected: 11/16/11 14:40
Date Received: 11/19/11 10:00

Lab Sample ID: 180-6095-3

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*62 - 123*		*11/28/11 17:07*	*1*
Toluene-d8 (Surr)	*108*		*80 - 120*		*11/28/11 17:07*	*1*
4-Bromofluorobenzene (Surr)	*90*		*75 - 120*		*11/28/11 17:07*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*11/28/11 17:07*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.9	0.14	ug/L		11/21/11 11:55	11/23/11 00:25	1
Acenaphthylene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 00:25	1
Anthracene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 00:25	1
Benzo[a]anthracene	ND		1.9	0.14	ug/L		11/21/11 11:55	11/23/11 00:25	1
Benzo[a]pyrene	ND		1.9	0.13	ug/L		11/21/11 11:55	11/23/11 00:25	1
Benzo[b]fluoranthene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 00:25	1
Benzo[g,h,i]perylene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 00:25	1
Benzo[k]fluoranthene	ND		1.9	0.53	ug/L		11/21/11 11:55	11/23/11 00:25	1
Chrysene	ND		1.9	0.13	ug/L		11/21/11 11:55	11/23/11 00:25	1
Dibenz(a,h)anthracene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 00:25	1
Fluoranthene	ND		1.9	0.16	ug/L		11/21/11 11:55	11/23/11 00:25	1
Fluorene	ND		1.9	0.21	ug/L		11/21/11 11:55	11/23/11 00:25	1
Indeno[1,2,3-cd]pyrene	ND		1.9	0.19	ug/L		11/21/11 11:55	11/23/11 00:25	1
Naphthalene	ND		1.9	0.13	ug/L		11/21/11 11:55	11/23/11 00:25	1
Phenanthrene	ND		1.9	0.41	ug/L		11/21/11 11:55	11/23/11 00:25	1
Pyrene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 00:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*46*		*37 - 104*	*11/21/11 11:55*	*11/23/11 00:25*	*1*
2-Fluorobiphenyl	*53*		*35 - 108*	*11/21/11 11:55*	*11/23/11 00:25*	*1*
Terphenyl-d14	*51*		*25 - 130*	*11/21/11 11:55*	*11/23/11 00:25*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.45	0.11	ug/L		11/21/11 06:50	11/23/11 17:30	1
PCB-1221	ND		0.45	0.11	ug/L		11/21/11 06:50	11/23/11 17:30	1
PCB-1232	ND		0.45	0.13	ug/L		11/21/11 06:50	11/23/11 17:30	1
PCB-1242	ND		0.45	0.083	ug/L		11/21/11 06:50	11/23/11 17:30	1
PCB-1248	ND		0.45	0.10	ug/L		11/21/11 06:50	11/23/11 17:30	1
PCB-1254	ND		0.45	0.10	ug/L		11/21/11 06:50	11/23/11 17:30	1
PCB-1260	ND		0.45	0.061	ug/L		11/21/11 06:50	11/23/11 17:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*92*		*35 - 140*	*11/21/11 06:50*	*11/23/11 17:30*	*1*
DCB Decachlorobiphenyl (Surr)	*102*		*35 - 140*	*11/21/11 06:50*	*11/23/11 17:30*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:11	1
Fluoride	**0.11**	**B**	0.050	0.0068	mg/L			11/29/11 11:55	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Client Sample ID: ABKSWL06F001

Date Collected: 11/16/11 14:10
Date Received: 11/19/11 10:00

Lab Sample ID: 180-6095-4

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 17:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*62 - 123*		*11/28/11 17:30*	*1*
Toluene-d8 (Surr)	*109*		*80 - 120*		*11/28/11 17:30*	*1*
4-Bromofluorobenzene (Surr)	*89*		*75 - 120*		*11/28/11 17:30*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*11/28/11 17:30*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.0	0.15	ug/L		11/21/11 11:55	11/23/11 00:48	1
Acenaphthylene	ND		2.0	0.16	ug/L		11/21/11 11:55	11/23/11 00:48	1
Anthracene	ND		2.0	0.16	ug/L		11/21/11 11:55	11/23/11 00:48	1
Benzo[a]anthracene	ND		2.0	0.15	ug/L		11/21/11 11:55	11/23/11 00:48	1
Benzo[a]pyrene	ND		2.0	0.14	ug/L		11/21/11 11:55	11/23/11 00:48	1
Benzo[b]fluoranthene	ND		2.0	0.16	ug/L		11/21/11 11:55	11/23/11 00:48	1
Benzo[g,h,i]perylene	ND		2.0	0.15	ug/L		11/21/11 11:55	11/23/11 00:48	1
Benzo[k]fluoranthene	ND		2.0	0.56	ug/L		11/21/11 11:55	11/23/11 00:48	1
Chrysene	ND		2.0	0.14	ug/L		11/21/11 11:55	11/23/11 00:48	1
Dibenz(a,h)anthracene	ND		2.0	0.16	ug/L		11/21/11 11:55	11/23/11 00:48	1
Fluoranthene	ND		2.0	0.17	ug/L		11/21/11 11:55	11/23/11 00:48	1
Fluorene	ND		2.0	0.22	ug/L		11/21/11 11:55	11/23/11 00:48	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.20	ug/L		11/21/11 11:55	11/23/11 00:48	1
Naphthalene	ND		2.0	0.14	ug/L		11/21/11 11:55	11/23/11 00:48	1
Phenanthrene	ND		2.0	0.44	ug/L		11/21/11 11:55	11/23/11 00:48	1
Pyrene	ND		2.0	0.16	ug/L		11/21/11 11:55	11/23/11 00:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*45*		*37 - 104*	*11/21/11 11:55*	*11/23/11 00:48*	*1*
2-Fluorobiphenyl	*50*		*35 - 108*	*11/21/11 11:55*	*11/23/11 00:48*	*1*
Terphenyl-d14	*46*		*25 - 130*	*11/21/11 11:55*	*11/23/11 00:48*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.39	0.099	ug/L		11/21/11 06:50	11/23/11 17:59	1
PCB-1221	ND		0.39	0.098	ug/L		11/21/11 06:50	11/23/11 17:59	1
PCB-1232	ND		0.39	0.11	ug/L		11/21/11 06:50	11/23/11 17:59	1
PCB-1242	ND		0.39	0.073	ug/L		11/21/11 06:50	11/23/11 17:59	1
PCB-1248	ND		0.39	0.089	ug/L		11/21/11 06:50	11/23/11 17:59	1
PCB-1254	ND		0.39	0.090	ug/L		11/21/11 06:50	11/23/11 17:59	1
PCB-1260	ND		0.39	0.053	ug/L		11/21/11 06:50	11/23/11 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*51*		*35 - 140*	*11/21/11 06:50*	*11/23/11 17:59*	*1*
DCB Decachlorobiphenyl (Surr)	*55*		*35 - 140*	*11/21/11 06:50*	*11/23/11 17:59*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:12	1
Fluoride	**0.12**	**B**	0.050	0.0068	mg/L			11/29/11 12:03	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Client Sample ID: ABKSWL03F001

Date Collected: 11/16/11 15:50
Date Received: 11/19/11 10:00

Lab Sample ID: 180-6095-5

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 17:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*62 - 123*		*11/28/11 17:54*	*1*
Toluene-d8 (Surr)	*107*		*80 - 120*		*11/28/11 17:54*	*1*
4-Bromofluorobenzene (Surr)	*90*		*75 - 120*		*11/28/11 17:54*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*11/28/11 17:54*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.0	0.14	ug/L		11/21/11 11:55	11/23/11 01:11	1
Acenaphthylene	ND		2.0	0.15	ug/L		11/21/11 11:55	11/23/11 01:11	1
Anthracene	ND		2.0	0.15	ug/L		11/21/11 11:55	11/23/11 01:11	1
Benzo[a]anthracene	ND		2.0	0.15	ug/L		11/21/11 11:55	11/23/11 01:11	1
Benzo[a]pyrene	ND		2.0	0.13	ug/L		11/21/11 11:55	11/23/11 01:11	1
Benzo[b]fluoranthene	ND		2.0	0.16	ug/L		11/21/11 11:55	11/23/11 01:11	1
Benzo[g,h,i]perylene	ND		2.0	0.15	ug/L		11/21/11 11:55	11/23/11 01:11	1
Benzo[k]fluoranthene	ND		2.0	0.55	ug/L		11/21/11 11:55	11/23/11 01:11	1
Chrysene	ND		2.0	0.14	ug/L		11/21/11 11:55	11/23/11 01:11	1
Dibenz(a,h)anthracene	ND		2.0	0.16	ug/L		11/21/11 11:55	11/23/11 01:11	1
Fluoranthene	ND		2.0	0.16	ug/L		11/21/11 11:55	11/23/11 01:11	1
Fluorene	ND		2.0	0.22	ug/L		11/21/11 11:55	11/23/11 01:11	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.20	ug/L		11/21/11 11:55	11/23/11 01:11	1
Naphthalene	ND		2.0	0.14	ug/L		11/21/11 11:55	11/23/11 01:11	1
Phenanthrene	ND		2.0	0.43	ug/L		11/21/11 11:55	11/23/11 01:11	1
Pyrene	ND		2.0	0.16	ug/L		11/21/11 11:55	11/23/11 01:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*46*		*37 - 104*	*11/21/11 11:55*	*11/23/11 01:11*	*1*
2-Fluorobiphenyl	*51*		*35 - 108*	*11/21/11 11:55*	*11/23/11 01:11*	*1*
Terphenyl-d14	*47*		*25 - 130*	*11/21/11 11:55*	*11/23/11 01:11*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.40	0.10	ug/L		11/21/11 06:50	11/23/11 18:28	1
PCB-1221	ND		0.40	0.10	ug/L		11/21/11 06:50	11/23/11 18:28	1
PCB-1232	ND		0.40	0.12	ug/L		11/21/11 06:50	11/23/11 18:28	1
PCB-1242	ND		0.40	0.075	ug/L		11/21/11 06:50	11/23/11 18:28	1
PCB-1248	ND		0.40	0.092	ug/L		11/21/11 06:50	11/23/11 18:28	1
PCB-1254	ND		0.40	0.092	ug/L		11/21/11 06:50	11/23/11 18:28	1
PCB-1260	ND		0.40	0.055	ug/L		11/21/11 06:50	11/23/11 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*88*		*35 - 140*	*11/21/11 06:50*	*11/23/11 18:28*	*1*
DCB Decachlorobiphenyl (Surr)	*99*		*35 - 140*	*11/21/11 06:50*	*11/23/11 18:28*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:14	1
Fluoride	**0.11**	**B**	0.050	0.0068	mg/L			11/29/11 12:10	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Client Sample ID: ABKSWL04F001

Date Collected: 11/16/11 15:00
Date Received: 11/19/11 10:00

Lab Sample ID: 180-6095-6

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*62 - 123*		*11/28/11 18:17*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*11/28/11 18:17*	*1*
4-Bromofluorobenzene (Surr)	*90*		*75 - 120*		*11/28/11 18:17*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*11/28/11 18:17*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.9	0.14	ug/L		11/21/11 11:55	11/23/11 14:22	1
Acenaphthylene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 14:22	1
Anthracene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 14:22	1
Benzo[a]anthracene	ND		1.9	0.14	ug/L		11/21/11 11:55	11/23/11 14:22	1
Benzo[a]pyrene	ND		1.9	0.13	ug/L		11/21/11 11:55	11/23/11 14:22	1
Benzo[b]fluoranthene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 14:22	1
Benzo[g,h,i]perylene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 14:22	1
Benzo[k]fluoranthene	ND		1.9	0.53	ug/L		11/21/11 11:55	11/23/11 14:22	1
Chrysene	ND		1.9	0.13	ug/L		11/21/11 11:55	11/23/11 14:22	1
Dibenz(a,h)anthracene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 14:22	1
Fluoranthene	ND		1.9	0.16	ug/L		11/21/11 11:55	11/23/11 14:22	1
Fluorene	ND		1.9	0.21	ug/L		11/21/11 11:55	11/23/11 14:22	1
Indeno[1,2,3-cd]pyrene	ND		1.9	0.19	ug/L		11/21/11 11:55	11/23/11 14:22	1
Naphthalene	ND		1.9	0.13	ug/L		11/21/11 11:55	11/23/11 14:22	1
Phenanthrene	ND		1.9	0.41	ug/L		11/21/11 11:55	11/23/11 14:22	1
Pyrene	ND		1.9	0.15	ug/L		11/21/11 11:55	11/23/11 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*46*		*37 - 104*	*11/21/11 11:55*	*11/23/11 14:22*	*1*
2-Fluorobiphenyl	*53*		*35 - 108*	*11/21/11 11:55*	*11/23/11 14:22*	*1*
Terphenyl-d14	*56*		*25 - 130*	*11/21/11 11:55*	*11/23/11 14:22*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.40	0.10	ug/L		11/21/11 06:50	11/23/11 18:57	1
PCB-1221	ND		0.40	0.099	ug/L		11/21/11 06:50	11/23/11 18:57	1
PCB-1232	ND		0.40	0.12	ug/L		11/21/11 06:50	11/23/11 18:57	1
PCB-1242	ND		0.40	0.074	ug/L		11/21/11 06:50	11/23/11 18:57	1
PCB-1248	ND		0.40	0.090	ug/L		11/21/11 06:50	11/23/11 18:57	1
PCB-1254	ND		0.40	0.091	ug/L		11/21/11 06:50	11/23/11 18:57	1
PCB-1260	ND		0.40	0.054	ug/L		11/21/11 06:50	11/23/11 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*90*		*35 - 140*	*11/21/11 06:50*	*11/23/11 18:57*	*1*
DCB Decachlorobiphenyl (Surr)	*100*		*35 - 140*	*11/21/11 06:50*	*11/23/11 18:57*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:15	1
Fluoride	**0.12**	**B**	0.050	0.0068	mg/L			11/29/11 12:17	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Client Sample ID: ABKSWL01F001

Date Collected: 11/16/11 16:35
Date Received: 11/19/11 10:00

Lab Sample ID: 180-6095-7

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*62 - 123*		*11/28/11 18:40*	*1*
Toluene-d8 (Surr)	*113*		*80 - 120*		*11/28/11 18:40*	*1*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*11/28/11 18:40*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*11/28/11 18:40*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.1	0.15	ug/L		11/21/11 11:55	11/23/11 14:44	1
Acenaphthylene	ND		2.1	0.16	ug/L		11/21/11 11:55	11/23/11 14:44	1
Anthracene	ND		2.1	0.16	ug/L		11/21/11 11:55	11/23/11 14:44	1
Benzo[a]anthracene	ND		2.1	0.15	ug/L		11/21/11 11:55	11/23/11 14:44	1
Benzo[a]pyrene	ND		2.1	0.14	ug/L		11/21/11 11:55	11/23/11 14:44	1
Benzo[b]fluoranthene	ND		2.1	0.16	ug/L		11/21/11 11:55	11/23/11 14:44	1
Benzo[g,h,i]perylene	ND		2.1	0.16	ug/L		11/21/11 11:55	11/23/11 14:44	1
Benzo[k]fluoranthene	ND		2.1	0.57	ug/L		11/21/11 11:55	11/23/11 14:44	1
Chrysene	ND		2.1	0.15	ug/L		11/21/11 11:55	11/23/11 14:44	1
Dibenz(a,h)anthracene	ND		2.1	0.16	ug/L		11/21/11 11:55	11/23/11 14:44	1
Fluoranthene	ND		2.1	0.17	ug/L		11/21/11 11:55	11/23/11 14:44	1
Fluorene	ND		2.1	0.23	ug/L		11/21/11 11:55	11/23/11 14:44	1
Indeno[1,2,3-cd]pyrene	ND		2.1	0.21	ug/L		11/21/11 11:55	11/23/11 14:44	1
Naphthalene	ND		2.1	0.15	ug/L		11/21/11 11:55	11/23/11 14:44	1
Phenanthrene	ND		2.1	0.44	ug/L		11/21/11 11:55	11/23/11 14:44	1
Pyrene	ND		2.1	0.16	ug/L		11/21/11 11:55	11/23/11 14:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*49*		*37 - 104*	*11/21/11 11:55*	*11/23/11 14:44*	*1*
2-Fluorobiphenyl	*55*		*35 - 108*	*11/21/11 11:55*	*11/23/11 14:44*	*1*
Terphenyl-d14	*65*		*25 - 130*	*11/21/11 11:55*	*11/23/11 14:44*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.39	0.099	ug/L		11/21/11 06:50	11/23/11 19:27	1
PCB-1221	ND		0.39	0.098	ug/L		11/21/11 06:50	11/23/11 19:27	1
PCB-1232	ND		0.39	0.11	ug/L		11/21/11 06:50	11/23/11 19:27	1
PCB-1242	ND		0.39	0.073	ug/L		11/21/11 06:50	11/23/11 19:27	1
PCB-1248	ND		0.39	0.089	ug/L		11/21/11 06:50	11/23/11 19:27	1
PCB-1254	ND		0.39	0.090	ug/L		11/21/11 06:50	11/23/11 19:27	1
PCB-1260	ND		0.39	0.053	ug/L		11/21/11 06:50	11/23/11 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*91*		*35 - 140*	*11/21/11 06:50*	*11/23/11 19:27*	*1*
DCB Decachlorobiphenyl (Surr)	*100*		*35 - 140*	*11/21/11 06:50*	*11/23/11 19:27*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:17	1
Fluoride	**0.13**	**B**	0.050	0.0068	mg/L			11/29/11 12:26	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Client Sample ID: ABKSWL02F001

Date Collected: 11/16/11 16:14
Date Received: 11/19/11 10:00

Lab Sample ID: 180-6095-8

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 19:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*62 - 123*		*11/28/11 19:04*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*11/28/11 19:04*	*1*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*11/28/11 19:04*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*11/28/11 19:04*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.6	0.18	ug/L		11/21/11 11:55	11/23/11 15:05	1
Acenaphthylene	ND		2.6	0.19	ug/L		11/21/11 11:55	11/23/11 15:05	1
Anthracene	ND		2.6	0.20	ug/L		11/21/11 11:55	11/23/11 15:05	1
Benzo[a]anthracene	ND		2.6	0.19	ug/L		11/21/11 11:55	11/23/11 15:05	1
Benzo[a]pyrene	ND		2.6	0.17	ug/L		11/21/11 11:55	11/23/11 15:05	1
Benzo[b]fluoranthene	ND		2.6	0.20	ug/L		11/21/11 11:55	11/23/11 15:05	1
Benzo[g,h,i]perylene	ND		2.6	0.19	ug/L		11/21/11 11:55	11/23/11 15:05	1
Benzo[k]fluoranthene	ND		2.6	0.70	ug/L		11/21/11 11:55	11/23/11 15:05	1
Chrysene	ND		2.6	0.18	ug/L		11/21/11 11:55	11/23/11 15:05	1
Dibenz(a,h)anthracene	ND		2.6	0.20	ug/L		11/21/11 11:55	11/23/11 15:05	1
Fluoranthene	ND		2.6	0.21	ug/L		11/21/11 11:55	11/23/11 15:05	1
Fluorene	ND		2.6	0.28	ug/L		11/21/11 11:55	11/23/11 15:05	1
Indeno[1,2,3-cd]pyrene	ND		2.6	0.26	ug/L		11/21/11 11:55	11/23/11 15:05	1
Naphthalene	ND		2.6	0.18	ug/L		11/21/11 11:55	11/23/11 15:05	1
Phenanthrene	ND		2.6	0.55	ug/L		11/21/11 11:55	11/23/11 15:05	1
Pyrene	ND		2.6	0.20	ug/L		11/21/11 11:55	11/23/11 15:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*48*		*37 - 104*	*11/21/11 11:55*	*11/23/11 15:05*	*1*
2-Fluorobiphenyl	*52*		*35 - 108*	*11/21/11 11:55*	*11/23/11 15:05*	*1*
Terphenyl-d14	*66*		*25 - 130*	*11/21/11 11:55*	*11/23/11 15:05*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.42	0.10	ug/L		11/21/11 06:50	11/23/11 19:56	1
PCB-1221	ND		0.42	0.10	ug/L		11/21/11 06:50	11/23/11 19:56	1
PCB-1232	ND		0.42	0.12	ug/L		11/21/11 06:50	11/23/11 19:56	1
PCB-1242	ND		0.42	0.077	ug/L		11/21/11 06:50	11/23/11 19:56	1
PCB-1248	ND		0.42	0.095	ug/L		11/21/11 06:50	11/23/11 19:56	1
PCB-1254	ND		0.42	0.095	ug/L		11/21/11 06:50	11/23/11 19:56	1
PCB-1260	ND		0.42	0.056	ug/L		11/21/11 06:50	11/23/11 19:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*90*		*35 - 140*	*11/21/11 06:50*	*11/23/11 19:56*	*1*
DCB Decachlorobiphenyl (Surr)	*102*		*35 - 140*	*11/21/11 06:50*	*11/23/11 19:56*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:32	1
Fluoride	**0.11**	**B**	0.050	0.0068	mg/L			11/29/11 12:33	1

Client Sample Results

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

Client Sample ID: ABLSWL01F001

Date Collected: 11/18/11 08:30
Date Received: 11/19/11 10:00

Lab Sample ID: 180-6095-9

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 19:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*62 - 123*		*11/28/11 19:28*	*1*
Toluene-d8 (Surr)	*111*		*80 - 120*		*11/28/11 19:28*	*1*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*11/28/11 19:28*	*1*
Dibromofluoromethane (Surr)	*106*		*80 - 120*		*11/28/11 19:28*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.4	0.17	ug/L		11/23/11 10:43	11/25/11 19:32	1
Acenaphthylene	ND		2.4	0.18	ug/L		11/23/11 10:43	11/25/11 19:32	1
Anthracene	ND		2.4	0.18	ug/L		11/23/11 10:43	11/25/11 19:32	1
Benzo[a]anthracene	ND		2.4	0.18	ug/L		11/23/11 10:43	11/25/11 19:32	1
Benzo[a]pyrene	ND		2.4	0.16	ug/L		11/23/11 10:43	11/25/11 19:32	1
Benzo[b]fluoranthene	ND		2.4	0.19	ug/L		11/23/11 10:43	11/25/11 19:32	1
Benzo[g,h,i]perylene	ND		2.4	0.18	ug/L		11/23/11 10:43	11/25/11 19:32	1
Benzo[k]fluoranthene	ND		2.4	0.65	ug/L		11/23/11 10:43	11/25/11 19:32	1
Chrysene	ND		2.4	0.17	ug/L		11/23/11 10:43	11/25/11 19:32	1
Dibenz(a,h)anthracene	ND		2.4	0.18	ug/L		11/23/11 10:43	11/25/11 19:32	1
Fluoranthene	ND		2.4	0.19	ug/L		11/23/11 10:43	11/25/11 19:32	1
Fluorene	ND		2.4	0.26	ug/L		11/23/11 10:43	11/25/11 19:32	1
Indeno[1,2,3-cd]pyrene	ND		2.4	0.24	ug/L		11/23/11 10:43	11/25/11 19:32	1
Naphthalene	ND		2.4	0.17	ug/L		11/23/11 10:43	11/25/11 19:32	1
Phenanthrene	ND		2.4	0.51	ug/L		11/23/11 10:43	11/25/11 19:32	1
Pyrene	ND		2.4	0.19	ug/L		11/23/11 10:43	11/25/11 19:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*45*		*37 - 104*	*11/23/11 10:43*	*11/25/11 19:32*	*1*
2-Fluorobiphenyl	*46*		*35 - 108*	*11/23/11 10:43*	*11/25/11 19:32*	*1*
Terphenyl-d14	*39*		*25 - 130*	*11/23/11 10:43*	*11/25/11 19:32*	*1*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.42	0.10	ug/L		11/21/11 06:50	11/23/11 20:26	1
PCB-1221	ND		0.42	0.10	ug/L		11/21/11 06:50	11/23/11 20:26	1
PCB-1232	ND		0.42	0.12	ug/L		11/21/11 06:50	11/23/11 20:26	1
PCB-1242	ND		0.42	0.077	ug/L		11/21/11 06:50	11/23/11 20:26	1
PCB-1248	ND		0.42	0.095	ug/L		11/21/11 06:50	11/23/11 20:26	1
PCB-1254	ND		0.42	0.095	ug/L		11/21/11 06:50	11/23/11 20:26	1
PCB-1260	ND		0.42	0.056	ug/L		11/21/11 06:50	11/23/11 20:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*35 - 140*	*11/21/11 06:50*	*11/23/11 20:26*	*1*
DCB Decachlorobiphenyl (Surr)	*78*		*35 - 140*	*11/21/11 06:50*	*11/23/11 20:26*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 14:46	1
Fluoride	**0.090**	**B**	0.050	0.0068	mg/L			11/29/11 12:57	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-21876/4
Matrix: Water
Analysis Batch: 21876

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TCE	ND		5.0	0.80	ug/L			11/28/11 11:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*62 - 123*		*11/28/11 11:10*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/28/11 11:10*	*1*
4-Bromofluorobenzene (Surr)	*87*		*75 - 120*		*11/28/11 11:10*	*1*
Dibromofluoromethane (Surr)	*86*		*80 - 120*		*11/28/11 11:10*	*1*

Lab Sample ID: LCS 180-21876/8
Matrix: Water
Analysis Batch: 21876

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
TCE	40.0	38.7		ug/L		97	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*82*		*62 - 123*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*75 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 120*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-21443/1-A
Matrix: Water
Analysis Batch: 21630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 21443

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.0	0.14	ug/L		11/21/11 11:53	11/22/11 14:26	1
Acenaphthylene	ND		2.0	0.15	ug/L		11/21/11 11:53	11/22/11 14:26	1
Anthracene	ND		2.0	0.15	ug/L		11/21/11 11:53	11/22/11 14:26	1
Benzo[a]anthracene	ND		2.0	0.15	ug/L		11/21/11 11:53	11/22/11 14:26	1
Benzo[a]pyrene	ND		2.0	0.13	ug/L		11/21/11 11:53	11/22/11 14:26	1
Benzo[b]fluoranthene	ND		2.0	0.16	ug/L		11/21/11 11:53	11/22/11 14:26	1
Benzo[g,h,i]perylene	ND		2.0	0.15	ug/L		11/21/11 11:53	11/22/11 14:26	1
Benzo[k]fluoranthene	ND		2.0	0.55	ug/L		11/21/11 11:53	11/22/11 14:26	1
Chrysene	ND		2.0	0.14	ug/L		11/21/11 11:53	11/22/11 14:26	1
Dibenz(a,h)anthracene	ND		2.0	0.16	ug/L		11/21/11 11:53	11/22/11 14:26	1
Fluoranthene	ND		2.0	0.16	ug/L		11/21/11 11:53	11/22/11 14:26	1
Fluorene	ND		2.0	0.22	ug/L		11/21/11 11:53	11/22/11 14:26	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.20	ug/L		11/21/11 11:53	11/22/11 14:26	1
Naphthalene	ND		2.0	0.14	ug/L		11/21/11 11:53	11/22/11 14:26	1
Phenanthrene	ND		2.0	0.43	ug/L		11/21/11 11:53	11/22/11 14:26	1
Pyrene	ND		2.0	0.16	ug/L		11/21/11 11:53	11/22/11 14:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*60*		*37 - 104*	*11/21/11 11:53*	*11/22/11 14:26*	*1*
2-Fluorobiphenyl	*66*		*35 - 108*	*11/21/11 11:53*	*11/22/11 14:26*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-21443/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21630 — **Prep Batch: 21443**

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	70		25 - 130	11/21/11 11:53	11/22/11 14:26	1

Lab Sample ID: LCS 180-21443/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21630 — **Prep Batch: 21443**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	200	135		ug/L		68	39 - 106
Acenaphthylene	200	137		ug/L		69	40 - 113
Anthracene	200	136		ug/L		68	37 - 108
Benzo[a]anthracene	200	141		ug/L		71	40 - 103
Benzo[a]pyrene	200	144		ug/L		72	37 - 105
Benzo[b]fluoranthene	200	155		ug/L		78	35 - 100
Benzo[g,h,i]perylene	200	135		ug/L		67	31 - 118
Benzo[k]fluoranthene	200	121		ug/L		60	37 - 108
Chrysene	200	130		ug/L		65	39 - 103
Dibenz(a,h)anthracene	200	141		ug/L		70	32 - 117
Fluoranthene	200	141		ug/L		71	35 - 111
Fluorene	200	139		ug/L		70	39 - 107
Indeno[1,2,3-cd]pyrene	200	134		ug/L		67	32 - 116
Naphthalene	200	125		ug/L		62	35 - 98
Phenanthrene	200	148		ug/L		74	34 - 107
Pyrene	200	137		ug/L		69	36 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5	58		37 - 104
2-Fluorobiphenyl	64		35 - 108
Terphenyl-d14	71		25 - 130

Lab Sample ID: MB 180-21705/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21825 — **Prep Batch: 21705**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2.0	0.14	ug/L		11/23/11 10:43	11/25/11 14:42	1
Acenaphthylene	ND		2.0	0.15	ug/L		11/23/11 10:43	11/25/11 14:42	1
Anthracene	ND		2.0	0.15	ug/L		11/23/11 10:43	11/25/11 14:42	1
Benzo[a]anthracene	ND		2.0	0.15	ug/L		11/23/11 10:43	11/25/11 14:42	1
Benzo[a]pyrene	ND		2.0	0.13	ug/L		11/23/11 10:43	11/25/11 14:42	1
Benzo[b]fluoranthene	ND		2.0	0.16	ug/L		11/23/11 10:43	11/25/11 14:42	1
Benzo[g,h,i]perylene	ND		2.0	0.15	ug/L		11/23/11 10:43	11/25/11 14:42	1
Benzo[k]fluoranthene	ND		2.0	0.55	ug/L		11/23/11 10:43	11/25/11 14:42	1
Chrysene	ND		2.0	0.14	ug/L		11/23/11 10:43	11/25/11 14:42	1
Dibenz(a,h)anthracene	ND		2.0	0.16	ug/L		11/23/11 10:43	11/25/11 14:42	1
Fluoranthene	ND		2.0	0.16	ug/L		11/23/11 10:43	11/25/11 14:42	1
Fluorene	ND		2.0	0.22	ug/L		11/23/11 10:43	11/25/11 14:42	1
Indeno[1,2,3-cd]pyrene	ND		2.0	0.20	ug/L		11/23/11 10:43	11/25/11 14:42	1
Naphthalene	ND		2.0	0.14	ug/L		11/23/11 10:43	11/25/11 14:42	1
Phenanthrene	ND		2.0	0.43	ug/L		11/23/11 10:43	11/25/11 14:42	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-21705/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21825 — **Prep Batch: 21705**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pyrene	ND		2.0	0.16	ug/L		11/23/11 10:43	11/25/11 14:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*53*		*37 - 104*	*11/23/11 10:43*	*11/25/11 14:42*	*1*
2-Fluorobiphenyl	*59*		*35 - 108*	*11/23/11 10:43*	*11/25/11 14:42*	*1*
Terphenyl-d14	*63*		*25 - 130*	*11/23/11 10:43*	*11/25/11 14:42*	*1*

Lab Sample ID: LCS 180-21705/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21825 — **Prep Batch: 21705**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	200	123		ug/L		61	39 - 106
Acenaphthylene	200	125		ug/L		63	40 - 113
Anthracene	200	126		ug/L		63	37 - 108
Benzo[a]anthracene	200	128		ug/L		64	40 - 103
Benzo[a]pyrene	200	128		ug/L		64	37 - 105
Benzo[b]fluoranthene	200	122		ug/L		61	35 - 100
Benzo[g,h,i]perylene	200	133		ug/L		67	31 - 118
Benzo[k]fluoranthene	200	111		ug/L		56	37 - 108
Chrysene	200	122		ug/L		61	39 - 103
Dibenz(a,h)anthracene	200	135		ug/L		67	32 - 117
Fluoranthene	200	133		ug/L		66	35 - 111
Fluorene	200	126		ug/L		63	39 - 107
Indeno[1,2,3-cd]pyrene	200	129		ug/L		64	32 - 116
Naphthalene	200	120		ug/L		60	35 - 98
Phenanthrene	200	121		ug/L		60	34 - 107
Pyrene	200	111		ug/L		56	36 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*55*		*37 - 104*
2-Fluorobiphenyl	*59*		*35 - 108*
Terphenyl-d14	*59*		*25 - 130*

Lab Sample ID: LCSD 180-21705/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21825 — **Prep Batch: 21705**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	200	132		ug/L		66	39 - 106	7	32
Acenaphthylene	200	134		ug/L		67	40 - 113	7	33
Anthracene	200	133		ug/L		67	37 - 108	6	40
Benzo[a]anthracene	200	128		ug/L		64	40 - 103	0	33
Benzo[a]pyrene	200	136		ug/L		68	37 - 105	6	35
Benzo[b]fluoranthene	200	116		ug/L		58	35 - 100	5	44
Benzo[g,h,i]perylene	200	140		ug/L		70	31 - 118	5	45
Benzo[k]fluoranthene	200	134		ug/L		67	37 - 108	19	42
Chrysene	200	133		ug/L		67	39 - 103	9	38
Dibenz(a,h)anthracene	200	143		ug/L		72	32 - 117	6	43

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 180-21705/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21825 — **Prep Batch: 21705**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoranthene	200	146		ug/L		73	35 - 111	10	43
Fluorene	200	137		ug/L		69	39 - 107	8	33
Indeno[1,2,3-cd]pyrene	200	133		ug/L		67	32 - 116	4	45
Naphthalene	200	129		ug/L		65	35 - 98	7	39
Phenanthrene	200	132		ug/L		66	34 - 107	9	34
Pyrene	200	114		ug/L		57	36 - 115	3	38

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*59*		*37 - 104*
2-Fluorobiphenyl	*63*		*35 - 108*
Terphenyl-d14	*63*		*25 - 130*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 180-21395/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21736 — **Prep Batch: 21395**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.40	0.10	ug/L		11/21/11 06:50	11/23/11 20:55	1
PCB-1221	ND		0.40	0.10	ug/L		11/21/11 06:50	11/23/11 20:55	1
PCB-1232	ND		0.40	0.12	ug/L		11/21/11 06:50	11/23/11 20:55	1
PCB-1242	ND		0.40	0.074	ug/L		11/21/11 06:50	11/23/11 20:55	1
PCB-1248	ND		0.40	0.091	ug/L		11/21/11 06:50	11/23/11 20:55	1
PCB-1254	ND		0.40	0.092	ug/L		11/21/11 06:50	11/23/11 20:55	1
PCB-1260	ND		0.40	0.054	ug/L		11/21/11 06:50	11/23/11 20:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*93*		*35 - 140*	*11/21/11 06:50*	*11/23/11 20:55*	*1*
DCB Decachlorobiphenyl (Surr)	*97*		*35 - 140*	*11/21/11 06:50*	*11/23/11 20:55*	*1*

Lab Sample ID: LCS 180-21395/4-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21736 — **Prep Batch: 21395**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	40.0	35.6		ug/L		89	60 - 130
PCB-1260	40.0	37.6		ug/L		94	60 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*100*		*35 - 140*
DCB Decachlorobiphenyl (Surr)	*107*		*35 - 140*

Lab Sample ID: LCSD 180-21395/5-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21736 — **Prep Batch: 21395**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	40.0	34.7		ug/L		87	60 - 130	3	27

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCSD 180-21395/5-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21736 — **Prep Batch: 21395**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1260			40.0	36.6		ug/L		92	60 - 130	3	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*95*		*35 - 140*
DCB Decachlorobiphenyl (Surr)	*104*		*35 - 140*

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-21889/115 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 14:44	1

Lab Sample ID: MB 180-21889/50 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:06	1

Lab Sample ID: MB 180-21889/66 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:30	1

Lab Sample ID: MB 180-21889/81 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	ND		0.0020	0.00030	mg/L			11/28/11 13:53	1

Lab Sample ID: LCS 180-21889/113 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Available cyanide			0.100	0.100		mg/L		100	82 - 132		

Lab Sample ID: LCS 180-21889/48 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Available cyanide			0.100	0.0990		mg/L		99	82 - 132		

Method: 1677 - Cyanide, Available (Flow Injection) (Continued)

Lab Sample ID: LCS 180-21889/64 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.100		mg/L		100	82 - 132

Lab Sample ID: LCS 180-21889/80 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.101		mg/L		101	82 - 132

Lab Sample ID: LCSD 180-21889/114 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.102		mg/L		102	82 - 132	2	20

Lab Sample ID: LCSD 180-21889/49 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.101		mg/L		101	82 - 132	2	20

Lab Sample ID: LCSD 180-21889/65 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 21889

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.101		mg/L		101	82 - 132	1	20

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 240-24945/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 24945

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.0100	J	0.050	0.0068	mg/L			11/29/11 10:39	1

Lab Sample ID: LCS 240-24945/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 24945

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	3.18	3.12		mg/L		98	90 - 110

QC Association Summary

Client: BHE Environmental Inc./ Alcoa Work
Project/Site: Alcoa - Badin Surface Water Sampling

TestAmerica Job ID: 180-6095-1

GC/MS VOA

Analysis Batch: 21876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-1	ABKSWL07F001	Total/NA	Water	8260B	
180-6095-2	OBLSWL01F001	Total/NA	Water	8260B	
180-6095-3	ABKSWL05F001	Total/NA	Water	8260B	
180-6095-4	ABKSWL06F001	Total/NA	Water	8260B	
180-6095-5	ABKSWL03F001	Total/NA	Water	8260B	
180-6095-6	ABKSWL04F001	Total/NA	Water	8260B	
180-6095-7	ABKSWL01F001	Total/NA	Water	8260B	
180-6095-8	ABKSWL02F001	Total/NA	Water	8260B	
180-6095-9	ABLSWL01F001	Total/NA	Water	8260B	
LCS 180-21876/8	Lab Control Sample	Total/NA	Water	8260B	
MB 180-21876/4	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 21443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-1	ABKSWL07F001	Total/NA	Water	3520C	
180-6095-3	ABKSWL05F001	Total/NA	Water	3520C	
180-6095-4	ABKSWL06F001	Total/NA	Water	3520C	
180-6095-5	ABKSWL03F001	Total/NA	Water	3520C	
180-6095-6	ABKSWL04F001	Total/NA	Water	3520C	
180-6095-7	ABKSWL01F001	Total/NA	Water	3520C	
180-6095-8	ABKSWL02F001	Total/NA	Water	3520C	
LCS 180-21443/2-A	Lab Control Sample	Total/NA	Water	3520C	
MB 180-21443/1-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 21630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-1	ABKSWL07F001	Total/NA	Water	8270C	21443
180-6095-3	ABKSWL05F001	Total/NA	Water	8270C	21443
180-6095-4	ABKSWL06F001	Total/NA	Water	8270C	21443
180-6095-5	ABKSWL03F001	Total/NA	Water	8270C	21443
LCS 180-21443/2-A	Lab Control Sample	Total/NA	Water	8270C	21443
MB 180-21443/1-A	Method Blank	Total/NA	Water	8270C	21443

Prep Batch: 21705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-2	OBLSWL01F001	Total/NA	Water	3520C	
180-6095-9	ABLSWL01F001	Total/NA	Water	3520C	
LCS 180-21705/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 180-21705/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 180-21705/1-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 21754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-6	ABKSWL04F001	Total/NA	Water	8270C	21443
180-6095-7	ABKSWL01F001	Total/NA	Water	8270C	21443
180-6095-8	ABKSWL02F001	Total/NA	Water	8270C	21443

Analysis Batch: 21825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-2	OBLSWL01F001	Total/NA	Water	8270C	21705

GC/MS Semi VOA (Continued)

Analysis Batch: 21825 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-9	ABLSWL01F001	Total/NA	Water	8270C	21705
LCS 180-21705/2-A	Lab Control Sample	Total/NA	Water	8270C	21705
LCSD 180-21705/3-A	Lab Control Sample Dup	Total/NA	Water	8270C	21705
MB 180-21705/1-A	Method Blank	Total/NA	Water	8270C	21705

GC Semi VOA

Prep Batch: 21395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-1	ABKSWL07F001	Total/NA	Water	3510C	
180-6095-2	OBLSWL01F001	Total/NA	Water	3510C	
180-6095-3	ABKSWL05F001	Total/NA	Water	3510C	
180-6095-4	ABKSWL06F001	Total/NA	Water	3510C	
180-6095-5	ABKSWL03F001	Total/NA	Water	3510C	
180-6095-6	ABKSWL04F001	Total/NA	Water	3510C	
180-6095-7	ABKSWL01F001	Total/NA	Water	3510C	
180-6095-8	ABKSWL02F001	Total/NA	Water	3510C	
180-6095-9	ABLSWL01F001	Total/NA	Water	3510C	
LCS 180-21395/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 180-21395/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 180-21395/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 21736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-1	ABKSWL07F001	Total/NA	Water	8082	21395
180-6095-2	OBLSWL01F001	Total/NA	Water	8082	21395
180-6095-3	ABKSWL05F001	Total/NA	Water	8082	21395
180-6095-4	ABKSWL06F001	Total/NA	Water	8082	21395
180-6095-5	ABKSWL03F001	Total/NA	Water	8082	21395
180-6095-6	ABKSWL04F001	Total/NA	Water	8082	21395
180-6095-7	ABKSWL01F001	Total/NA	Water	8082	21395
180-6095-8	ABKSWL02F001	Total/NA	Water	8082	21395
180-6095-9	ABLSWL01F001	Total/NA	Water	8082	21395
LCS 180-21395/4-A	Lab Control Sample	Total/NA	Water	8082	21395
LCSD 180-21395/5-A	Lab Control Sample Dup	Total/NA	Water	8082	21395
MB 180-21395/1-A	Method Blank	Total/NA	Water	8082	21395

General Chemistry

Analysis Batch: 21889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-1	ABKSWL07F001	Total/NA	Water	1677	
180-6095-2	OBLSWL01F001	Total/NA	Water	1677	
180-6095-3	ABKSWL05F001	Total/NA	Water	1677	
180-6095-4	ABKSWL06F001	Total/NA	Water	1677	
180-6095-5	ABKSWL03F001	Total/NA	Water	1677	
180-6095-6	ABKSWL04F001	Total/NA	Water	1677	
180-6095-7	ABKSWL01F001	Total/NA	Water	1677	
180-6095-8	ABKSWL02F001	Total/NA	Water	1677	
180-6095-9	ABLSWL01F001	Total/NA	Water	1677	
LCS 180-21889/113	Lab Control Sample	Total/NA	Water	1677	
LCS 180-21889/48	Lab Control Sample	Total/NA	Water	1677	

General Chemistry (Continued)

Analysis Batch: 21889 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-21889/64	Lab Control Sample	Total/NA	Water	1677	
LCS 180-21889/80	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-21889/114	Lab Control Sample Dup	Total/NA	Water	1677	
LCSD 180-21889/49	Lab Control Sample Dup	Total/NA	Water	1677	
LCSD 180-21889/65	Lab Control Sample Dup	Total/NA	Water	1677	
MB 180-21889/115	Method Blank	Total/NA	Water	1677	
MB 180-21889/50	Method Blank	Total/NA	Water	1677	
MB 180-21889/66	Method Blank	Total/NA	Water	1677	
MB 180-21889/81	Method Blank	Total/NA	Water	1677	

Analysis Batch: 24945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-6095-1	ABKSWL07F001	Total/NA	Water	SM 4500 F C	
180-6095-2	OBLSWL01F001	Total/NA	Water	SM 4500 F C	
180-6095-3	ABKSWL05F001	Total/NA	Water	SM 4500 F C	
180-6095-4	ABKSWL06F001	Total/NA	Water	SM 4500 F C	
180-6095-5	ABKSWL03F001	Total/NA	Water	SM 4500 F C	
180-6095-6	ABKSWL04F001	Total/NA	Water	SM 4500 F C	
180-6095-7	ABKSWL01F001	Total/NA	Water	SM 4500 F C	
180-6095-8	ABKSWL02F001	Total/NA	Water	SM 4500 F C	
180-6095-9	ABLSWL01F001	Total/NA	Water	SM 4500 F C	
LCS 240-24945/6	Lab Control Sample	Total/NA	Water	SM 4500 F C	
MB 240-24945/5	Method Blank	Total/NA	Water	SM 4500 F C	

180-6095 #3

Chain of Custody Record

TestAmerica Laboratory location: Pittsburgh

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact			
Company Name: BHE Environmental	Client Project Manager: Tim Gessner	Site Contact: Matt Bruck	Lab Contact: Ritari, Whitney
Address: 11733 Chesterdale Rd	Telephone: 513 326 1500	Telephone: 513 326 1500	Telephone:
City/State/Zip: Cincinnati OH 45246	Email: Tgessner@bheenvironmental.com MBruck@bheenvironmental.com		
Phone: 513 326 1500			
Project Name: ALCOA-Badin NC Surface Water Sampling	Method of Shipment/Carrier: Fedex		
Project Number: 0990.218	Shipping/Tracking No:		
PO# 0990.218			

COC No: 11/18/11-A

1 of 5 COCs

Analysis Turnaround Time (in BUS days)

TAT if different from below

☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only

Walk-in client ☐
Lab pickup ☐
Lab sampling ☐

Job/SDG No:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite-C/Grab-G	Avail Cyanide 1677	4500 Fluoride	TCL PCBs 8082	PAHs 8270C	TCE 8260B	Sample Specific Notes / Special Instructions:
ABKSWL07 F001	11/16/11	1555		✓						3	1		5		N	G	✓	✓	✓	✓	✓	No Sulfide Interference
OBLSWL01 F001	11/17/11	0930		✓						3	1		5		N	G	✓	✓	✓	✓	✓	No Sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	11/18/11 1200	Delline Watson	TA Pitt	11-19-11 10:00
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

12/9/2011

r1 #3

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location:
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact

Company Name: BHE Environmental
Address: 11733 Chesterdale Rd
City/State/Zip: Cincinnati OH 45246
Phone: 513 326 1500
Project Name: ALCOA-Rodin NC Surface Water Sampling
Project Number: 0990.218
PO# 0990.218

Client Project Manager: Tim Hessner
Telephone: 513 326 1500
Email: Thessner@bheenvironmental mBruck@bheenvironmental.com
Method of Shipment/Carrier: Fedex
Shipping/Tracking No:

Site Contact: Matt Bruck
Telephone: 513 326 1500

Lab Contact: Rotari, Whitney
Telephone:

COC No: 11151-B
2 of 5 COCs

Analysis Turnaround Time (in BUS days)
TAT if different from below
☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only
Walk-in client ☐
Lab pickup ☐
Lab sampling ☐
Job/SDG No:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite – C / Grab – G	Analyses: Avail Cyanide 1677	VOC Fluoride	TCL PCBs 8082	PAHs 8270	TCL 8260B						Sample Specific Notes / Special Instructions:
ABKSWL05F001	11/16/11	1440		✓						3	1		5		N	G	✓	✓	✓	✓	✓						No Sulfide Interference
ABKSWL06F001	11/16/11	1410		✓						3	1		5		N	G	✓	✓	✓	✓	✓						No Sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	11/18/11 1200	Debbie Watson	TAPHT 11-19-11	11-19-11 10:00
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

3 #3

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location:
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact

Company Name: BHE Environmental
Address: 11733 Chesterdale Rd
City/State/Zip: Cincinnati OH 45246
Phone: 513 326 1500

Project Name: AIODA - Radin NC Surface Water Sampling
Project Number: 0990.218
PO# 0990.218

Client Project Manager: Tim Hessner
Telephone: 513 326 1500
Email: THessner@bheenvironmental.com MBruck@bheenvironmental.com

Method of Shipment/Carrier: Fedex
Shipping/Tracking No:

Site Contact: Matt Bruck
Telephone: 513 326 1500

Lab Contact: Ritari, Whitney
Telephone:

COC No: 11151IC
3 of 5 COCs

For lab use only
Walk-in client ☐
Lab pickup ☐
Lab sampling ☐
Job/SDG No.:

Analysis Turnaround Time (in BUS days)
TAT if different from below
☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C/Grab=G	Analyses: Total Cyanide 1677	4500 Fluoride	TCL PCBs 8082	PAHs 8270C	TCE 8260B						Sample Specific Notes / Special Instructions:
ABKSWL03F001	11/16/11	1550		✓						3	1		5		N	G	✓	✓	✓	✓	✓						No Sulfide Interference
ABKSWL04F001	11/16/11	1500		✓						3	1		5		N	G	✓	✓	✓	✓	✓						No Sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	11/18/11 1200	Delilue Watson	TA Pitt	11-19-11 10:00
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

13 #3

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

TestAmerica Laboratory location: Pittsburgh
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact

Company Name: BHE Environmental
Address: 11733 Chesterdale Rd
City/State/Zip: Cincinnati OH 45246
Phone: 513 326 1500
Project Name: ALCOA-Badin, NC Surface Water Sampling
Project Number: 0990.218
PO# 0990.218

Client Project Manager: Tim Hessner
Telephone: 513 326 1500
Email: THessner@bheenvironmental.com MBruck@bheenvironmental.com
Method of Shipment/Carrier: Fedex
Shipping/Tracking No:

Site Contact: Matt Bruck
Telephone: 513 326 1500

Lab Contact: Ritari, Whitney
Telephone:

COC No: 711811-D
4 of 5 COCs

Analysis Turnaround Time (in BUS days)
TAT if different from below
☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only
Walk-in client ☐
Lab pickup ☐
Lab sampling ☐
Job/SDG No:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C / Grab=G	Analyses: Avg Cyanide 1677	4500 Fluoride	TCL PCBs 8082	PAHs 8270C	TCL 8260B						Sample Specific Notes / Special Instructions:
ABKSWL01F001	11/16/11	1635		✓						3	1		5		N	G	✓	✓	✓	✓	✓						No Sulfide Interference
ABKSWL02F001	11/16/11	1614		✓						3	1		5		N	G	✓	✓	✓	✓	✓						No Sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	11/18/11 1200	Debbie Watson	TA Pitt	11-19-11 10:00
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

Chain of Custody Record

#3

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: Pittsburgh
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact			
Company Name: BHE Environmental	Client Project Manager: Tim Gressner	Site Contact: Matt Bruck	Lab Contact: Ritali, Whitney
Address: 11733 Chesterdale Rd	Telephone: 513 326 1500	Telephone: 513 326 1500	Telephone:
City/State/Zip: Cincinnati, OH 45246	Email: Tgressner@bheenvironmental.com MBruck@bheenvironmental.com		
Phone: 513 326 1500			
Project Name: 0990.218	Method of Shipment/Carrier: Fedex		
Project Number: ALCOA-Badin NC Surface Water Sampling	Shipping/Tracking No:		
PO# 0990218			

COC No: 11158118
5 of 5 COCs

Analysis Turnaround Time (in BUS days)
TAT if different from below
☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only
Walk-in client ☐
Lab pickup ☐
Lab sampling ☐
Job/SDG No.:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C/Grab=G	Analyses: Aver/Cyanide 1677	4500 Fluoride	TCL PCBs 8082	PAHs 8270C	TCL Sulfide					Sample Specific Notes / Special Instructions:
ABL-SW-L01-F001	11/18/11	0830		✓						3	1		5		N	G	✓	✓	✓	✓	✓					No Sulfide Interference

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

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

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Wendy Ramsey	BHE	11/18/11 1200	RL O'Neal	TAPITT	11/19/11 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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TAL-0018 (1008)

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
ABKSWL07F001	180-6095-A-1	Amber Glass 1 liter - unpreserved			
ABKSWL07F001	180-6095-B-1	Amber Glass 1 liter - unpreserved			
ABKSWL07F001	180-6095-C-1	Amber Glass 1 liter - unpreserved			
ABKSWL07F001	180-6095-D-1	Amber Glass 1 liter - unpreserved			
ABKSWL07F001	180-6095-E-1	Plastic 500ml - unpreserved			
ABKSWL07F001	180-6095-F-1	Amber Plastic 250mL - NaOH	13		
ABKSWL07F001	180-6095-G-1	Voa Vial 40ml - Hydrochloric Acid	2		
ABKSWL07F001	180-6095-H-1	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL07F001	180-6095-I-1	Voa Vial 40ml - Hydrochloric Acid	↓		
OBKSWL01F001	180-6095-A-2	Amber Glass 1 liter - unpreserved			
OBKSWL01F001	180-6095-B-2	Amber Glass 1 liter - unpreserved			
OBKSWL01F001	180-6095-C-2	Amber Glass 1 liter - unpreserved			
OBKSWL01F001	180-6095-D-2	Amber Glass 1 liter - unpreserved			
OBKSWL01F001	180-6095-E-2	Plastic 500ml - unpreserved			
OBKSWL01F001	180-6095-F-2	Amber Plastic 250mL - NaOH	13		
OBKSWL01F001	180-6095-G-2	Voa Vial 40ml - Hydrochloric Acid	2		
OBKSWL01F001	180-6095-H-2	Voa Vial 40ml - Hydrochloric Acid	↓		
OBKSWL01F001	180-6095-I-2	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL05F001	180-6095-A-3	Amber Glass 1 liter - unpreserved			
ABKSWL05F001	180-6095-B-3	Amber Glass 1 liter - unpreserved			
ABKSWL05F001	180-6095-C-3	Amber Glass 1 liter - unpreserved			
ABKSWL05F001	180-6095-D-3	Amber Glass 1 liter - unpreserved			
ABKSWL05F001	180-6095-E-3	Plastic 500ml - unpreserved			
ABKSWL05F001	180-6095-F-3	Amber Plastic 250mL - NaOH	13		
ABKSWL05F001	180-6095-G-3	Voa Vial 40ml - Hydrochloric Acid	2		
ABKSWL05F001	180-6095-H-3	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL05F001	180-6095-I-3	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL06F001	180-6095-A-4	Amber Glass 1 liter - unpreserved			
ABKSWL06F001	180-6095-B-4	Amber Glass 1 liter - unpreserved			
ABKSWL06F001	180-6095-C-4	Amber Glass 1 liter - unpreserved			
ABKSWL06F001	180-6095-D-4	Amber Glass 1 liter - unpreserved			
ABKSWL06F001	180-6095-E-4	Plastic 500ml - unpreserved			
ABKSWL06F001	180-6095-F-4	Amber Plastic 250mL - NaOH	13		
ABKSWL06F001	180-6095-G-4	Voa Vial 40ml - Hydrochloric Acid	2		
ABKSWL06F001	180-6095-H-4	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL06F001	180-6095-I-4	Voa Vial 40ml - Hydrochloric Acid	↓		

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
ABKSWL03F001	180-6095-A-5	Amber Glass 1 liter - unpreserved			
ABKSWL03F001	180-6095-B-5	Amber Glass 1 liter - unpreserved			
ABKSWL03F001	180-6095-C-5	Amber Glass 1 liter - unpreserved			
ABKSWL03F001	180-6095-D-5	Amber Glass 1 liter - unpreserved			
ABKSWL03F001	180-6095-E-5	Plastic 500ml - unpreserved			
ABKSWL03F001	180-6095-F-5	Amber Plastic 250mL - NaOH	13		
ABKSWL03F001	180-6095-G-5	Voa Vial 40ml - Hydrochloric Acid	8		
ABKSWL03F001	180-6095-H-5	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL03F001	180-6095-I-5	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL04F001	180-6095-A-6	Amber Glass 1 liter - unpreserved			
ABKSWL04F001	180-6095-B-6	Amber Glass 1 liter - unpreserved			
ABKSWL04F001	180-6095-C-6	Amber Glass 1 liter - unpreserved			
ABKSWL04F001	180-6095-D-6	Amber Glass 1 liter - unpreserved			
ABKSWL04F001	180-6095-E-6	Plastic 500ml - unpreserved			
ABKSWL04F001	180-6095-F-6	Amber Plastic 250mL - NaOH	13		
ABKSWL04F001	180-6095-G-6	Voa Vial 40ml - Hydrochloric Acid	8		
ABKSWL04F001	180-6095-H-6	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL04F001	180-6095-I-6	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL01F001	180-6095-A-7	Amber Glass 1 liter - unpreserved			
ABKSWL01F001	180-6095-B-7	Amber Glass 1 liter - unpreserved			
ABKSWL01F001	180-6095-C-7	Amber Glass 1 liter - unpreserved			
ABKSWL01F001	180-6095-D-7	Amber Glass 1 liter - unpreserved			
ABKSWL01F001	180-6095-E-7	Plastic 500ml - unpreserved			
ABKSWL01F001	180-6095-F-7	Amber Plastic 250mL - NaOH	13		
ABKSWL01F001	180-6095-G-7	Voa Vial 40ml - Hydrochloric Acid	8		
ABKSWL01F001	180-6095-H-7	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL01F001	180-6095-I-7	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL02F001	180-6095-A-8	Amber Glass 1 liter - unpreserved			
ABKSWL02F001	180-6095-B-8	Amber Glass 1 liter - unpreserved			
ABKSWL02F001	180-6095-C-8	Amber Glass 1 liter - unpreserved			
ABKSWL02F001	180-6095-D-8	Amber Glass 1 liter - unpreserved			
ABKSWL02F001	180-6095-E-8	Plastic 500ml - unpreserved			
ABKSWL02F001	180-6095-F-8	Amber Plastic 250mL - NaOH	13		
ABKSWL02F001	180-6095-G-8	Voa Vial 40ml - Hydrochloric Acid	8		
ABKSWL02F001	180-6095-H-8	Voa Vial 40ml - Hydrochloric Acid	↓		
ABKSWL02F001	180-6095-I-8	Voa Vial 40ml - Hydrochloric Acid	↓		
ALKSWL01F001	180-6095-A-9	Amber Glass 1 liter - unpreserved			
ALKSWL01F001	180-6095-B-9	Amber Glass 1 liter - unpreserved			
ALKSWL01F001	180-6095-C-9	Amber Glass 1 liter - unpreserved			

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
ALKSWL01F001	180-6095-D-9	Amber Glass 1 liter - unpreserved			
ALKSWL01F001	180-6095-E-9	Plastic 500ml - unpreserved			
ALKSWL01F001	180-6095-F-9	Amber Plastic 250mL - NaOH	13		
ALKSWL01F001	180-6095-G-9	Voa Vial 40ml - Hydrochloric Acid	8		
ALKSWL01F001	180-6095-H-9	Voa Vial 40ml - Hydrochloric Acid			
ALKSWL01F001	180-6095-I-9	Voa Vial 40ml - Hydrochloric Acid			

ORIGIN ID: SRWA (513) 326-1500
WENDY RAMSEY
BHE
11733 CHESTERDALE AVE.

CINCINNATI, OH 45246
UNITED STATES US

SHIP DATE: 18NOV11
ACTWGT: 58.5 LB
CAD: 6015190/FSSR1210
DIMS: 23x13x14 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
TESTAMERICA INC.
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

J112011080G0125

SATURDAY ### A2
PRIORITY OVERNIGHT

TRK# 0201 7954 2261 2564

XO AGCA

15238
PA-US PIT

Part # 156297-435 RITZ 08/11

50FG1/PCSO/FSP4

ORIGIN ID: SRWA (513) 326-1500
Wendy Ramsey
BHE
11733 Chesterdale Ave.

Cincinnati, OH 45246
UNITED STATES US

Ship Date: 18NOV11
ActWgt: 58.5 LB
CAD: 6015190/FSSR1210

Dims: 23x13x14 IN

(412) 963-7058

FedEx Express

TO Sample receiving
TestAmerica Inc.
301 Alpha Dr

Pittsburgh, PA 15238 (US)

J112011080G0125

Trk# 7954 2261 2564

PRIORITY OVERNIGHT

301 Alpha Dr

A 5 639 F7 11.19 2564

PLACE THIS LABEL ON
NEXT TO THE SHIPPING LAB

Part # 156297-435 RITZ 08/11

ORIGIN ID: SRWA (513) 326-1500
Wendy Ramsey
BHE
11733 Chesterdale Ave.

Cincinnati, OH 45246
UNITED STATES US

Ship Date: 18
ActWgt: 41.4
CAD: 6015190/
Dims: 21x15x15

TO Sample receiving
TestAmerica Inc.
301 Alpha Dr

Pittsburgh, PA 15238

(412)
Fe

(US)

Trk# 7954 2259 0371

PRIORITY OVERNIGHT

301 Alpha Dr

Part # 156297-435 RIT2 08/11

PLACE THIS LABEL ON PACKAGE
NEXT TO THE SHIPPING LABEL

ORIGIN ID: SRWA (513) 326-1500
WENDY RAMSEY
BHE
11733 CHESTERDALE AVE.

CINCINNATI, OH 45246
UNITED STATES US

SHIP DATE: 18NOV11
ACTWGT: 57.3 LB
CAD: 6015190/FSSR1210
DIMS: 21x13x14 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
TESTAMERICA INC.
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963-7058
INV:
PO: REF:
DEPT:

FedEx Express

TRK# 0201 7977 5306 8641

SATURDAY ### A2
PRIORITY OVERNIGHT

XO AGCA

15238
PA-US PIT

Part # 156297-435 RIT2 08/11

FedEx Express

FedEx® Saturday Deliv

ORIGIN ID: SRWA (513) 326-1500
Wendy Ramsey
BHE
11733 Chesterdale Ave.

Cincinnati, OH 45246
UNITED STATES US

Ship Date: 18NOV11
ActWgt: 57.3 LB
CAD: 6015190/FSSR1210

21x13x14 IN

TO Sample receiving
TestAmerica Inc.
301 Alpha Dr

Pittsburgh, PA 15238

Trk# 7977 5306 8641

PRIORITY OVERNIGHT

301 Alpha Dr

PLACE THIS LABEL ON PACKAGE
NEXT TO THE SHIPPING LABEL

ORIGIN ID: SRWA (513) 326-1500
Wendy Ramsey
BHE
11733 Chesterdale Ave.

Cincinnati, OH 45246
UNITED STATES US

Ship Date: 18NOV11
ActWgt: 56.6 LB
CAD: 6015190/FSSR1210

Dims: 23x13x14 IN

TO Sample receiving
TestAmerica Inc.
301 Alpha Dr

Pittsburgh, PA 15238

(412) 963-7058

FedEx Express

(US)

J112011080601625

Trk# 7954 2262 5152

PRIORITY OVERNIGHT

301 Alpha Dr

Part # 156297-435 RIT2 08/11

PLACE THIS LABEL ON PACKAGE
NEXT TO THE SHIPPING LABEL

ORIGIN ID: SRWA (513) 326-1500
WENDY RAMSEY
BHE
11733 CHESTERDALE AVE

CINCINNATI, OH 45246
UNITED STATES US

SHIP DATE: 18NOV11
ACTWGT: 56.6 LB
CAD: 6015190/FSSR1210
DIMS: 23x13x14 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
TESTAMERICA INC.
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963-7058
INV:
PO:
REF:
DEPT:

50FA1/PFSA/PSF4

FedEx Express

J112011080601625

TRK# 0201 7954 2262 5152

SATURDAY ### A2
PRIORITY OVERNIGHT

XO AGCA

15238
PA-US PIT

Part # 156297-435 RIT2 08/11

ORIGIN ID: SRWA (513) 326-1500
WENDY RAMSEY
BHE
11738 CHESTERDALE AVE.
CINCINNATI, OH 45246
UNITED STATES US

SHIP DATE: 18NOV11
ACTWGT: 41.4 LB
CAD: 6015190/FSSR1210
DIMS: 21x15x15 IN
BILL THIRD PARTY

TO SAMPLE RECEIVING
TESTAMERICA INC.
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963-7058
INV:
PO:
REF:
DEPT:

FedEx Express

J1T201108050125

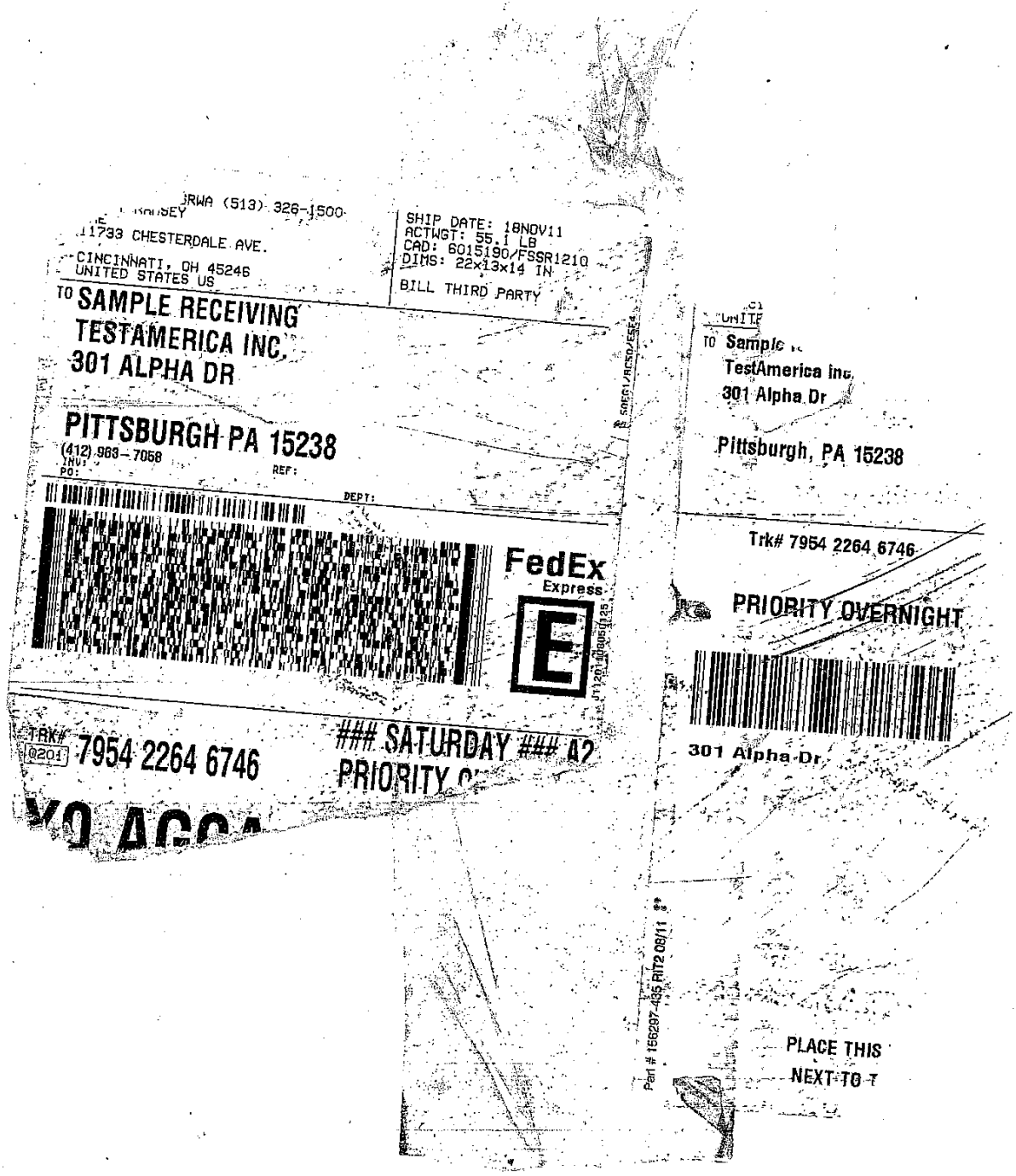
TRK# 0201 7954 2259 0371

SATURDAY ### A2
PRIORITY OVERNIGHT

XO AGCA

15238
PA-US PIT

Part # 156297-435 RIT2 08/11


(513) 326-1500
11733 CHESTERDALE AVE.
CINCINNATI, OH 45246
UNITED STATES US
SHIP DATE: 18NOV11
ACTWGT: 55.1 LB
CAD: 6015190/FSSR1210
DIMS: 22x13x14 IN
BILL THIRD PARTY
TO SAMPLE RECEIVING
TESTAMERICA INC.
301 ALPHA DR
PITTSBURGH PA 15238
(412) 963-7058
INV:
PO:
REF:
DEPT:
FedEx
Express
TRK# 7954 2264 6746
SATURDAY
PRIORITY
TO Sample
TestAmerica Inc.
301 Alpha Dr
Pittsburgh, PA 15238
Trk# 7954 2264 6746
PRIORITY OVERNIGHT
301 Alpha Dr
PLACE THIS
NEXT TO

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-6095-1

Login Number: 6095

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: O'Donnell, Brandon R

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: BHE Environmental Inc./ Alcoa Work

Job Number: 180-6095-1

Login Number: 6095
List Number: 1
Creator: Maddux, Ann

List Source: TestAmerica North Canton
List Creation: 11/22/11 06:40 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-79445-1
Client Project/Site: ALCOA - ABL GW

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
5/24/2012 11:44:52 AM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 680-79445-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Environeering Inc

Project: ALCOA - ABL GW

Report Number: 680-79445-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 05/12/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.8 , 1.1 C.

CYANIDE, AVAILABLE (FLOW INJECTION)
Samples ABLTB01F002 (680-79445-1), ABLMW06F002 (680-79445-2), ABLMW01F002 (680-79445-3), ABLMW01D002 (680-79445-4), ABLMW02F002 (680-79445-5), ABLPZ18F002 (680-79445-6), ABLPZ15F002 (680-79445-7), ABLEB01F002 (680-79445-8), ABLPZ16F002 (680-79445-9), ABLPZ16D002 (680-79445-10), ABLPZ19F002 (680-79445-11), ABLPZ17F002 (680-79445-12), ABLMW03F002 (680-79445-13), ABLMW04F002 (680-79445-14) and ABLMW05F002 (680-79445-15) were analyzed for Cyanide, Available (Flow Injection) in accordance with EPA Method 1677. The samples were analyzed on 05/15/2012 and 05/17/2012.

No difficulties were encountered during the cyanide analyses.

All quality control parameters were within the acceptance limits.

ANIONS
Samples ABLTB01F002 (680-79445-1), ABLMW06F002 (680-79445-2), ABLMW01F002 (680-79445-3), ABLMW01D002 (680-79445-4), ABLMW02F002 (680-79445-5), ABLPZ18F002 (680-79445-6), ABLPZ15F002 (680-79445-7), ABLEB01F002 (680-79445-8), ABLPZ16F002 (680-79445-9), ABLPZ16D002 (680-79445-10), ABLPZ19F002 (680-79445-11), ABLPZ17F002 (680-79445-12), ABLMW03F002 (680-79445-13), ABLMW04F002 (680-79445-14) and ABLMW05F002 (680-79445-15) were analyzed for anions in accordance with EPA SW-846 Method 9056. The samples were analyzed on 05/15/2012 and 05/16/2012.

Samples ABLTB01F002 (680-79445-1)[5X], ABLMW06F002 (680-79445-2)[5X], ABLMW01F002 (680-79445-3)[5X], ABLMW01D002 (680-79445-4)[5X], ABLMW02F002 (680-79445-5)[5X], ABLPZ18F002 (680-79445-6)[5X], ABLPZ15F002 (680-79445-7)[10X], ABLPZ15F002 (680-79445-7)[5X], ABLEB01F002 (680-79445-8)[5X], ABLPZ16F002 (680-79445-9)[5X], ABLPZ16D002 (680-79445-10)[5X], ABLPZ19F002 (680-79445-11)[5X], ABLPZ17F002 (680-79445-12)[10X], ABLPZ17F002 (680-79445-12)[5X], ABLMW03F002 (680-79445-13)[5X], ABLMW04F002 (680-79445-14)[5X] and ABLMW05F002 (680-79445-15)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analyses.

All quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON

Job ID: 680-79445-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

Samples ABLTB01F002 (680-79445-1), ABLMW06F002 (680-79445-2), ABLMW01F002 (680-79445-3), ABLMW01D002 (680-79445-4), ABLMW02F002 (680-79445-5), ABLPZ18F002 (680-79445-6), ABLPZ15F002 (680-79445-7), ABLEB01F002 (680-79445-8), ABLPZ16F002 (680-79445-9), ABLPZ16D002 (680-79445-10), ABLPZ17F002 (680-79445-12), ABLMW03F002 (680-79445-13), ABLMW04F002 (680-79445-14) and ABLMW05F002 (680-79445-15) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 05/16/2012.

No difficulties were encountered during the TOC analyses.

All quality control parameters were within the acceptance limits.

Sample Summary

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-79445-1	ABLTB01F002	Water	05/07/12 09:10	05/12/12 09:53
680-79445-2	ABLMW06F002	Water	05/08/12 13:00	05/12/12 09:53
680-79445-3	ABLMW01F002	Water	05/08/12 15:00	05/12/12 09:53
680-79445-4	ABLMW01D002	Water	05/08/12 15:10	05/12/12 09:53
680-79445-5	ABLMW02F002	Water	05/08/12 18:00	05/12/12 09:53
680-79445-6	ABLPZ18F002	Water	05/09/12 10:20	05/12/12 09:53
680-79445-7	ABLPZ15F002	Water	05/09/12 12:50	05/12/12 09:53
680-79445-8	ABLEB01F002	Water	05/09/12 00:00	05/12/12 09:53
680-79445-9	ABLPZ16F002	Water	05/10/12 10:15	05/12/12 09:53
680-79445-10	ABLPZ16D002	Water	05/10/12 10:30	05/12/12 09:53
680-79445-11	ABLPZ19F002	Water	05/10/12 13:25	05/12/12 09:53
680-79445-12	ABLPZ17F002	Water	05/10/12 15:20	05/12/12 09:53
680-79445-13	ABLMW03F002	Water	05/10/12 09:30	05/12/12 09:53
680-79445-14	ABLMW04F002	Water	05/10/12 13:05	05/12/12 09:53
680-79445-15	ABLMW05F002	Water	05/10/12 15:33	05/12/12 09:53

Method Summary

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Method	Method Description	Protocol	Laboratory
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9056	Anions, Ion Chromatography	SW846	TAL SAV
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Definitions/Glossary

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Client Sample ID: ABLTB01F002 — Lab Sample ID: 680-79445-1

Date Collected: 05/07/12 09:10 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 15:15	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 18:40	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 04:23	1

Client Sample ID: ABLMW06F002 — Lab Sample ID: 680-79445-2

Date Collected: 05/08/12 13:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 15:17	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 19:18	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 05:10	1

Client Sample ID: ABLMW01F002 — Lab Sample ID: 680-79445-3

Date Collected: 05/08/12 15:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 15:18	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 19:30	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 05:27	1

Client Sample ID: ABLMW01D002 — Lab Sample ID: 680-79445-4

Date Collected: 05/08/12 15:10 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 15:20	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 19:42	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 05:43	1

Client Sample ID: ABLMW02F002 — Lab Sample ID: 680-79445-5

Date Collected: 05/08/12 18:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 15:21	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 19:55	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 06:00	1

Client Sample ID: ABLPZ18F002 — Lab Sample ID: 680-79445-6

Date Collected: 05/09/12 10:20 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.0080**		0.0020	0.00030	mg/L			05/15/12 15:23	1
Fluoride	**27**		1.0	0.20	mg/L			05/15/12 20:07	5

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Client Sample ID: ABLPZ18F002 — Lab Sample ID: 680-79445-6

Date Collected: 05/09/12 10:20 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**9.6**		1.0	0.50	mg/L			05/16/12 06:16	1

Client Sample ID: ABLPZ15F002 — Lab Sample ID: 680-79445-7

Date Collected: 05/09/12 12:50 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 15:24	1
Fluoride	**66**		2.0	0.40	mg/L			05/16/12 21:24	10
Total Organic Carbon	**7.2**		1.0	0.50	mg/L			05/16/12 06:35	1

Client Sample ID: ABLEB01F002 — Lab Sample ID: 680-79445-8

Date Collected: 05/09/12 00:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 15:26	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 20:32	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 07:28	1

Client Sample ID: ABLPZ16F002 — Lab Sample ID: 680-79445-9

Date Collected: 05/10/12 10:15 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.014**		0.0020	0.00030	mg/L			05/15/12 15:27	1
Fluoride	**9.7**		1.0	0.20	mg/L			05/15/12 21:09	5
Total Organic Carbon	**2.1**		1.0	0.50	mg/L			05/16/12 07:47	1

Client Sample ID: ABLPZ16D002 — Lab Sample ID: 680-79445-10

Date Collected: 05/10/12 10:30 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.0060**		0.0020	0.00030	mg/L			05/15/12 15:29	1
Fluoride	**9.6**		1.0	0.20	mg/L			05/15/12 21:34	5
Total Organic Carbon	**1.8**		1.0	0.50	mg/L			05/16/12 08:03	1

Client Sample ID: ABLPZ19F002 — Lab Sample ID: 680-79445-11

Date Collected: 05/10/12 13:25 — **Matrix: Water**
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:08	1
Fluoride	**37**		1.0	0.20	mg/L			05/15/12 21:46	5

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Client Sample ID: ABLPZ17F002

Lab Sample ID: 680-79445-12
Date Collected: 05/10/12 15:20
Matrix: Water
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:09	1
Fluoride	**56**		2.0	0.40	mg/L			05/16/12 21:37	10
Total Organic Carbon	**4.7**		1.0	0.50	mg/L			05/16/12 08:19	1

Client Sample ID: ABLMW03F002

Lab Sample ID: 680-79445-13
Date Collected: 05/10/12 09:30
Matrix: Water
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:11	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 22:11	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 08:40	1

Client Sample ID: ABLMW04F002

Lab Sample ID: 680-79445-14
Date Collected: 05/10/12 13:05
Matrix: Water
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:12	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 22:24	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 09:04	1

Client Sample ID: ABLMW05F002

Lab Sample ID: 680-79445-15
Date Collected: 05/10/12 15:33
Matrix: Water
Date Received: 05/12/12 09:53

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.024**		0.0020	0.00030	mg/L			05/17/12 12:14	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 22:36	5
Total Organic Carbon	**0.61**	**J**	1.0	0.50	mg/L			05/16/12 09:20	1

QC Sample Results

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-36098/18 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36098

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 15:14	1

Lab Sample ID: LCS 180-36098/16 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36098

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.101		mg/L		101	82 - 132

Lab Sample ID: LCSD 180-36098/17 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36098

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.108		mg/L		108	82 - 132	7	20

Lab Sample ID: MB 180-36357/33 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:06	1

Lab Sample ID: LCS 180-36357/31 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.103		mg/L		103	82 - 132

Lab Sample ID: LCSD 180-36357/32 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.104		mg/L		104	82 - 132	1	20

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 680-237526/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 18:03	5

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 680-237526/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			10.0	10.9		mg/L		109	90 - 110		

Lab Sample ID: LCSD 680-237526/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride			10.0	10.9		mg/L		109	90 - 110	0	30

Lab Sample ID: 680-79445-1 MS — **Client Sample ID: ABLTB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	<0.20		10.0	10.6		mg/L		106	90 - 110		

Lab Sample ID: 680-79445-1 MSD — **Client Sample ID: ABLTB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	<0.20		10.0	10.8		mg/L		108	90 - 110	1	30

Lab Sample ID: 680-79445-9 MS — **Client Sample ID: ABLPZ16F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	9.7		10.0	19.9		mg/L		102	90 - 110		

Lab Sample ID: MB 680-237684/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237684

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			05/16/12 18:55	5

Lab Sample ID: LCS 680-237684/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237684

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			10.0	10.9		mg/L		109	90 - 110		

Lab Sample ID: LCSD 680-237684/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237684

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride			10.0	10.9		mg/L		109	90 - 110	0	30

QC Sample Results

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-237567/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 03:50	1

Lab Sample ID: LCS 680-237567/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			20.0	21.2		mg/L		106	80 - 120		

Lab Sample ID: 680-79445-1 MS — **Client Sample ID: ABLTB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	<0.50		20.0	20.8		mg/L		104	80 - 120		

Lab Sample ID: 680-79445-1 MSD — **Client Sample ID: ABLTB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	<0.50		20.0	21.0		mg/L		105	80 - 120	1	25

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Client Sample ID: ABLTB01F002 — Lab Sample ID: 680-79445-1

Date Collected: 05/07/12 09:10 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:15	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 18:40	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 04:23	JR	TAL SAV

Client Sample ID: ABLMW06F002 — Lab Sample ID: 680-79445-2

Date Collected: 05/08/12 13:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:17	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 19:18	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 05:10	JR	TAL SAV

Client Sample ID: ABLMW01F002 — Lab Sample ID: 680-79445-3

Date Collected: 05/08/12 15:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:18	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 19:30	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 05:27	JR	TAL SAV

Client Sample ID: ABLMW01D002 — Lab Sample ID: 680-79445-4

Date Collected: 05/08/12 15:10 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:20	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 19:42	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 05:43	JR	TAL SAV

Client Sample ID: ABLMW02F002 — Lab Sample ID: 680-79445-5

Date Collected: 05/08/12 18:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:21	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 19:55	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 06:00	JR	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Client Sample ID: ABLPZ18F002 — Lab Sample ID: 680-79445-6

Date Collected: 05/09/12 10:20 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:23	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 20:07	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 06:16	JR	TAL SAV

Client Sample ID: ABLPZ15F002 — Lab Sample ID: 680-79445-7

Date Collected: 05/09/12 12:50 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:24	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 06:35	JR	TAL SAV
Total/NA	Analysis	9056		10	237684	05/16/12 21:24	PAT	TAL SAV

Client Sample ID: ABLEB01F002 — Lab Sample ID: 680-79445-8

Date Collected: 05/09/12 00:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:26	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 20:32	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 07:28	JR	TAL SAV

Client Sample ID: ABLPZ16F002 — Lab Sample ID: 680-79445-9

Date Collected: 05/10/12 10:15 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:27	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 21:09	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 07:47	JR	TAL SAV

Client Sample ID: ABLPZ16D002 — Lab Sample ID: 680-79445-10

Date Collected: 05/10/12 10:30 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36098	05/15/12 15:29	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 21:34	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 08:03	JR	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Client Sample ID: ABLPZ19F002 — Lab Sample ID: 680-79445-11

Date Collected: 05/10/12 13:25 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36357	05/17/12 12:08	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 21:46	PAT	TAL SAV

Client Sample ID: ABLPZ17F002 — Lab Sample ID: 680-79445-12

Date Collected: 05/10/12 15:20 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36357	05/17/12 12:09	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 08:19	JR	TAL SAV
Total/NA	Analysis	9056		10	237684	05/16/12 21:37	PAT	TAL SAV

Client Sample ID: ABLMW03F002 — Lab Sample ID: 680-79445-13

Date Collected: 05/10/12 09:30 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36357	05/17/12 12:11	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 22:11	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 08:40	JR	TAL SAV

Client Sample ID: ABLMW04F002 — Lab Sample ID: 680-79445-14

Date Collected: 05/10/12 13:05 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36357	05/17/12 12:12	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 22:24	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 09:04	JR	TAL SAV

Client Sample ID: ABLMW05F002 — Lab Sample ID: 680-79445-15

Date Collected: 05/10/12 15:33 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36357	05/17/12 12:14	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 22:36	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 09:20	JR	TAL SAV

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 52122

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location: TESTAMERICA PITT FOR FREE CN

Phone:
Fax:

PROJECT REFERENCE: ABL GW	PROJECT NO.	PROJECT LOCATION (STATE): NC	PAGE 1 OF 2
TAL (LAB) PROJECT MANAGER: S. HUFFMAN	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ✓
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814939005	CLIENT FAX: 2814939007	DATE DUE
CLIENT NAME: ENVIRONEERING INC	CLIENT E-MAIL: mworden@environeeringinc.com		EXPEDITED REPORT DELIVERY (SURCHARGE)
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 2

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); SOLID OR SEMISOLID; AIR; NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

REQUIRED ANALYSIS: 8260 - F; 9060 - TOC; 1677 - FREE CN

PRESERVATIVE: HCl; NaOH

NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	8260 - F	9060 - TOC	1677 - FREE CN	REMARKS
5/7/12	0910	ABLTB01F002		X				1	1	1	ASCORBIC ACID PRES
5/8/12	1300	ABL MW06 F002		X				1	1	1	" " "
	1500	ABL MW01 F002		X				1	1	1	" " "
	1510	ABL MW01 D002		X				1	1	1	" " "
	1800	ABL MW02 F002		X				1	1	1	" " "
5/9/12	1020	ABL PZ18 F002		X				1	1	1	" " "
5/9/12	1250	ABL PZ15 F002		X				1	1	1	" " "
5/9/12		ABL EB01 F002		X				1	1	1	" " "
5/10/12	1015	ABL PZ16 F002		X				1	1	1	" " "
	1030	ABL PZ16 D002		X				1	1	1	" " "
	1325	ABL PZ19 F002		X				1	—	1	" " "
	1520	ABL PZ17 F002		X				1	1	1	" " "

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	5/10/12	1900						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature]	5/10/12	1900						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	05/12/12	0953	YES ○ NO ○		680-79445	0.8°C / 1.1°C

TAL 8240-680 (1008)

5/24/2012

Serial Number 52209

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location: TESTAMERICA PITT FOR FREE CN
Phone:
Fax:

PROJECT REFERENCE: ABL GW	PROJECT NO.	PROJECT LOCATION (STATE): NC
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 7814939005	CLIENT FAX: 7814939007
CLIENT NAME: ENVIRONEERING INC	CLIENT E-MAIL: mworden@environeering.com	
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 2 OF 2

STANDARD REPORT DELIVERY ☒
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 2

REQUIRED ANALYSIS / NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	9050 - F	9060 - TOC	1677 - FREE CN							REMARKS
								HCl	ACID NEED								
5/10/12	0930	ABL MW03F002		X				1	1	1							ASCOR. ACID PRES
↓	1305	ABL MW04F002		X				1	1	1							" " "
↓	1533	ABL MW05F002		X				1	1	1							" " "

PRESERVATIVE

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	5/10/12	1900						
RECEIVED BY: (SIGNATURE) FEDEX	DATE 5/10/12	TIME 1900	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	05/12/12	0953	YES ○ NO ○		680-79445	0.8°C / 1.1°C

TAL 8240-680 (1008)

5/24/2012

Certification Summary

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	State Program	6	N/A
TestAmerica Savannah	Arkansas DEQ	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	GA Dept. of Agriculture	State Program	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Georgia	State Program	4	N/A
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Kentucky (UST)	State Program	4	18
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina DENR	State Program	4	269
TestAmerica Savannah	North Carolina DHHS	State Program	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	Federal		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC	3	460161
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	State Program	3	9950C
TestAmerica Savannah	West Virginia DEP	State Program	3	94
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q
TestAmerica Pittsburgh	Arkansas DEQ	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602

Certification Summary

Client: Environeering Inc
Project/Site: ALCOA - ABL GW

TestAmerica Job ID: 680-79445-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	L-A-B	DoD ELAP		L2314
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina DENR	State Program	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	Federal		P330-10-00139
TestAmerica Pittsburgh	USDA	Federal		P-Soil-01
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	Virginia	NELAC	3	460189
TestAmerica Pittsburgh	West Virginia DEP	State Program	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-79379-1
Client Project/Site: OBL GW

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
5/23/2012 11:29:40 AM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 680-79379-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Environeering Inc

Project: Alcoa Groundwater Sampling

Report Number: 680-79379-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 05/10/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.6 C.

CYANIDE, AVAILABLE (FLOW INJECTION)
Samples OBLMW02F002 (680-79379-1), OBLMW02D002 (680-79379-2), OBLMW03F002 (680-79379-3), OBLMW05F002 (680-79379-4), OBLMW06F002 (680-79379-5), OBLEB01F002 (680-79379-6), OBLTB01F002 (680-79379-7) and OBLMW04F002 (680-79379-8) were analyzed for Cyanide, Available (Flow Injection) in accordance with EPA Method 1677. The samples were analyzed on 05/15/2012.

No difficulties were encountered during the cyanide analyses.

All quality control parameters were within the acceptance limits.

ANIONS
Samples OBLMW02F002 (680-79379-1), OBLMW02D002 (680-79379-2), OBLMW03F002 (680-79379-3), OBLMW05F002 (680-79379-4), OBLMW06F002 (680-79379-5), OBLEB01F002 (680-79379-6), OBLTB01F002 (680-79379-7) and OBLMW04F002 (680-79379-8) were analyzed for anions in accordance with EPA SW-846 Method 9056. The samples were analyzed on 05/14/2012.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for fluoride in batch 237422 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Refer to the QC report for details.

Samples OBLMW02F002 (680-79379-1)[5X], OBLMW02D002 (680-79379-2)[5X], OBLMW03F002 (680-79379-3)[5X], OBLMW05F002 (680-79379-4)[5X], OBLMW06F002 (680-79379-5)[5X], OBLEB01F002 (680-79379-6)[5X], OBLTB01F002 (680-79379-7)[5X] and OBLMW04F002 (680-79379-8)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the anions analyses.

All other quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON
Samples OBLMW02F002 (680-79379-1), OBLMW02D002 (680-79379-2), OBLMW03F002 (680-79379-3), OBLMW05F002 (680-79379-4), OBLMW06F002 (680-79379-5), OBLEB01F002 (680-79379-6), OBLTB01F002 (680-79379-7) and OBLMW04F002 (680-79379-8) were

Job ID: 680-79379-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 05/12/2012.

No difficulties were encountered during the TOC analyses.

All quality control parameters were within the acceptance limits.

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Sample Summary

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-79379-1	OBLMW02F002	Water	05/07/12 11:00	05/10/12 09:14
680-79379-2	OBLMW02D002	Water	05/07/12 11:10	05/10/12 09:14
680-79379-3	OBLMW03F002	Water	05/07/12 16:50	05/10/12 09:14
680-79379-4	OBLMW05F002	Water	05/07/12 19:27	05/10/12 09:14
680-79379-5	OBLMW06F002	Water	05/07/12 14:15	05/10/12 09:14
680-79379-6	OBLEB01F002	Water	05/07/12 18:20	05/10/12 09:14
680-79379-7	OBLTB01F002	Water	05/07/12 09:00	05/10/12 09:14
680-79379-8	OBLMW04F002	Water	05/09/12 17:20	05/10/12 09:14

Method Summary

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Method	Method Description	Protocol	Laboratory
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9056	Anions, Ion Chromatography	SW846	TAL SAV
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Definitions/Glossary

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Client Sample ID: OBLMW02F002 — Lab Sample ID: 680-79379-1

Date Collected: 05/07/12 11:00
Date Received: 05/10/12 09:14
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.055		0.0020	0.00030	mg/L			05/15/12 13:18	1
Fluoride	<0.20		1.0	0.20	mg/L			05/14/12 15:51	5
Total Organic Carbon	2.6		1.0	0.50	mg/L			05/12/12 02:37	1

Client Sample ID: OBLMW02D002 — Lab Sample ID: 680-79379-2

Date Collected: 05/07/12 11:10
Date Received: 05/10/12 09:14
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.060		0.0020	0.00030	mg/L			05/15/12 13:20	1
Fluoride	<0.20		1.0	0.20	mg/L			05/14/12 16:04	5
Total Organic Carbon	3.1		1.0	0.50	mg/L			05/12/12 02:55	1

Client Sample ID: OBLMW03F002 — Lab Sample ID: 680-79379-3

Date Collected: 05/07/12 16:50
Date Received: 05/10/12 09:14
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.016		0.0020	0.00030	mg/L			05/15/12 13:21	1
Fluoride	<0.20		1.0	0.20	mg/L			05/14/12 16:16	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/12/12 03:13	1

Client Sample ID: OBLMW05F002 — Lab Sample ID: 680-79379-4

Date Collected: 05/07/12 19:27
Date Received: 05/10/12 09:14
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 13:23	1
Fluoride	<0.20		1.0	0.20	mg/L			05/14/12 16:29	5
Total Organic Carbon	1.1		1.0	0.50	mg/L			05/12/12 03:30	1

Client Sample ID: OBLMW06F002 — Lab Sample ID: 680-79379-5

Date Collected: 05/07/12 14:15
Date Received: 05/10/12 09:14
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 13:24	1
Fluoride	<0.20		1.0	0.20	mg/L			05/14/12 16:41	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/12/12 04:21	1

Client Sample ID: OBLEB01F002 — Lab Sample ID: 680-79379-6

Date Collected: 05/07/12 18:20
Date Received: 05/10/12 09:14
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 13:26	1
Fluoride	<0.20		1.0	0.20	mg/L			05/14/12 17:18	5

Client Sample Results

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Client Sample ID: OBLEB01F002

Lab Sample ID: 680-79379-6

Date Collected: 05/07/12 18:20
Matrix: Water
Date Received: 05/10/12 09:14

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/12/12 04:38	1

Client Sample ID: OBLTB01F002

Lab Sample ID: 680-79379-7

Date Collected: 05/07/12 09:00
Matrix: Water
Date Received: 05/10/12 09:14

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 13:27	1
Fluoride	<0.20		1.0	0.20	mg/L			05/14/12 17:43	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/12/12 04:54	1

Client Sample ID: OBLMW04F002

Lab Sample ID: 680-79379-8

Date Collected: 05/09/12 17:20
Matrix: Water
Date Received: 05/10/12 09:14

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.018**		0.0020	0.00030	mg/L			05/15/12 13:29	1
Fluoride	**0.80**	**J**	1.0	0.20	mg/L			05/14/12 17:55	5
Total Organic Carbon	**0.68**	**J**	1.0	0.50	mg/L			05/12/12 05:13	1

QC Sample Results

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-36084/79 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/15/12 13:17	1

Lab Sample ID: LCS 180-36084/77 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36084

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.102		mg/L		102	82 - 132

Lab Sample ID: LCSD 180-36084/78 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36084

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.102		mg/L		102	82 - 132	0	20

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 680-237422/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237422

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			05/14/12 14:12	5

Lab Sample ID: LCS 680-237422/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237422

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.9		mg/L		109	90 - 110

Lab Sample ID: LCSD 680-237422/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237422

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.9		mg/L		109	90 - 110	0	30

Lab Sample ID: 680-79379-6 MS — **Client Sample ID: OBLEB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237422

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	<0.20		10.0	10.8		mg/L		108	90 - 110

QC Sample Results

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-237257/2
Matrix: Water
Analysis Batch: 237257

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/12/12 00:43	1

Lab Sample ID: LCS 680-237257/3
Matrix: Water
Analysis Batch: 237257

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			20.0	21.4		mg/L		107	80 - 120		

Lab Sample ID: 680-79379-8 DU
Matrix: Water
Analysis Batch: 237257

Client Sample ID: OBLMW04F002
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon	0.68	J		0.672	J	mg/L				1	25

Lab Chronicle

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Client Sample ID: OBLMW02F002 — Lab Sample ID: 680-79379-1

Date Collected: 05/07/12 11:00 — **Matrix: Water**
Date Received: 05/10/12 09:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36084	05/15/12 13:18	PJ	TAL PIT
Total/NA	Analysis	9060		1	237257	05/12/12 02:37	JR	TAL SAV
Total/NA	Analysis	9056		5	237422	05/14/12 15:51	PAT	TAL SAV

Client Sample ID: OBLMW02D002 — Lab Sample ID: 680-79379-2

Date Collected: 05/07/12 11:10 — **Matrix: Water**
Date Received: 05/10/12 09:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36084	05/15/12 13:20	PJ	TAL PIT
Total/NA	Analysis	9060		1	237257	05/12/12 02:55	JR	TAL SAV
Total/NA	Analysis	9056		5	237422	05/14/12 16:04	PAT	TAL SAV

Client Sample ID: OBLMW03F002 — Lab Sample ID: 680-79379-3

Date Collected: 05/07/12 16:50 — **Matrix: Water**
Date Received: 05/10/12 09:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36084	05/15/12 13:21	PJ	TAL PIT
Total/NA	Analysis	9060		1	237257	05/12/12 03:13	JR	TAL SAV
Total/NA	Analysis	9056		5	237422	05/14/12 16:16	PAT	TAL SAV

Client Sample ID: OBLMW05F002 — Lab Sample ID: 680-79379-4

Date Collected: 05/07/12 19:27 — **Matrix: Water**
Date Received: 05/10/12 09:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36084	05/15/12 13:23	PJ	TAL PIT
Total/NA	Analysis	9060		1	237257	05/12/12 03:30	JR	TAL SAV
Total/NA	Analysis	9056		5	237422	05/14/12 16:29	PAT	TAL SAV

Client Sample ID: OBLMW06F002 — Lab Sample ID: 680-79379-5

Date Collected: 05/07/12 14:15 — **Matrix: Water**
Date Received: 05/10/12 09:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36084	05/15/12 13:24	PJ	TAL PIT
Total/NA	Analysis	9060		1	237257	05/12/12 04:21	JR	TAL SAV
Total/NA	Analysis	9056		5	237422	05/14/12 16:41	PAT	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Client Sample ID: OBLEB01F002 — Lab Sample ID: 680-79379-6

Date Collected: 05/07/12 18:20 — **Matrix: Water**
Date Received: 05/10/12 09:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36084	05/15/12 13:26	PJ	TAL PIT
Total/NA	Analysis	9060		1	237257	05/12/12 04:38	JR	TAL SAV
Total/NA	Analysis	9056		5	237422	05/14/12 17:18	PAT	TAL SAV

Client Sample ID: OBLTB01F002 — Lab Sample ID: 680-79379-7

Date Collected: 05/07/12 09:00 — **Matrix: Water**
Date Received: 05/10/12 09:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36084	05/15/12 13:27	PJ	TAL PIT
Total/NA	Analysis	9060		1	237257	05/12/12 04:54	JR	TAL SAV
Total/NA	Analysis	9056		5	237422	05/14/12 17:43	PAT	TAL SAV

Client Sample ID: OBLMW04F002 — Lab Sample ID: 680-79379-8

Date Collected: 05/09/12 17:20 — **Matrix: Water**
Date Received: 05/10/12 09:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1	36084	05/15/12 13:29	PJ	TAL PIT
Total/NA	Analysis	9060		1	237257	05/12/12 05:13	JR	TAL SAV
Total/NA	Analysis	9056		5	237422	05/14/12 17:55	PAT	TAL SAV

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 52208

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
TESTAMERICA PITT FOR FREE CN

Phone:
Fax:

PROJECT REFERENCE: OBL GW	PROJECT NO.	PROJECT LOCATION (STATE): NC
TAL (LAB) PROJECT MANAGER: ~~M. Wor~~ S. HOFFMAN	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814939605	CLIENT FAX: 2814939007
CLIENT NAME: ENVIRONEERING INC	CLIENT E-MAIL: mworden@environeeringinc.com	
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ☒
DATE DUE _____
EXPEDITED REPORT DELIVERY (SURCHARGE) ○
DATE DUE _____
NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

MATRIX TYPE: AQUEOUS (WATER) / SOLID OR SEMISOLID / AIR / NONAQUEOUS LIQUID (OIL, SOLVENT, ...)

COMPOSITE (C) OR GRAB (G) INDICATE

REQUIRED ANALYSIS / NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	9056 SUL/Cl	4500 CN	9060 TOC	1677 FREE CN Available 5/8/12							REMARKS
								1	HCl	NaOH Acid Fixed								
5/7/12	1100	OBLMW02F002		X				1	1	1								ASCORBIC ACID ADDED
	1110	OBLMW02D002		X				1	1	1								" " "
	1650	OBLMW03F002		X				1	1	1								" " "
	1927	OBLMW05F002		X				1	1	1								" " "
	1415	OBLMW06F002		X				1	1	1								" " "
	1820	OBLEB01F002		X				1	1	1								" " "
	0900	OBLTB01F002		X				1	1	1								" " "
5/9/12	1720	OBLMW04F002		X				1	1	1								

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	5/9/12	1930						
RECEIVED BY: (SIGNATURE) FEDEX	DATE 5/9/12	TIME 1930	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	05/10/12	0914	YES ○ NO ○		680 79379	1.6 °C

TAL 8240-680 (1008)

5/23/2012

Certification Summary

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	State Program	6	N/A
TestAmerica Savannah	Arkansas DEQ	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	GA Dept. of Agriculture	State Program	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Georgia	State Program	4	N/A
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Kentucky (UST)	State Program	4	18
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina DENR	State Program	4	269
TestAmerica Savannah	North Carolina DHHS	State Program	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	Federal		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC	3	460161
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	State Program	3	9950C
TestAmerica Savannah	West Virginia DEP	State Program	3	94
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q
TestAmerica Pittsburgh	Arkansas DEQ	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602

Certification Summary

Client: Environeering Inc
Project/Site: OBL GW

TestAmerica Job ID: 680-79379-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	L-A-B	DoD ELAP		L2314
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina DENR	State Program	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	Federal		P330-10-00139
TestAmerica Pittsburgh	USDA	Federal		P-Soil-01
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	Virginia	NELAC	3	460189
TestAmerica Pittsburgh	West Virginia DEP	State Program	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-79445-2
Client Project/Site: ALCOA BL Sample

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
5/29/2012 2:01:03 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Certification Summary 35

Job ID: 680-79445-2

Laboratory: TestAmerica Savannah

Narrative

Job Narrative

CASE NARRATIVE

Client: Environeering Inc

Project: ALCOA BL Sample

Report Number: 680-79445-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 05/12/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.2, 1.8, 2.2, 1.5, 3.6, 3.6 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23), ABKTB01F002 (680-79445-24) and Trip (680-79445-25) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 05/23/2012 and 05/25/2012.

No difficulties were encountered during the volatiles analyses.

All quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 05/14/2012 and analyzed on 05/18/2012.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 237226 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Refer to the QC report for details.

No other difficulties were encountered during the semivolatiles analyses.

All other quality control parameters were within the acceptance limits.

PESTICIDES AND PCBS

Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for Pesticides and PCBs in accordance with EPA SW846 Method

Job ID: 680-79445-2 (Continued)

Laboratory: TestAmerica Savannah (Continued)

8081A_8082. The samples were prepared on 05/14/2012 and analyzed on 05/17/2012.

The following sample(s) contained an allowable number of surrogate compounds outside limits: (680-79445-16 MSD), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07D002 (680-79445-23), ABKSWL07F002 (680-79445-22). These results have been reported and qualified

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 680-237229 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.
PCB-1260 failed the recovery criteria low for the MSD of sample ABKSWL01F002MSD (680-79445-16) in batch 680-237885.

Refer to the QC report for details.

No other difficulties were encountered during the Pesticides and PCBs analyses.

All other quality control parameters were within the acceptance limits.

CYANIDE, AVAILABLE (FLOW INJECTION)
Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for Cyanide, Available (Flow Injection) in accordance with EPA Method 1677. The samples were analyzed on 05/17/2012.

No difficulties were encountered during the cyanide analyses.

All quality control parameters were within the acceptance limits.

ANIONS
Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for anions in accordance with EPA SW-846 Method 9056. The samples were analyzed on 05/15/2012, 05/16/2012 and 05/18/2012.

Samples ABKSWL01F002 (680-79445-16)[5X], ABKSWL02F002 (680-79445-17)[5X], ABKSWL03F002 (680-79445-18)[5X], ABKSWL04F002 (680-79445-19)[5X], ABKSWL05F002 (680-79445-20)[5X], ABKSWL06F002 (680-79445-21)[5X], ABKSWL07F002 (680-79445-22)[5X], ABKSWL07D002 (680-79445-23)[5X] and ABKTB01F002 (680-79445-24)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analyses.

All quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON
Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 05/16/2012.

No difficulties were encountered during the TOC analyses.

All quality control parameters were within the acceptance limits.

Sample Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-79445-16	ABKSWL01F002	Water	05/11/12 10:10	05/12/12 09:53
680-79445-17	ABKSWL02F002	Water	05/11/12 10:25	05/12/12 09:53
680-79445-18	ABKSWL03F002	Water	05/11/12 10:45	05/12/12 09:53
680-79445-19	ABKSWL04F002	Water	05/11/12 11:00	05/12/12 09:53
680-79445-20	ABKSWL05F002	Water	05/11/12 11:30	05/12/12 09:53
680-79445-21	ABKSWL06F002	Water	05/11/12 11:45	05/12/12 09:53
680-79445-22	ABKSWL07F002	Water	05/11/12 12:00	05/12/12 09:53
680-79445-23	ABKSWL07D002	Water	05/11/12 12:15	05/12/12 09:53
680-79445-24	ABKTB01F002	Water	05/11/12 07:00	05/12/12 09:53
680-79445-25	Trip	Water	05/11/12 00:00	05/12/12 09:53

Method Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
8081A_8082	Organochlorine Pesticides & PCBs (GC)	SW846	TAL SAV
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9056	Anions, Ion Chromatography	SW846	TAL SAV
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Definitions/Glossary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
F	MS or MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL01F002

Lab Sample ID: 680-79445-16

Date Collected: 05/11/12 10:10

Matrix: Water

Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 16:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*70 - 130*		*05/23/12 16:11*	*1*
Dibromofluoromethane	*97*		*70 - 130*		*05/23/12 16:11*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/23/12 16:11*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 03:45	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 03:45	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 03:45	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 03:45	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 03:45	1
Benzo[a]pyrene	<0.68		9.5	0.68	ug/L		05/14/12 15:07	05/18/12 03:45	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 03:45	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 03:45	1
Chrysene	<0.49		9.5	0.49	ug/L		05/14/12 15:07	05/18/12 03:45	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 03:45	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 03:45	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 03:45	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 03:45	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 03:45	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 03:45	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 03:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*72*		*38 - 130*	*05/14/12 15:07*	*05/18/12 03:45*	*1*
Nitrobenzene-d5	*77*		*39 - 130*	*05/14/12 15:07*	*05/18/12 03:45*	*1*
Terphenyl-d14	*36*		*10 - 143*	*05/14/12 15:07*	*05/18/12 03:45*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.068		0.96	0.068	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1232	<0.11		0.96	0.11	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1242	<0.17		0.96	0.17	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1248	<0.35		0.96	0.35	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1254	<0.25		0.96	0.25	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1260	<0.19		0.96	0.19	ug/L		05/14/12 15:07	05/17/12 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*65*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:02*	*1*
Tetrachloro-m-xylene	*62*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:02*	*1*
DCB Decachlorobiphenyl	*53*		*40 - 130*	*05/14/12 15:07*	*05/17/12 20:02*	*1*
DCB Decachlorobiphenyl	*50*		*40 - 130*	*05/14/12 15:07*	*05/17/12 20:02*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:15	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 22:48	5
Total Organic Carbon	**2.6**		1.0	0.50	mg/L			05/16/12 09:37	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL02F002

Date Collected: 05/11/12 10:25
Date Received: 05/12/12 09:53

Lab Sample ID: 680-79445-17

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*70 - 130*		*05/23/12 16:39*	*1*
Dibromofluoromethane	*95*		*70 - 130*		*05/23/12 16:39*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/23/12 16:39*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 04:14	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 04:14	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 04:14	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 04:14	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 04:14	1
Benzo[a]pyrene	<0.67		9.5	0.67	ug/L		05/14/12 15:07	05/18/12 04:14	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 04:14	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 04:14	1
Chrysene	<0.48		9.5	0.48	ug/L		05/14/12 15:07	05/18/12 04:14	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 04:14	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 04:14	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 04:14	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 04:14	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 04:14	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 04:14	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 04:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*77*		*38 - 130*	*05/14/12 15:07*	*05/18/12 04:14*	*1*
Nitrobenzene-d5	*82*		*39 - 130*	*05/14/12 15:07*	*05/18/12 04:14*	*1*
Terphenyl-d14	*41*		*10 - 143*	*05/14/12 15:07*	*05/18/12 04:14*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.95	0.067	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 20:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*52*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:30*	*1*
Tetrachloro-m-xylene	*49*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:30*	*1*
DCB Decachlorobiphenyl	*29*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 20:30*	*1*
DCB Decachlorobiphenyl	*27*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 20:30*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:17	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 23:01	5
Total Organic Carbon	**7.7**		1.0	0.50	mg/L			05/16/12 09:55	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL03F002

Date Collected: 05/11/12 10:45
Date Received: 05/12/12 09:53

Lab Sample ID: 680-79445-18

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*70 - 130*		*05/23/12 15:57*	*1*
Dibromofluoromethane	*109*		*70 - 130*		*05/23/12 15:57*	*1*
Toluene-d8 (Surr)	*109*		*70 - 130*		*05/23/12 15:57*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 04:43	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 04:43	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 04:43	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 04:43	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 04:43	1
Benzo[a]pyrene	<0.68		9.5	0.68	ug/L		05/14/12 15:07	05/18/12 04:43	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 04:43	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 04:43	1
Chrysene	<0.49		9.5	0.49	ug/L		05/14/12 15:07	05/18/12 04:43	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 04:43	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 04:43	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 04:43	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 04:43	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 04:43	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 04:43	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 04:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*75*		*38 - 130*	*05/14/12 15:07*	*05/18/12 04:43*	*1*
Nitrobenzene-d5	*75*		*39 - 130*	*05/14/12 15:07*	*05/18/12 04:43*	*1*
Terphenyl-d14	*57*		*10 - 143*	*05/14/12 15:07*	*05/18/12 04:43*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.95	0.067	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:57*	*1*
Tetrachloro-m-xylene	*56*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:57*	*1*
DCB Decachlorobiphenyl	*23*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 20:57*	*1*
DCB Decachlorobiphenyl	*23*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 20:57*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:18	1
Fluoride	<0.20		1.0	0.20	mg/L			05/16/12 21:49	5
Total Organic Carbon	**3.2**		1.0	0.50	mg/L			05/16/12 11:00	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL04F002

Date Collected: 05/11/12 11:00
Date Received: 05/12/12 09:53

Lab Sample ID: 680-79445-19

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/25/12 12:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*70 - 130*		*05/25/12 12:50*	*1*
Dibromofluoromethane	*97*		*70 - 130*		*05/25/12 12:50*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/25/12 12:50*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.6	0.83	ug/L		05/14/12 15:07	05/18/12 20:25	1
Benzo[k]fluoranthene	<1.1		9.6	1.1	ug/L		05/14/12 15:07	05/18/12 20:25	1
Acenaphthene	<0.73		9.6	0.73	ug/L		05/14/12 15:07	05/18/12 20:25	1
Acenaphthylene	<0.81		9.6	0.81	ug/L		05/14/12 15:07	05/18/12 20:25	1
Benzo[a]anthracene	<0.53		9.6	0.53	ug/L		05/14/12 15:07	05/18/12 20:25	1
Benzo[a]pyrene	<0.68		9.6	0.68	ug/L		05/14/12 15:07	05/18/12 20:25	1
Benzo[b]fluoranthene	<2.5		9.6	2.5	ug/L		05/14/12 15:07	05/18/12 20:25	1
1-Methylnaphthalene	<0.64		9.6	0.64	ug/L		05/14/12 15:07	05/18/12 20:25	1
Chrysene	<0.49		9.6	0.49	ug/L		05/14/12 15:07	05/18/12 20:25	1
Dibenz(a,h)anthracene	<0.96		9.6	0.96	ug/L		05/14/12 15:07	05/18/12 20:25	1
Fluoranthene	<0.71		9.6	0.71	ug/L		05/14/12 15:07	05/18/12 20:25	1
Fluorene	<0.92		9.6	0.92	ug/L		05/14/12 15:07	05/18/12 20:25	1
Indeno[1,2,3-cd]pyrene	<0.96		9.6	0.96	ug/L		05/14/12 15:07	05/18/12 20:25	1
Phenanthrene	<0.74		9.6	0.74	ug/L		05/14/12 15:07	05/18/12 20:25	1
Pyrene	<0.60		9.6	0.60	ug/L		05/14/12 15:07	05/18/12 20:25	1
Anthracene	<0.66		9.6	0.66	ug/L		05/14/12 15:07	05/18/12 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*73*		*38 - 130*	*05/14/12 15:07*	*05/18/12 20:25*	*1*
Nitrobenzene-d5	*81*		*39 - 130*	*05/14/12 15:07*	*05/18/12 20:25*	*1*
Terphenyl-d14	*60*		*10 - 143*	*05/14/12 15:07*	*05/18/12 20:25*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.95	0.067	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 21:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*68*		*36 - 130*	*05/14/12 15:07*	*05/17/12 21:25*	*1*
Tetrachloro-m-xylene	*65*		*36 - 130*	*05/14/12 15:07*	*05/17/12 21:25*	*1*
DCB Decachlorobiphenyl	*36*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 21:25*	*1*
DCB Decachlorobiphenyl	*34*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 21:25*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:29	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 18:54	5
Total Organic Carbon	**2.6**		1.0	0.50	mg/L			05/16/12 11:18	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL05F002

Date Collected: 05/11/12 11:30
Date Received: 05/12/12 09:53

Lab Sample ID: 680-79445-20

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*70 - 130*		*05/23/12 19:09*	*1*
Dibromofluoromethane	*98*		*70 - 130*		*05/23/12 19:09*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/23/12 19:09*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.82		9.5	0.82	ug/L		05/14/12 15:07	05/18/12 20:54	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 20:54	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 20:54	1
Acenaphthylene	<0.80		9.5	0.80	ug/L		05/14/12 15:07	05/18/12 20:54	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 20:54	1
Benzo[a]pyrene	<0.67		9.5	0.67	ug/L		05/14/12 15:07	05/18/12 20:54	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 20:54	1
1-Methylnaphthalene	<0.63		9.5	0.63	ug/L		05/14/12 15:07	05/18/12 20:54	1
Chrysene	<0.48		9.5	0.48	ug/L		05/14/12 15:07	05/18/12 20:54	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 20:54	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 20:54	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 20:54	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 20:54	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 20:54	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 20:54	1
Anthracene	<0.65		9.5	0.65	ug/L		05/14/12 15:07	05/18/12 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*76*		*38 - 130*	*05/14/12 15:07*	*05/18/12 20:54*	*1*
Nitrobenzene-d5	*83*		*39 - 130*	*05/14/12 15:07*	*05/18/12 20:54*	*1*
Terphenyl-d14	*50*		*10 - 143*	*05/14/12 15:07*	*05/18/12 20:54*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.068		0.95	0.068	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 21:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*36 - 130*	*05/14/12 15:07*	*05/17/12 21:53*	*1*
Tetrachloro-m-xylene	*68*		*36 - 130*	*05/14/12 15:07*	*05/17/12 21:53*	*1*
DCB Decachlorobiphenyl	*37*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 21:53*	*1*
DCB Decachlorobiphenyl	*38*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 21:53*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:30	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 19:31	5
Total Organic Carbon	**2.6**		1.0	0.50	mg/L			05/16/12 11:35	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL06F002

Date Collected: 05/11/12 11:45
Date Received: 05/12/12 09:53

Lab Sample ID: 680-79445-21

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*70 - 130*		*05/23/12 19:23*	*1*
Dibromofluoromethane	*106*		*70 - 130*		*05/23/12 19:23*	*1*
Toluene-d8 (Surr)	*107*		*70 - 130*		*05/23/12 19:23*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 21:22	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 21:22	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 21:22	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 21:22	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 21:22	1
Benzo[a]pyrene	<0.68		9.5	0.68	ug/L		05/14/12 15:07	05/18/12 21:22	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 21:22	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 21:22	1
Chrysene	<0.49		9.5	0.49	ug/L		05/14/12 15:07	05/18/12 21:22	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 21:22	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 21:22	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 21:22	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 21:22	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 21:22	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 21:22	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 21:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*74*		*38 - 130*	*05/14/12 15:07*	*05/18/12 21:22*	*1*
Nitrobenzene-d5	*82*		*39 - 130*	*05/14/12 15:07*	*05/18/12 21:22*	*1*
Terphenyl-d14	*64*		*10 - 143*	*05/14/12 15:07*	*05/18/12 21:22*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.068		0.95	0.068	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 22:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*67*		*36 - 130*	*05/14/12 15:07*	*05/17/12 22:22*	*1*
Tetrachloro-m-xylene	*64*		*36 - 130*	*05/14/12 15:07*	*05/17/12 22:22*	*1*
DCB Decachlorobiphenyl	*27*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 22:22*	*1*
DCB Decachlorobiphenyl	*28*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 22:22*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:32	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 20:08	5
Total Organic Carbon	**3.0**		1.0	0.50	mg/L			05/16/12 11:51	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL07F002

Date Collected: 05/11/12 12:00
Date Received: 05/12/12 09:53

Lab Sample ID: 680-79445-22

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 19:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*90*		*70 - 130*		*05/23/12 19:52*	*1*
Dibromofluoromethane	*107*		*70 - 130*		*05/23/12 19:52*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/23/12 19:52*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.6	0.83	ug/L		05/14/12 15:07	05/18/12 21:51	1
Benzo[k]fluoranthene	<1.1		9.6	1.1	ug/L		05/14/12 15:07	05/18/12 21:51	1
Acenaphthene	<0.73		9.6	0.73	ug/L		05/14/12 15:07	05/18/12 21:51	1
Acenaphthylene	<0.81		9.6	0.81	ug/L		05/14/12 15:07	05/18/12 21:51	1
Benzo[a]anthracene	<0.53		9.6	0.53	ug/L		05/14/12 15:07	05/18/12 21:51	1
Benzo[a]pyrene	<0.68		9.6	0.68	ug/L		05/14/12 15:07	05/18/12 21:51	1
Benzo[b]fluoranthene	<2.5		9.6	2.5	ug/L		05/14/12 15:07	05/18/12 21:51	1
1-Methylnaphthalene	<0.64		9.6	0.64	ug/L		05/14/12 15:07	05/18/12 21:51	1
Chrysene	<0.49		9.6	0.49	ug/L		05/14/12 15:07	05/18/12 21:51	1
Dibenz(a,h)anthracene	<0.96		9.6	0.96	ug/L		05/14/12 15:07	05/18/12 21:51	1
Fluoranthene	<0.71		9.6	0.71	ug/L		05/14/12 15:07	05/18/12 21:51	1
Fluorene	<0.92		9.6	0.92	ug/L		05/14/12 15:07	05/18/12 21:51	1
Indeno[1,2,3-cd]pyrene	<0.96		9.6	0.96	ug/L		05/14/12 15:07	05/18/12 21:51	1
Phenanthrene	<0.74		9.6	0.74	ug/L		05/14/12 15:07	05/18/12 21:51	1
Pyrene	<0.60		9.6	0.60	ug/L		05/14/12 15:07	05/18/12 21:51	1
Anthracene	<0.66		9.6	0.66	ug/L		05/14/12 15:07	05/18/12 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*70*		*38 - 130*	*05/14/12 15:07*	*05/18/12 21:51*	*1*
Nitrobenzene-d5	*77*		*39 - 130*	*05/14/12 15:07*	*05/18/12 21:51*	*1*
Terphenyl-d14	*57*		*10 - 143*	*05/14/12 15:07*	*05/18/12 21:51*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.068		0.96	0.068	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1232	<0.11		0.96	0.11	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1242	<0.17		0.96	0.17	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1248	<0.34		0.96	0.34	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1254	<0.25		0.96	0.25	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1260	<0.19		0.96	0.19	ug/L		05/14/12 15:07	05/17/12 22:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*66*		*36 - 130*	*05/14/12 15:07*	*05/17/12 22:50*	*1*
Tetrachloro-m-xylene	*65*		*36 - 130*	*05/14/12 15:07*	*05/17/12 22:50*	*1*
DCB Decachlorobiphenyl	*23*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 22:50*	*1*
DCB Decachlorobiphenyl	*24*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 22:50*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:33	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 20:21	5
Total Organic Carbon	**3.1**		1.0	0.50	mg/L			05/16/12 12:28	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL07D002

Date Collected: 05/11/12 12:15
Date Received: 05/12/12 09:53

Lab Sample ID: 680-79445-23

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*70 - 130*		*05/23/12 20:21*	*1*
Dibromofluoromethane	*108*		*70 - 130*		*05/23/12 20:21*	*1*
Toluene-d8 (Surr)	*111*		*70 - 130*		*05/23/12 20:21*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 22:20	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 22:20	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 22:20	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 22:20	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 22:20	1
Benzo[a]pyrene	<0.68		9.5	0.68	ug/L		05/14/12 15:07	05/18/12 22:20	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 22:20	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 22:20	1
Chrysene	<0.49		9.5	0.49	ug/L		05/14/12 15:07	05/18/12 22:20	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 22:20	1
Fluoranthene	<0.71		9.5	0.71	ug/L		05/14/12 15:07	05/18/12 22:20	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 22:20	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 22:20	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 22:20	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 22:20	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 22:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*73*		*38 - 130*	*05/14/12 15:07*	*05/18/12 22:20*	*1*
Nitrobenzene-d5	*82*		*39 - 130*	*05/14/12 15:07*	*05/18/12 22:20*	*1*
Terphenyl-d14	*33*		*10 - 143*	*05/14/12 15:07*	*05/18/12 22:20*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.95	0.067	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 23:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*78*		*36 - 130*	*05/14/12 15:07*	*05/17/12 23:19*	*1*
Tetrachloro-m-xylene	*75*		*36 - 130*	*05/14/12 15:07*	*05/17/12 23:19*	*1*
DCB Decachlorobiphenyl	*29*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 23:19*	*1*
DCB Decachlorobiphenyl	*28*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 23:19*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:35	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 20:33	5
Total Organic Carbon	**3.2**		1.0	0.50	mg/L			05/16/12 13:16	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKTB01F002

Date Collected: 05/11/12 07:00
Date Received: 05/12/12 09:53

Lab Sample ID: 680-79445-24

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 12:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*70 - 130*		*05/23/12 12:47*	*1*
Dibromofluoromethane	*106*		*70 - 130*		*05/23/12 12:47*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/23/12 12:47*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	**1.9**	**J**	9.8	0.85	ug/L		05/14/12 15:07	05/18/12 01:48	1
Benzo[k]fluoranthene	<1.2		9.8	1.2	ug/L		05/14/12 15:07	05/18/12 01:48	1
Acenaphthene	<0.74		9.8	0.74	ug/L		05/14/12 15:07	05/18/12 01:48	1
Acenaphthylene	<0.83		9.8	0.83	ug/L		05/14/12 15:07	05/18/12 01:48	1
Benzo[a]anthracene	<0.54		9.8	0.54	ug/L		05/14/12 15:07	05/18/12 01:48	1
Benzo[a]pyrene	<0.69		9.8	0.69	ug/L		05/14/12 15:07	05/18/12 01:48	1
Benzo[b]fluoranthene	<2.5		9.8	2.5	ug/L		05/14/12 15:07	05/18/12 01:48	1
1-Methylnaphthalene	<0.65		9.8	0.65	ug/L		05/14/12 15:07	05/18/12 01:48	1
Chrysene	<0.50		9.8	0.50	ug/L		05/14/12 15:07	05/18/12 01:48	1
Dibenz(a,h)anthracene	**1.3**	**J**	9.8	0.98	ug/L		05/14/12 15:07	05/18/12 01:48	1
Fluoranthene	<0.72		9.8	0.72	ug/L		05/14/12 15:07	05/18/12 01:48	1
Fluorene	<0.94		9.8	0.94	ug/L		05/14/12 15:07	05/18/12 01:48	1
Indeno[1,2,3-cd]pyrene	**1.2**	**J**	9.8	0.98	ug/L		05/14/12 15:07	05/18/12 01:48	1
Phenanthrene	<0.75		9.8	0.75	ug/L		05/14/12 15:07	05/18/12 01:48	1
Pyrene	<0.61		9.8	0.61	ug/L		05/14/12 15:07	05/18/12 01:48	1
Anthracene	<0.67		9.8	0.67	ug/L		05/14/12 15:07	05/18/12 01:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*57*		*38 - 130*	*05/14/12 15:07*	*05/18/12 01:48*	*1*
Nitrobenzene-d5	*64*		*39 - 130*	*05/14/12 15:07*	*05/18/12 01:48*	*1*
Terphenyl-d14	*61*		*10 - 143*	*05/14/12 15:07*	*05/18/12 01:48*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.94	0.067	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1221	<0.26		1.9	0.26	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1232	<0.10		0.94	0.10	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1242	<0.17		0.94	0.17	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1248	<0.34		0.94	0.34	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1254	<0.24		0.94	0.24	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1260	<0.19		0.94	0.19	ug/L		05/14/12 15:07	05/17/12 23:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*36 - 130*	*05/14/12 15:07*	*05/17/12 23:47*	*1*
Tetrachloro-m-xylene	*59*		*36 - 130*	*05/14/12 15:07*	*05/17/12 23:47*	*1*
DCB Decachlorobiphenyl	*44*		*40 - 130*	*05/14/12 15:07*	*05/17/12 23:47*	*1*
DCB Decachlorobiphenyl	*46*		*40 - 130*	*05/14/12 15:07*	*05/17/12 23:47*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:36	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 20:46	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 13:34	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: Trip

Lab Sample ID: 680-79445-25

Date Collected: 05/11/12 00:00
Date Received: 05/12/12 09:53

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*70 - 130*		*05/23/12 15:42*	*1*
Dibromofluoromethane	*97*		*70 - 130*		*05/23/12 15:42*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/23/12 15:42*	*1*

Surrogate Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
680-79445-16	ABKSWL01F002	95	97	104
680-79445-17	ABKSWL02F002	96	95	104
680-79445-18	ABKSWL03F002	92	109	109
680-79445-19	ABKSWL04F002	94	97	105
680-79445-20	ABKSWL05F002	95	98	105
680-79445-21	ABKSWL06F002	93	106	107
680-79445-22	ABKSWL07F002	90	107	105
680-79445-23	ABKSWL07D002	91	108	111
680-79445-24	ABKTB01F002	92	106	104
680-79445-25	Trip	95	97	104
LCS 680-238252/4	Lab Control Sample	106	103	107
LCS 680-238266/4	Lab Control Sample	104	104	105
LCS 680-238539/4	Lab Control Sample	108	98	105
LCSD 680-238252/5	Lab Control Sample Dup	107	99	107
LCSD 680-238266/5	Lab Control Sample Dup	104	100	107
LCSD 680-238539/5	Lab Control Sample Dup	106	94	101
MB 680-238252/8	Method Blank	95	98	105
MB 680-238266/7	Method Blank	92	108	106
MB 680-238539/7	Method Blank	93	96	105

Surrogate Legend

BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPH
Lab Sample ID	Client Sample ID	(38-130)	(39-130)	(10-143)
680-79445-16	ABKSWL01F002	72	77	36
680-79445-17	ABKSWL02F002	77	82	41
680-79445-18	ABKSWL03F002	75	75	57
680-79445-19	ABKSWL04F002	73	81	60
680-79445-20	ABKSWL05F002	76	83	50
680-79445-21	ABKSWL06F002	74	82	64
680-79445-22	ABKSWL07F002	70	77	57
680-79445-23	ABKSWL07D002	73	82	33
680-79445-24	ABKTB01F002	57	64	61
680-79445-24 MS	ABKTB01F002	72	79	71
680-79445-24 MSD	ABKTB01F002	57	59	73
LCS 680-237226/12-A	Lab Control Sample	67	71	81
MB 680-237226/11-A	Method Blank	55	60	61

Surrogate Legend

FBP = 2-Fluorobiphenyl
NBZ = Nitrobenzene-d5
TPH = Terphenyl-d14

Surrogate Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(36-130)	(36-130)	(40-130)	(40-130)
680-79445-16	ABKSWL01F002	65	62	53	50
680-79445-16 MS	ABKSWL01F002	69	68	43	45
680-79445-16 MSD	ABKSWL01F002	70	69	22 X	22 X
680-79445-17	ABKSWL02F002	52	49	29 X	27 X
680-79445-18	ABKSWL03F002	59	56	23 X	23 X
680-79445-19	ABKSWL04F002	68	65	36 X	34 X
680-79445-20	ABKSWL05F002	69	68	37 X	38 X
680-79445-21	ABKSWL06F002	67	64	27 X	28 X
680-79445-22	ABKSWL07F002	66	65	23 X	24 X
680-79445-23	ABKSWL07D002	78	75	29 X	28 X
680-79445-24	ABKTB01F002	59	59	44	46
LCS 680-237229/22-A	Lab Control Sample	73	73	57	57
LCSD 680-237229/30-A	Lab Control Sample Dup	57	58	41	40
MB 680-237229/16-A	Method Blank	70	69	43	40

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCB = DCB Decachlorobiphenyl

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-238252/8 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238252

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 12:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*70 - 130*		*05/23/12 12:05*	*1*
Dibromofluoromethane	*98*		*70 - 130*		*05/23/12 12:05*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/23/12 12:05*	*1*

Lab Sample ID: LCS 680-238252/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238252

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene			50.0	53.2		ug/L		106	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*106*		*70 - 130*
Dibromofluoromethane	*103*		*70 - 130*
Toluene-d8 (Surr)	*107*		*70 - 130*

Lab Sample ID: LCSD 680-238252/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238252

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene			50.0	53.8		ug/L		108	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*107*		*70 - 130*
Dibromofluoromethane	*99*		*70 - 130*
Toluene-d8 (Surr)	*107*		*70 - 130*

Lab Sample ID: MB 680-238266/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238266

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 12:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*70 - 130*		*05/23/12 12:19*	*1*
Dibromofluoromethane	*108*		*70 - 130*		*05/23/12 12:19*	*1*
Toluene-d8 (Surr)	*106*		*70 - 130*		*05/23/12 12:19*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-238266/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238266

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene			50.0	50.5		ug/L		101	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*104*		*70 - 130*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Lab Sample ID: LCSD 680-238266/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238266

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene			50.0	51.0		ug/L		102	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*104*		*70 - 130*
Dibromofluoromethane	*100*		*70 - 130*
Toluene-d8 (Surr)	*107*		*70 - 130*

Lab Sample ID: MB 680-238539/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238539

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/25/12 12:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*70 - 130*		*05/25/12 12:04*	*1*
Dibromofluoromethane	*96*		*70 - 130*		*05/25/12 12:04*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/25/12 12:04*	*1*

Lab Sample ID: LCS 680-238539/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238539

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene			50.0	52.4		ug/L		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*108*		*70 - 130*
Dibromofluoromethane	*98*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-238539/5
Matrix: Water
Analysis Batch: 238539

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene	50.0	51.1		ug/L		102	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*106*		*70 - 130*
Dibromofluoromethane	*94*		*70 - 130*
Toluene-d8 (Surr)	*101*		*70 - 130*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-237226/11-A
Matrix: Water
Analysis Batch: 237763

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 237226

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.87		10	0.87	ug/L		05/14/12 15:07	05/18/12 00:50	1
Benzo[k]fluoranthene	<1.2		10	1.2	ug/L		05/14/12 15:07	05/18/12 00:50	1
Acenaphthene	<0.76		10	0.76	ug/L		05/14/12 15:07	05/18/12 00:50	1
Acenaphthylene	<0.85		10	0.85	ug/L		05/14/12 15:07	05/18/12 00:50	1
Benzo[a]anthracene	<0.55		10	0.55	ug/L		05/14/12 15:07	05/18/12 00:50	1
Benzo[a]pyrene	<0.71		10	0.71	ug/L		05/14/12 15:07	05/18/12 00:50	1
Benzo[b]fluoranthene	<2.6		10	2.6	ug/L		05/14/12 15:07	05/18/12 00:50	1
1-Methylnaphthalene	<0.67		10	0.67	ug/L		05/14/12 15:07	05/18/12 00:50	1
Chrysene	<0.51		10	0.51	ug/L		05/14/12 15:07	05/18/12 00:50	1
Dibenz(a,h)anthracene	<1.0		10	1.0	ug/L		05/14/12 15:07	05/18/12 00:50	1
Fluoranthene	<0.74		10	0.74	ug/L		05/14/12 15:07	05/18/12 00:50	1
Fluorene	<0.96		10	0.96	ug/L		05/14/12 15:07	05/18/12 00:50	1
Indeno[1,2,3-cd]pyrene	<1.0		10	1.0	ug/L		05/14/12 15:07	05/18/12 00:50	1
Phenanthrene	<0.77		10	0.77	ug/L		05/14/12 15:07	05/18/12 00:50	1
Pyrene	<0.63		10	0.63	ug/L		05/14/12 15:07	05/18/12 00:50	1
Anthracene	<0.69		10	0.69	ug/L		05/14/12 15:07	05/18/12 00:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*55*		*38 - 130*	*05/14/12 15:07*	*05/18/12 00:50*	*1*
Nitrobenzene-d5	*60*		*39 - 130*	*05/14/12 15:07*	*05/18/12 00:50*	*1*
Terphenyl-d14	*61*		*10 - 143*	*05/14/12 15:07*	*05/18/12 00:50*	*1*

Lab Sample ID: LCS 680-237226/12-A
Matrix: Water
Analysis Batch: 237763

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 237226

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[g,h,i]perylene	100	72.2		ug/L		72	54 - 130
Benzo[k]fluoranthene	100	79.2		ug/L		79	53 - 130
Acenaphthene	100	70.9		ug/L		71	55 - 130
Acenaphthylene	100	74.6		ug/L		75	60 - 130
Benzo[a]anthracene	100	85.7		ug/L		86	58 - 130
Benzo[a]pyrene	100	87.2		ug/L		87	61 - 130
Benzo[b]fluoranthene	100	81.5		ug/L		82	51 - 130
1-Methylnaphthalene	100	63.0		ug/L		63	50 - 130

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-237226/12-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237763 — **Prep Batch: 237226**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chrysene	100	80.3		ug/L		80	59 - 130
Dibenz(a,h)anthracene	100	79.8		ug/L		80	55 - 130
Fluoranthene	100	80.4		ug/L		80	56 - 130
Fluorene	100	77.6		ug/L		78	61 - 130
Indeno[1,2,3-cd]pyrene	100	74.5		ug/L		75	47 - 130
Phenanthrene	100	78.9		ug/L		79	62 - 130
Pyrene	100	84.8		ug/L		85	60 - 130
Anthracene	100	77.6		ug/L		78	61 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*67*		*38 - 130*
Nitrobenzene-d5	*71*		*39 - 130*
Terphenyl-d14	*81*		*10 - 143*

Lab Sample ID: 680-79445-24 MS — **Client Sample ID: ABKTB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237763 — **Prep Batch: 237226**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[g,h,i]perylene	1.9	J	96.7	54.8		ug/L		55	54 - 130
Benzo[k]fluoranthene	<1.2		96.7	65.3		ug/L		68	53 - 130
Acenaphthene	<0.74		96.7	66.2		ug/L		68	55 - 130
Acenaphthylene	<0.83		96.7	27.6	F	ug/L		29	60 - 130
Benzo[a]anthracene	<0.54		96.7	70.5		ug/L		73	58 - 130
Benzo[a]pyrene	<0.69		96.7	59.6		ug/L		62	61 - 130
Benzo[b]fluoranthene	<2.5		96.7	85.3		ug/L		88	51 - 130
1-Methylnaphthalene	<0.65		96.7	64.5		ug/L		67	50 - 130
Chrysene	<0.50		96.7	65.9		ug/L		68	59 - 130
Dibenz(a,h)anthracene	1.3	J	96.7	70.3		ug/L		71	55 - 130
Fluoranthene	<0.72		96.7	68.0		ug/L		70	56 - 130
Fluorene	<0.94		96.7	71.3		ug/L		74	61 - 130
Indeno[1,2,3-cd]pyrene	1.2	J	96.7	54.8		ug/L		55	47 - 130
Phenanthrene	<0.75		96.7	71.6		ug/L		74	62 - 130
Pyrene	<0.61		96.7	61.2		ug/L		63	60 - 130
Anthracene	<0.67		96.7	63.4		ug/L		66	61 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*38 - 130*
Nitrobenzene-d5	*79*		*39 - 130*
Terphenyl-d14	*71*		*10 - 143*

Lab Sample ID: 680-79445-24 MSD — **Client Sample ID: ABKTB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237763 — **Prep Batch: 237226**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[g,h,i]perylene	1.9	J	93.0	64.0		ug/L		67	54 - 130	16	50
Benzo[k]fluoranthene	<1.2		93.0	72.4		ug/L		78	53 - 130	10	50
Acenaphthene	<0.74		93.0	57.7		ug/L		62	55 - 130	14	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-79445-24 MSD — **Client Sample ID: ABKTB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237763 — **Prep Batch: 237226**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthylene	<0.83		93.0	60.3	F	ug/L		65	60 - 130	74	50
Benzo[a]anthracene	<0.54		93.0	74.5		ug/L		80	58 - 130	6	50
Benzo[a]pyrene	<0.69		93.0	80.5		ug/L		87	61 - 130	30	50
Benzo[b]fluoranthene	<2.5		93.0	88.4		ug/L		95	51 - 130	4	50
1-Methylnaphthalene	<0.65		93.0	50.4		ug/L		54	50 - 130	25	50
Chrysene	<0.50		93.0	67.9		ug/L		73	59 - 130	3	50
Dibenz(a,h)anthracene	1.3	J	93.0	70.3		ug/L		74	55 - 130	0	50
Fluoranthene	<0.72		93.0	71.8		ug/L		77	56 - 130	5	50
Fluorene	<0.94		93.0	64.2		ug/L		69	61 - 130	10	50
Indeno[1,2,3-cd]pyrene	1.2	J	93.0	65.5		ug/L		69	47 - 130	18	50
Phenanthrene	<0.75		93.0	69.6		ug/L		75	62 - 130	3	50
Pyrene	<0.61		93.0	71.9		ug/L		77	60 - 130	16	50
Anthracene	<0.67		93.0	66.2		ug/L		71	61 - 130	4	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*57*		*38 - 130*
Nitrobenzene-d5	*59*		*39 - 130*
Terphenyl-d14	*73*		*10 - 143*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Lab Sample ID: MB 680-237229/16-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237791 — **Prep Batch: 237229**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.071		1.0	0.071	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1221	<0.28		2.0	0.28	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1232	<0.11		1.0	0.11	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1242	<0.18		1.0	0.18	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1248	<0.36		1.0	0.36	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1254	<0.26		1.0	0.26	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1260	<0.20		1.0	0.20	ug/L		05/14/12 15:07	05/17/12 01:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*36 - 130*	*05/14/12 15:07*	*05/17/12 01:48*	*1*
Tetrachloro-m-xylene	*69*		*36 - 130*	*05/14/12 15:07*	*05/17/12 01:48*	*1*
DCB Decachlorobiphenyl	*43*		*40 - 130*	*05/14/12 15:07*	*05/17/12 01:48*	*1*
DCB Decachlorobiphenyl	*40*		*40 - 130*	*05/14/12 15:07*	*05/17/12 01:48*	*1*

Lab Sample ID: LCS 680-237229/22-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237791 — **Prep Batch: 237229**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	10.0	7.80		ug/L		78	38 - 172
PCB-1260	10.0	6.93		ug/L		69	46 - 138

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC) (Continued)

Lab Sample ID: LCS 680-237229/22-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237791 — **Prep Batch: 237229**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	73		36 - 130
Tetrachloro-m-xylene	73		36 - 130
DCB Decachlorobiphenyl	57		40 - 130
DCB Decachlorobiphenyl	57		40 - 130

Lab Sample ID: LCSD 680-237229/30-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237791 — **Prep Batch: 237229**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			10.0	6.62		ug/L		66	38 - 172	16	50
PCB-1260			10.0	5.02		ug/L		50	46 - 138	32	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	57		36 - 130
Tetrachloro-m-xylene	58		36 - 130
DCB Decachlorobiphenyl	41		40 - 130
DCB Decachlorobiphenyl	40		40 - 130

Lab Sample ID: 680-79445-16 MS — **Client Sample ID: ABKSWL01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237885 — **Prep Batch: 237229**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016	<0.068		9.83	7.79		ug/L		79	38 - 172		
PCB-1260	<0.19		9.83	5.80		ug/L		59	46 - 138		

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene	69		36 - 130
Tetrachloro-m-xylene	68		36 - 130
DCB Decachlorobiphenyl	43		40 - 130
DCB Decachlorobiphenyl	45		40 - 130

Lab Sample ID: 680-79445-16 MSD — **Client Sample ID: ABKSWL01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237885 — **Prep Batch: 237229**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	<0.068		9.16	7.04		ug/L		77	38 - 172	10	50
PCB-1260	<0.19		9.16	4.07	F	ug/L		44	46 - 138	35	50

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	70		36 - 130
Tetrachloro-m-xylene	69		36 - 130
DCB Decachlorobiphenyl	22	X	40 - 130
DCB Decachlorobiphenyl	22	X	40 - 130

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-36357/33 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:06	1

Lab Sample ID: MB 180-36357/47 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:27	1

Lab Sample ID: LCS 180-36357/31 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.103		mg/L		103	82 - 132

Lab Sample ID: LCS 180-36357/45 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.102		mg/L		102	82 - 132

Lab Sample ID: LCSD 180-36357/32 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.104		mg/L		104	82 - 132	1	20

Lab Sample ID: LCSD 180-36357/46 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.115		mg/L		115	82 - 132	12	20

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 680-237526/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 18:03	5

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 680-237526/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.9		mg/L		109	90 - 110

Lab Sample ID: LCSD 680-237526/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.9		mg/L		109	90 - 110	0	30

Lab Sample ID: MB 680-237684/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237684

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			05/16/12 18:55	5

Lab Sample ID: LCS 680-237684/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237684

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.9		mg/L		109	90 - 110

Lab Sample ID: LCSD 680-237684/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237684

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.9		mg/L		109	90 - 110	0	30

Lab Sample ID: MB 680-237876/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 17:03	5

Lab Sample ID: LCS 680-237876/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.8		mg/L		108	90 - 110

Lab Sample ID: LCSD 680-237876/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.8		mg/L		108	90 - 110	0	30

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 680-79445-19 MS — **Client Sample ID: ABKSWL04F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	<0.20		10.0	10.4		mg/L		104	90 - 110		

Lab Sample ID: 680-79445-19 MSD — **Client Sample ID: ABKSWL04F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	<0.20		10.0	10.5		mg/L		105	90 - 110	1	30

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-237567/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 03:50	1

Lab Sample ID: LCS 680-237567/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	20.0	21.2		mg/L		106	80 - 120		

Lab Sample ID: 680-79445-17 DU — **Client Sample ID: ABKSWL02F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	7.7		7.70		mg/L		0.5	25

Lab Sample ID: MB 680-237568/26 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237568

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 10:43	1

Lab Sample ID: LCS 680-237568/31 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237568

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	20.0	21.4		mg/L		107	80 - 120		

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 680-79445-22 MS — **Client Sample ID: ABKSWL07F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237568

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	3.1		20.0	24.4		mg/L		107	80 - 120		

Lab Sample ID: 680-79445-22 MSD — **Client Sample ID: ABKSWL07F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237568

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	3.1		20.0	24.7		mg/L		108	80 - 120	1	25

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL01F002 — Lab Sample ID: 680-79445-16

Date Collected: 05/11/12 10:10 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238252	05/23/12 16:11	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237763	05/18/12 03:45	MES	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 20:02	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:15	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 22:48	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 09:37	JR	TAL SAV

Client Sample ID: ABKSWL02F002 — Lab Sample ID: 680-79445-17

Date Collected: 05/11/12 10:25 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238252	05/23/12 16:39	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237763	05/18/12 04:14	MES	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 20:30	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:17	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 23:01	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 09:55	JR	TAL SAV

Client Sample ID: ABKSWL03F002 — Lab Sample ID: 680-79445-18

Date Collected: 05/11/12 10:45 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 15:57	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237763	05/18/12 04:43	MES	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 20:57	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:18	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 11:00	JR	TAL SAV
Total/NA	Analysis	9056		5	237684	05/16/12 21:49	PAT	TAL SAV

Client Sample ID: ABKSWL04F002 — Lab Sample ID: 680-79445-19

Date Collected: 05/11/12 11:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238539	05/25/12 12:50	RB	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL04F002 — Lab Sample ID: 680-79445-19

Date Collected: 05/11/12 11:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237884	05/18/12 20:25	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 21:25	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:29	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 11:18	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 18:54	SMP	TAL SAV

Client Sample ID: ABKSWL05F002 — Lab Sample ID: 680-79445-20

Date Collected: 05/11/12 11:30 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238252	05/23/12 19:09	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237884	05/18/12 20:54	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 21:53	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:30	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 11:35	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 19:31	SMP	TAL SAV

Client Sample ID: ABKSWL06F002 — Lab Sample ID: 680-79445-21

Date Collected: 05/11/12 11:45 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 19:23	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237884	05/18/12 21:22	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 22:22	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:32	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 11:51	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 20:08	SMP	TAL SAV

Client Sample ID: ABKSWL07F002 — Lab Sample ID: 680-79445-22

Date Collected: 05/11/12 12:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 19:52	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL07F002 — Lab Sample ID: 680-79445-22

Date Collected: 05/11/12 12:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270C		1	237884	05/18/12 21:51	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 22:50	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:33	PJ	TAL PIT
Total/NA	Analysis	9060		1	237568	05/16/12 12:28	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 20:21	SMP	TAL SAV

Client Sample ID: ABKSWL07D002 — Lab Sample ID: 680-79445-23

Date Collected: 05/11/12 12:15 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 20:21	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237884	05/18/12 22:20	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 23:19	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:35	PJ	TAL PIT
Total/NA	Analysis	9060		1	237568	05/16/12 13:16	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 20:33	SMP	TAL SAV

Client Sample ID: ABKTB01F002 — Lab Sample ID: 680-79445-24

Date Collected: 05/11/12 07:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 12:47	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237763	05/18/12 01:48	MES	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 23:47	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:36	PJ	TAL PIT
Total/NA	Analysis	9060		1	237568	05/16/12 13:34	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 20:46	SMP	TAL SAV

Client Sample ID: Trip — Lab Sample ID: 680-79445-25

Date Collected: 05/11/12 00:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238252	05/23/12 15:42	RB	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 52203

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

☒ TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

☒ Alternate Laboratory Name/Location: PITTSBURGH FOR FREE CN

Phone:
Fax:

PROJECT REFERENCE: PSC SAMPLE	PROJECT NO.	PROJECT LOCATION (STATE): NC
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814739005	CLIENT FAX: 2814739007
CLIENT NAME: ENVIRONEERING INC	CLIENT E-MAIL: mworden@environeering inc.com	
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ☒

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 6

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	8260/TCE	9060/TOC	4500/F	8082/PCBS	8270/PAHs	1677/FREE CN					REMARKS
								HCl	HCl	PRESERVATIVE	—	—	NaOH					
5/11/12	1010	ABICSWL01F002		X				3	1	1	2	2	1					
	1025	ABICSWL02F002		X				3	1	1	2	2	1					
	1045	ABICSWL03F002		X				3	1	1	2	2	1					
	1100	ABICSWL04F002		X				3	1	1	2	2	1					
	1130	ABICSWL05F002		X				3	1	1	2	2	1					
	1145	ABICSWL06F002		X				3	1	1	2	2	1					
	1200	ABICSWL07F002		X				3	1	1	2	2	1					
	1215	ABICSWL07D002		X				3	1	1	2	2	1					
	0700	ABICTB01F002		X				3	1	1	2	2	1					

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	5/11/12	1645						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
FEDEX	5/11/12	1645						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	05/12/12	0953	YES ○ NO ○		680-79445	1.2°C/1.8°C/2.2°C/1.5°C/3.6°C/3.5°C

TAL 8240-680 (1008)

5/29/2012

Certification Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Savannah	A2LA	DoD ELAP		0399-01
TestAmerica Savannah	A2LA	ISO/IEC 17025		399.01
TestAmerica Savannah	Alabama	State Program	4	41450
TestAmerica Savannah	Arkansas	State Program	6	N/A
TestAmerica Savannah	Arkansas DEQ	State Program	6	88-0692
TestAmerica Savannah	California	NELAC	9	3217CA
TestAmerica Savannah	Colorado	State Program	8	N/A
TestAmerica Savannah	Connecticut	State Program	1	PH-0161
TestAmerica Savannah	Florida	NELAC	4	E87052
TestAmerica Savannah	GA Dept. of Agriculture	State Program	4	N/A
TestAmerica Savannah	Georgia	State Program	4	803
TestAmerica Savannah	Georgia	State Program	4	N/A
TestAmerica Savannah	Guam	State Program	9	09-005r
TestAmerica Savannah	Hawaii	State Program	9	N/A
TestAmerica Savannah	Illinois	NELAC	5	200022
TestAmerica Savannah	Indiana	State Program	5	N/A
TestAmerica Savannah	Iowa	State Program	7	353
TestAmerica Savannah	Kentucky	State Program	4	90084
TestAmerica Savannah	Kentucky (UST)	State Program	4	18
TestAmerica Savannah	Louisiana	NELAC	6	30690
TestAmerica Savannah	Louisiana	NELAC	6	LA100015
TestAmerica Savannah	Maine	State Program	1	GA00006
TestAmerica Savannah	Maryland	State Program	3	250
TestAmerica Savannah	Massachusetts	State Program	1	M-GA006
TestAmerica Savannah	Michigan	State Program	5	9925
TestAmerica Savannah	Mississippi	State Program	4	N/A
TestAmerica Savannah	Montana	State Program	8	CERT0081
TestAmerica Savannah	Nebraska	State Program	7	TestAmerica-Savannah
TestAmerica Savannah	New Jersey	NELAC	2	GA769
TestAmerica Savannah	New Mexico	State Program	6	N/A
TestAmerica Savannah	New York	NELAC	2	10842
TestAmerica Savannah	North Carolina DENR	State Program	4	269
TestAmerica Savannah	North Carolina DHHS	State Program	4	13701
TestAmerica Savannah	Oklahoma	State Program	6	9984
TestAmerica Savannah	Pennsylvania	NELAC	3	68-00474
TestAmerica Savannah	Puerto Rico	State Program	2	GA00006
TestAmerica Savannah	Rhode Island	State Program	1	LAO00244
TestAmerica Savannah	South Carolina	State Program	4	98001
TestAmerica Savannah	Tennessee	State Program	4	TN02961
TestAmerica Savannah	Texas	NELAC	6	T104704185-08-TX
TestAmerica Savannah	USDA	Federal		SAV 3-04
TestAmerica Savannah	Vermont	State Program	1	87052
TestAmerica Savannah	Virginia	NELAC	3	460161
TestAmerica Savannah	Washington	State Program	10	C1794
TestAmerica Savannah	West Virginia	State Program	3	9950C
TestAmerica Savannah	West Virginia DEP	State Program	3	94
TestAmerica Savannah	Wisconsin	State Program	5	999819810
TestAmerica Savannah	Wyoming	State Program	8	8TMS-Q
TestAmerica Pittsburgh	Arkansas DEQ	State Program	6	88-0690
TestAmerica Pittsburgh	California	NELAC	9	4224CA
TestAmerica Pittsburgh	Connecticut	State Program	1	PH-0688
TestAmerica Pittsburgh	Florida	NELAC	4	E871008
TestAmerica Pittsburgh	Illinois	NELAC	5	002602

Certification Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pittsburgh	Kansas	NELAC	7	E-10350
TestAmerica Pittsburgh	L-A-B	DoD ELAP		L2314
TestAmerica Pittsburgh	Louisiana	NELAC	6	04041
TestAmerica Pittsburgh	New Hampshire	NELAC	1	203011
TestAmerica Pittsburgh	New Jersey	NELAC	2	PA005
TestAmerica Pittsburgh	New York	NELAC	2	11182
TestAmerica Pittsburgh	North Carolina DENR	State Program	4	434
TestAmerica Pittsburgh	Pennsylvania	NELAC	3	02-00416
TestAmerica Pittsburgh	Pennsylvania	State Program	3	02-416
TestAmerica Pittsburgh	South Carolina	State Program	4	89014002
TestAmerica Pittsburgh	USDA	Federal		P330-10-00139
TestAmerica Pittsburgh	USDA	Federal		P-Soil-01
TestAmerica Pittsburgh	Utah	NELAC	8	STLP
TestAmerica Pittsburgh	Virginia	NELAC	3	460189
TestAmerica Pittsburgh	West Virginia DEP	State Program	3	142
TestAmerica Pittsburgh	Wisconsin	State Program	5	998027800

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-79445-2
Client Project/Site: ALCOA BL Sample
Revision: 1

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
8/2/2012 10:58:37 AM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Certification Summary 36

Job ID: 680-79445-2

Laboratory: TestAmerica Savannah

Narrative

Job Narrative

CASE NARRATIVE

Client: Environeering Inc

Project: ALCOA BL Sample

Report Number: 680-79445-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 05/12/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.2, 1.8, 2.2, 1.5, 3.6, 3.6 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23), ABKTB01F002 (680-79445-24) and Trip (680-79445-25) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 05/23/2012 and 05/25/2012.

No difficulties were encountered during the volatiles analyses.

All quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 05/14/2012 and analyzed on 05/18/2012.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 237226 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Refer to the QC report for details.

No other difficulties were encountered during the semivolatiles analyses.

All other quality control parameters were within the acceptance limits.

PESTICIDES AND PCBS

Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for Pesticides and PCBs in accordance with EPA SW846 Method

Job ID: 680-79445-2 (Continued)

Laboratory: TestAmerica Savannah (Continued)

8081A_8082. The samples were prepared on 05/14/2012 and analyzed on 05/17/2012.

The following sample(s) contained an allowable number of surrogate compounds outside limits: (680-79445-16 MSD), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07D002 (680-79445-23), ABKSWL07F002 (680-79445-22). These results have been reported and qualified

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 680-237229 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.
PCB-1260 failed the recovery criteria low for the MSD of sample ABKSWL01F002MSD (680-79445-16) in batch 680-237885.

Refer to the QC report for details.

No other difficulties were encountered during the Pesticides and PCBs analyses.

All other quality control parameters were within the acceptance limits.

CYANIDE, AVAILABLE (FLOW INJECTION)
Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for Cyanide, Available (Flow Injection) in accordance with EPA Method 1677. The samples were analyzed on 05/17/2012.

No difficulties were encountered during the cyanide analyses.

All quality control parameters were within the acceptance limits.

ANIONS
Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for anions in accordance with EPA SW-846 Method 9056. The samples were analyzed on 05/15/2012, 05/16/2012 and 05/18/2012.

Samples ABKSWL01F002 (680-79445-16)[5X], ABKSWL02F002 (680-79445-17)[5X], ABKSWL03F002 (680-79445-18)[5X], ABKSWL04F002 (680-79445-19)[5X], ABKSWL05F002 (680-79445-20)[5X], ABKSWL06F002 (680-79445-21)[5X], ABKSWL07F002 (680-79445-22)[5X], ABKSWL07D002 (680-79445-23)[5X] and ABKTB01F002 (680-79445-24)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analyses.

All quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON
Samples ABKSWL01F002 (680-79445-16), ABKSWL02F002 (680-79445-17), ABKSWL03F002 (680-79445-18), ABKSWL04F002 (680-79445-19), ABKSWL05F002 (680-79445-20), ABKSWL06F002 (680-79445-21), ABKSWL07F002 (680-79445-22), ABKSWL07D002 (680-79445-23) and ABKTB01F002 (680-79445-24) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 05/16/2012.

No difficulties were encountered during the TOC analyses.

All quality control parameters were within the acceptance limits.

Sample Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-79445-16	ABKSWL01F002	Water	05/11/12 10:10	05/12/12 09:53
680-79445-17	ABKSWL02F002	Water	05/11/12 10:25	05/12/12 09:53
680-79445-18	ABKSWL03F002	Water	05/11/12 10:45	05/12/12 09:53
680-79445-19	ABKSWL04F002	Water	05/11/12 11:00	05/12/12 09:53
680-79445-20	ABKSWL05F002	Water	05/11/12 11:30	05/12/12 09:53
680-79445-21	ABKSWL06F002	Water	05/11/12 11:45	05/12/12 09:53
680-79445-22	ABKSWL07F002	Water	05/11/12 12:00	05/12/12 09:53
680-79445-23	ABKSWL07D002	Water	05/11/12 12:15	05/12/12 09:53
680-79445-24	ABKTB01F002	Water	05/11/12 07:00	05/12/12 09:53
680-79445-25	Trip	Water	05/11/12 00:00	05/12/12 09:53

Method Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
8081A_8082	Organochlorine Pesticides & PCBs (GC)	SW846	TAL SAV
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9056	Anions, Ion Chromatography	SW846	TAL SAV
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
F	MS or MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL01F002

Lab Sample ID: 680-79445-16

Date Collected: 05/11/12 10:10

Matrix: Water

Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 16:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*70 - 130*		*05/23/12 16:11*	*1*
Dibromofluoromethane	*97*		*70 - 130*		*05/23/12 16:11*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/23/12 16:11*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 03:45	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 03:45	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 03:45	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 03:45	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 03:45	1
Benzo[a]pyrene	<0.68		9.5	0.68	ug/L		05/14/12 15:07	05/18/12 03:45	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 03:45	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 03:45	1
Chrysene	<0.49		9.5	0.49	ug/L		05/14/12 15:07	05/18/12 03:45	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 03:45	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 03:45	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 03:45	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 03:45	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 03:45	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 03:45	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 03:45	1
Naphthalene	<0.67		9.5	0.67	ug/L		05/14/12 15:07	05/18/12 03:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*72*		*38 - 130*	*05/14/12 15:07*	*05/18/12 03:45*	*1*
Nitrobenzene-d5	*77*		*39 - 130*	*05/14/12 15:07*	*05/18/12 03:45*	*1*
Terphenyl-d14	*36*		*10 - 143*	*05/14/12 15:07*	*05/18/12 03:45*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.068		0.96	0.068	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1232	<0.11		0.96	0.11	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1242	<0.17		0.96	0.17	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1248	<0.35		0.96	0.35	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1254	<0.25		0.96	0.25	ug/L		05/14/12 15:07	05/17/12 20:02	1
PCB-1260	<0.19		0.96	0.19	ug/L		05/14/12 15:07	05/17/12 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*65*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:02*	*1*
Tetrachloro-m-xylene	*62*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:02*	*1*
DCB Decachlorobiphenyl	*53*		*40 - 130*	*05/14/12 15:07*	*05/17/12 20:02*	*1*
DCB Decachlorobiphenyl	*50*		*40 - 130*	*05/14/12 15:07*	*05/17/12 20:02*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:15	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 22:48	5

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL01F002

Lab Sample ID: 680-79445-16

Date Collected: 05/11/12 10:10
Matrix: Water
Date Received: 05/12/12 09:53

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2.6		1.0	0.50	mg/L			05/16/12 09:37	1

Client Sample ID: ABKSWL02F002

Lab Sample ID: 680-79445-17

Date Collected: 05/11/12 10:25
Matrix: Water
Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*70 - 130*		*05/23/12 16:39*	*1*
Dibromofluoromethane	*95*		*70 - 130*		*05/23/12 16:39*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/23/12 16:39*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 04:14	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 04:14	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 04:14	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 04:14	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 04:14	1
Benzo[a]pyrene	<0.67		9.5	0.67	ug/L		05/14/12 15:07	05/18/12 04:14	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 04:14	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 04:14	1
Chrysene	<0.48		9.5	0.48	ug/L		05/14/12 15:07	05/18/12 04:14	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 04:14	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 04:14	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 04:14	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 04:14	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 04:14	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 04:14	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 04:14	1
Naphthalene	<0.67		9.5	0.67	ug/L		05/14/12 15:07	05/18/12 04:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*77*		*38 - 130*	*05/14/12 15:07*	*05/18/12 04:14*	*1*
Nitrobenzene-d5	*82*		*39 - 130*	*05/14/12 15:07*	*05/18/12 04:14*	*1*
Terphenyl-d14	*41*		*10 - 143*	*05/14/12 15:07*	*05/18/12 04:14*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.95	0.067	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 20:30	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 20:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*52*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:30*	*1*

Client Sample ID: ABKSWL02F002

Lab Sample ID: 680-79445-17

Date Collected: 05/11/12 10:25

Matrix: Water

Date Received: 05/12/12 09:53

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*49*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:30*	*1*
DCB Decachlorobiphenyl	*29*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 20:30*	*1*
DCB Decachlorobiphenyl	*27*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 20:30*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:17	1
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 23:01	5
Total Organic Carbon	**7.7**		1.0	0.50	mg/L			05/16/12 09:55	1

Client Sample ID: ABKSWL03F002

Lab Sample ID: 680-79445-18

Date Collected: 05/11/12 10:45

Matrix: Water

Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*70 - 130*		*05/23/12 15:57*	*1*
Dibromofluoromethane	*109*		*70 - 130*		*05/23/12 15:57*	*1*
Toluene-d8 (Surr)	*109*		*70 - 130*		*05/23/12 15:57*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 04:43	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 04:43	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 04:43	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 04:43	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 04:43	1
Benzo[a]pyrene	<0.68		9.5	0.68	ug/L		05/14/12 15:07	05/18/12 04:43	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 04:43	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 04:43	1
Chrysene	<0.49		9.5	0.49	ug/L		05/14/12 15:07	05/18/12 04:43	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 04:43	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 04:43	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 04:43	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 04:43	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 04:43	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 04:43	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 04:43	1
Naphthalene	<0.67		9.5	0.67	ug/L		05/14/12 15:07	05/18/12 04:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*75*		*38 - 130*	*05/14/12 15:07*	*05/18/12 04:43*	*1*
Nitrobenzene-d5	*75*		*39 - 130*	*05/14/12 15:07*	*05/18/12 04:43*	*1*
Terphenyl-d14	*57*		*10 - 143*	*05/14/12 15:07*	*05/18/12 04:43*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.95	0.067	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 20:57	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL03F002

Lab Sample ID: 680-79445-18

Date Collected: 05/11/12 10:45
Matrix: Water
Date Received: 05/12/12 09:53

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 20:57	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:57*	*1*
Tetrachloro-m-xylene	*56*		*36 - 130*	*05/14/12 15:07*	*05/17/12 20:57*	*1*
DCB Decachlorobiphenyl	*23*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 20:57*	*1*
DCB Decachlorobiphenyl	*23*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 20:57*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:18	1
Fluoride	<0.20		1.0	0.20	mg/L			05/16/12 21:49	5
Total Organic Carbon	**3.2**		1.0	0.50	mg/L			05/16/12 11:00	1

Client Sample ID: ABKSWL04F002

Lab Sample ID: 680-79445-19

Date Collected: 05/11/12 11:00
Matrix: Water
Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/25/12 12:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*70 - 130*		*05/25/12 12:50*	*1*
Dibromofluoromethane	*97*		*70 - 130*		*05/25/12 12:50*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/25/12 12:50*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.6	0.83	ug/L		05/14/12 15:07	05/18/12 20:25	1
Benzo[k]fluoranthene	<1.1		9.6	1.1	ug/L		05/14/12 15:07	05/18/12 20:25	1
Acenaphthene	<0.73		9.6	0.73	ug/L		05/14/12 15:07	05/18/12 20:25	1
Acenaphthylene	<0.81		9.6	0.81	ug/L		05/14/12 15:07	05/18/12 20:25	1
Benzo[a]anthracene	<0.53		9.6	0.53	ug/L		05/14/12 15:07	05/18/12 20:25	1
Benzo[a]pyrene	<0.68		9.6	0.68	ug/L		05/14/12 15:07	05/18/12 20:25	1
Benzo[b]fluoranthene	<2.5		9.6	2.5	ug/L		05/14/12 15:07	05/18/12 20:25	1
1-Methylnaphthalene	<0.64		9.6	0.64	ug/L		05/14/12 15:07	05/18/12 20:25	1
Chrysene	<0.49		9.6	0.49	ug/L		05/14/12 15:07	05/18/12 20:25	1
Dibenz(a,h)anthracene	<0.96		9.6	0.96	ug/L		05/14/12 15:07	05/18/12 20:25	1
Fluoranthene	<0.71		9.6	0.71	ug/L		05/14/12 15:07	05/18/12 20:25	1
Fluorene	<0.92		9.6	0.92	ug/L		05/14/12 15:07	05/18/12 20:25	1
Indeno[1,2,3-cd]pyrene	<0.96		9.6	0.96	ug/L		05/14/12 15:07	05/18/12 20:25	1
Phenanthrene	<0.74		9.6	0.74	ug/L		05/14/12 15:07	05/18/12 20:25	1
Pyrene	<0.60		9.6	0.60	ug/L		05/14/12 15:07	05/18/12 20:25	1
Anthracene	<0.66		9.6	0.66	ug/L		05/14/12 15:07	05/18/12 20:25	1
Naphthalene	<0.67		9.6	0.67	ug/L		05/14/12 15:07	05/18/12 20:25	1

Client Sample ID: ABKSWL04F002

Lab Sample ID: 680-79445-19

Date Collected: 05/11/12 11:00

Matrix: Water

Date Received: 05/12/12 09:53

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*73*		*38 - 130*	*05/14/12 15:07*	*05/18/12 20:25*	*1*
Nitrobenzene-d5	*81*		*39 - 130*	*05/14/12 15:07*	*05/18/12 20:25*	*1*
Terphenyl-d14	*60*		*10 - 143*	*05/14/12 15:07*	*05/18/12 20:25*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.95	0.067	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 21:25	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 21:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*68*		*36 - 130*	*05/14/12 15:07*	*05/17/12 21:25*	*1*
Tetrachloro-m-xylene	*65*		*36 - 130*	*05/14/12 15:07*	*05/17/12 21:25*	*1*
DCB Decachlorobiphenyl	*36*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 21:25*	*1*
DCB Decachlorobiphenyl	*34*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 21:25*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:29	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 18:54	5
Total Organic Carbon	**2.6**		1.0	0.50	mg/L			05/16/12 11:18	1

Client Sample ID: ABKSWL05F002

Lab Sample ID: 680-79445-20

Date Collected: 05/11/12 11:30

Matrix: Water

Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*70 - 130*		*05/23/12 19:09*	*1*
Dibromofluoromethane	*98*		*70 - 130*		*05/23/12 19:09*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/23/12 19:09*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.82		9.5	0.82	ug/L		05/14/12 15:07	05/18/12 20:54	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 20:54	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 20:54	1
Acenaphthylene	<0.80		9.5	0.80	ug/L		05/14/12 15:07	05/18/12 20:54	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 20:54	1
Benzo[a]pyrene	<0.67		9.5	0.67	ug/L		05/14/12 15:07	05/18/12 20:54	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 20:54	1
1-Methylnaphthalene	<0.63		9.5	0.63	ug/L		05/14/12 15:07	05/18/12 20:54	1
Chrysene	<0.48		9.5	0.48	ug/L		05/14/12 15:07	05/18/12 20:54	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 20:54	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 20:54	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 20:54	1

Client Sample ID: ABKSWL05F002

Lab Sample ID: 680-79445-20

Date Collected: 05/11/12 11:30

Matrix: Water

Date Received: 05/12/12 09:53

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 20:54	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 20:54	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 20:54	1
Anthracene	<0.65		9.5	0.65	ug/L		05/14/12 15:07	05/18/12 20:54	1
Naphthalene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*76*		*38 - 130*	*05/14/12 15:07*	*05/18/12 20:54*	*1*
Nitrobenzene-d5	*83*		*39 - 130*	*05/14/12 15:07*	*05/18/12 20:54*	*1*
Terphenyl-d14	*50*		*10 - 143*	*05/14/12 15:07*	*05/18/12 20:54*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.068		0.95	0.068	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 21:53	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 21:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*36 - 130*	*05/14/12 15:07*	*05/17/12 21:53*	*1*
Tetrachloro-m-xylene	*68*		*36 - 130*	*05/14/12 15:07*	*05/17/12 21:53*	*1*
DCB Decachlorobiphenyl	*37*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 21:53*	*1*
DCB Decachlorobiphenyl	*38*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 21:53*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:30	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 19:31	5
Total Organic Carbon	**2.6**		1.0	0.50	mg/L			05/16/12 11:35	1

Client Sample ID: ABKSWL06F002

Lab Sample ID: 680-79445-21

Date Collected: 05/11/12 11:45

Matrix: Water

Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*70 - 130*		*05/23/12 19:23*	*1*
Dibromofluoromethane	*106*		*70 - 130*		*05/23/12 19:23*	*1*
Toluene-d8 (Surr)	*107*		*70 - 130*		*05/23/12 19:23*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 21:22	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 21:22	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 21:22	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 21:22	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 21:22	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL06F002

Lab Sample ID: 680-79445-21

Date Collected: 05/11/12 11:45
Matrix: Water
Date Received: 05/12/12 09:53

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	<0.68		9.5	0.68	ug/L		05/14/12 15:07	05/18/12 21:22	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 21:22	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 21:22	1
Chrysene	<0.49		9.5	0.49	ug/L		05/14/12 15:07	05/18/12 21:22	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 21:22	1
Fluoranthene	<0.70		9.5	0.70	ug/L		05/14/12 15:07	05/18/12 21:22	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 21:22	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 21:22	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 21:22	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 21:22	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 21:22	1
Naphthalene	<0.67		9.5	0.67	ug/L		05/14/12 15:07	05/18/12 21:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*74*		*38 - 130*	*05/14/12 15:07*	*05/18/12 21:22*	*1*
Nitrobenzene-d5	*82*		*39 - 130*	*05/14/12 15:07*	*05/18/12 21:22*	*1*
Terphenyl-d14	*64*		*10 - 143*	*05/14/12 15:07*	*05/18/12 21:22*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.068		0.95	0.068	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 22:22	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 22:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*67*		*36 - 130*	*05/14/12 15:07*	*05/17/12 22:22*	*1*
Tetrachloro-m-xylene	*64*		*36 - 130*	*05/14/12 15:07*	*05/17/12 22:22*	*1*
DCB Decachlorobiphenyl	*27*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 22:22*	*1*
DCB Decachlorobiphenyl	*28*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 22:22*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:32	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 20:08	5
Total Organic Carbon	**3.0**		1.0	0.50	mg/L			05/16/12 11:51	1

Client Sample ID: ABKSWL07F002

Lab Sample ID: 680-79445-22

Date Collected: 05/11/12 12:00
Matrix: Water
Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 19:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*90*		*70 - 130*		*05/23/12 19:52*	*1*
Dibromofluoromethane	*107*		*70 - 130*		*05/23/12 19:52*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/23/12 19:52*	*1*

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL07F002

Lab Sample ID: 680-79445-22

Date Collected: 05/11/12 12:00
Matrix: Water
Date Received: 05/12/12 09:53

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.6	0.83	ug/L		05/14/12 15:07	05/18/12 21:51	1
Benzo[k]fluoranthene	<1.1		9.6	1.1	ug/L		05/14/12 15:07	05/18/12 21:51	1
Acenaphthene	<0.73		9.6	0.73	ug/L		05/14/12 15:07	05/18/12 21:51	1
Acenaphthylene	<0.81		9.6	0.81	ug/L		05/14/12 15:07	05/18/12 21:51	1
Benzo[a]anthracene	<0.53		9.6	0.53	ug/L		05/14/12 15:07	05/18/12 21:51	1
Benzo[a]pyrene	<0.68		9.6	0.68	ug/L		05/14/12 15:07	05/18/12 21:51	1
Benzo[b]fluoranthene	<2.5		9.6	2.5	ug/L		05/14/12 15:07	05/18/12 21:51	1
1-Methylnaphthalene	<0.64		9.6	0.64	ug/L		05/14/12 15:07	05/18/12 21:51	1
Chrysene	<0.49		9.6	0.49	ug/L		05/14/12 15:07	05/18/12 21:51	1
Dibenz(a,h)anthracene	<0.96		9.6	0.96	ug/L		05/14/12 15:07	05/18/12 21:51	1
Fluoranthene	<0.71		9.6	0.71	ug/L		05/14/12 15:07	05/18/12 21:51	1
Fluorene	<0.92		9.6	0.92	ug/L		05/14/12 15:07	05/18/12 21:51	1
Indeno[1,2,3-cd]pyrene	<0.96		9.6	0.96	ug/L		05/14/12 15:07	05/18/12 21:51	1
Phenanthrene	<0.74		9.6	0.74	ug/L		05/14/12 15:07	05/18/12 21:51	1
Pyrene	<0.60		9.6	0.60	ug/L		05/14/12 15:07	05/18/12 21:51	1
Anthracene	<0.66		9.6	0.66	ug/L		05/14/12 15:07	05/18/12 21:51	1
Naphthalene	<0.67		9.6	0.67	ug/L		05/14/12 15:07	05/18/12 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*70*		*38 - 130*	*05/14/12 15:07*	*05/18/12 21:51*	*1*
Nitrobenzene-d5	*77*		*39 - 130*	*05/14/12 15:07*	*05/18/12 21:51*	*1*
Terphenyl-d14	*57*		*10 - 143*	*05/14/12 15:07*	*05/18/12 21:51*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.068		0.96	0.068	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1232	<0.11		0.96	0.11	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1242	<0.17		0.96	0.17	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1248	<0.34		0.96	0.34	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1254	<0.25		0.96	0.25	ug/L		05/14/12 15:07	05/17/12 22:50	1
PCB-1260	<0.19		0.96	0.19	ug/L		05/14/12 15:07	05/17/12 22:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*66*		*36 - 130*	*05/14/12 15:07*	*05/17/12 22:50*	*1*
Tetrachloro-m-xylene	*65*		*36 - 130*	*05/14/12 15:07*	*05/17/12 22:50*	*1*
DCB Decachlorobiphenyl	*23*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 22:50*	*1*
DCB Decachlorobiphenyl	*24*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 22:50*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:33	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 20:21	5
Total Organic Carbon	**3.1**		1.0	0.50	mg/L			05/16/12 12:28	1

Client Sample ID: ABKSWL07D002

Lab Sample ID: 680-79445-23

Date Collected: 05/11/12 12:15
Matrix: Water
Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 20:21	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL07D002

Lab Sample ID: 680-79445-23

Date Collected: 05/11/12 12:15
Matrix: Water
Date Received: 05/12/12 09:53

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*91*		*70 - 130*		*05/23/12 20:21*	*1*
Dibromofluoromethane	*108*		*70 - 130*		*05/23/12 20:21*	*1*
Toluene-d8 (Surr)	*111*		*70 - 130*		*05/23/12 20:21*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.83		9.5	0.83	ug/L		05/14/12 15:07	05/18/12 22:20	1
Benzo[k]fluoranthene	<1.1		9.5	1.1	ug/L		05/14/12 15:07	05/18/12 22:20	1
Acenaphthene	<0.72		9.5	0.72	ug/L		05/14/12 15:07	05/18/12 22:20	1
Acenaphthylene	<0.81		9.5	0.81	ug/L		05/14/12 15:07	05/18/12 22:20	1
Benzo[a]anthracene	<0.52		9.5	0.52	ug/L		05/14/12 15:07	05/18/12 22:20	1
Benzo[a]pyrene	<0.68		9.5	0.68	ug/L		05/14/12 15:07	05/18/12 22:20	1
Benzo[b]fluoranthene	<2.5		9.5	2.5	ug/L		05/14/12 15:07	05/18/12 22:20	1
1-Methylnaphthalene	<0.64		9.5	0.64	ug/L		05/14/12 15:07	05/18/12 22:20	1
Chrysene	<0.49		9.5	0.49	ug/L		05/14/12 15:07	05/18/12 22:20	1
Dibenz(a,h)anthracene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 22:20	1
Fluoranthene	<0.71		9.5	0.71	ug/L		05/14/12 15:07	05/18/12 22:20	1
Fluorene	<0.91		9.5	0.91	ug/L		05/14/12 15:07	05/18/12 22:20	1
Indeno[1,2,3-cd]pyrene	<0.95		9.5	0.95	ug/L		05/14/12 15:07	05/18/12 22:20	1
Phenanthrene	<0.73		9.5	0.73	ug/L		05/14/12 15:07	05/18/12 22:20	1
Pyrene	<0.60		9.5	0.60	ug/L		05/14/12 15:07	05/18/12 22:20	1
Anthracene	<0.66		9.5	0.66	ug/L		05/14/12 15:07	05/18/12 22:20	1
Naphthalene	<0.67		9.5	0.67	ug/L		05/14/12 15:07	05/18/12 22:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*73*		*38 - 130*	*05/14/12 15:07*	*05/18/12 22:20*	*1*
Nitrobenzene-d5	*82*		*39 - 130*	*05/14/12 15:07*	*05/18/12 22:20*	*1*
Terphenyl-d14	*33*		*10 - 143*	*05/14/12 15:07*	*05/18/12 22:20*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.95	0.067	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1221	<0.27		1.9	0.27	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1232	<0.10		0.95	0.10	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1242	<0.17		0.95	0.17	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1248	<0.34		0.95	0.34	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1254	<0.25		0.95	0.25	ug/L		05/14/12 15:07	05/17/12 23:19	1
PCB-1260	<0.19		0.95	0.19	ug/L		05/14/12 15:07	05/17/12 23:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*78*		*36 - 130*	*05/14/12 15:07*	*05/17/12 23:19*	*1*
Tetrachloro-m-xylene	*75*		*36 - 130*	*05/14/12 15:07*	*05/17/12 23:19*	*1*
DCB Decachlorobiphenyl	*29*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 23:19*	*1*
DCB Decachlorobiphenyl	*28*	*X*	*40 - 130*	*05/14/12 15:07*	*05/17/12 23:19*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:35	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 20:33	5
Total Organic Carbon	**3.2**		1.0	0.50	mg/L			05/16/12 13:16	1

Client Sample Results

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKTB01F002

Date Collected: 05/11/12 07:00
Date Received: 05/12/12 09:53

Lab Sample ID: 680-79445-24

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 12:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*70 - 130*		*05/23/12 12:47*	*1*
Dibromofluoromethane	*106*		*70 - 130*		*05/23/12 12:47*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/23/12 12:47*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	**1.9**	**J**	9.8	0.85	ug/L		05/14/12 15:07	05/18/12 01:48	1
Benzo[k]fluoranthene	<1.2		9.8	1.2	ug/L		05/14/12 15:07	05/18/12 01:48	1
Acenaphthene	<0.74		9.8	0.74	ug/L		05/14/12 15:07	05/18/12 01:48	1
Acenaphthylene	<0.83		9.8	0.83	ug/L		05/14/12 15:07	05/18/12 01:48	1
Benzo[a]anthracene	<0.54		9.8	0.54	ug/L		05/14/12 15:07	05/18/12 01:48	1
Benzo[a]pyrene	<0.69		9.8	0.69	ug/L		05/14/12 15:07	05/18/12 01:48	1
Benzo[b]fluoranthene	<2.5		9.8	2.5	ug/L		05/14/12 15:07	05/18/12 01:48	1
1-Methylnaphthalene	<0.65		9.8	0.65	ug/L		05/14/12 15:07	05/18/12 01:48	1
Chrysene	<0.50		9.8	0.50	ug/L		05/14/12 15:07	05/18/12 01:48	1
Dibenz(a,h)anthracene	**1.3**	**J**	9.8	0.98	ug/L		05/14/12 15:07	05/18/12 01:48	1
Fluoranthene	<0.72		9.8	0.72	ug/L		05/14/12 15:07	05/18/12 01:48	1
Fluorene	<0.94		9.8	0.94	ug/L		05/14/12 15:07	05/18/12 01:48	1
Indeno[1,2,3-cd]pyrene	**1.2**	**J**	9.8	0.98	ug/L		05/14/12 15:07	05/18/12 01:48	1
Phenanthrene	<0.75		9.8	0.75	ug/L		05/14/12 15:07	05/18/12 01:48	1
Pyrene	<0.61		9.8	0.61	ug/L		05/14/12 15:07	05/18/12 01:48	1
Anthracene	<0.67		9.8	0.67	ug/L		05/14/12 15:07	05/18/12 01:48	1
Naphthalene	<0.68		9.8	0.68	ug/L		05/14/12 15:07	05/18/12 01:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*57*		*38 - 130*	*05/14/12 15:07*	*05/18/12 01:48*	*1*
Nitrobenzene-d5	*64*		*39 - 130*	*05/14/12 15:07*	*05/18/12 01:48*	*1*
Terphenyl-d14	*61*		*10 - 143*	*05/14/12 15:07*	*05/18/12 01:48*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.94	0.067	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1221	<0.26		1.9	0.26	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1232	<0.10		0.94	0.10	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1242	<0.17		0.94	0.17	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1248	<0.34		0.94	0.34	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1254	<0.24		0.94	0.24	ug/L		05/14/12 15:07	05/17/12 23:47	1
PCB-1260	<0.19		0.94	0.19	ug/L		05/14/12 15:07	05/17/12 23:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*36 - 130*	*05/14/12 15:07*	*05/17/12 23:47*	*1*
Tetrachloro-m-xylene	*59*		*36 - 130*	*05/14/12 15:07*	*05/17/12 23:47*	*1*
DCB Decachlorobiphenyl	*44*		*40 - 130*	*05/14/12 15:07*	*05/17/12 23:47*	*1*
DCB Decachlorobiphenyl	*46*		*40 - 130*	*05/14/12 15:07*	*05/17/12 23:47*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:36	1
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 20:46	5

Client Sample ID: ABKTB01F002

Lab Sample ID: 680-79445-24

Date Collected: 05/11/12 07:00

Matrix: Water

Date Received: 05/12/12 09:53

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 13:34	1

Client Sample ID: Trip

Lab Sample ID: 680-79445-25

Date Collected: 05/11/12 00:00

Matrix: Water

Date Received: 05/12/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*70 - 130*		*05/23/12 15:42*	*1*
Dibromofluoromethane	*97*		*70 - 130*		*05/23/12 15:42*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*		*05/23/12 15:42*	*1*

Surrogate Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
680-79445-16	ABKSWL01F002	95	97	104
680-79445-17	ABKSWL02F002	96	95	104
680-79445-18	ABKSWL03F002	92	109	109
680-79445-19	ABKSWL04F002	94	97	105
680-79445-20	ABKSWL05F002	95	98	105
680-79445-21	ABKSWL06F002	93	106	107
680-79445-22	ABKSWL07F002	90	107	105
680-79445-23	ABKSWL07D002	91	108	111
680-79445-24	ABKTB01F002	92	106	104
680-79445-25	Trip	95	97	104
LCS 680-238252/4	Lab Control Sample	106	103	107
LCS 680-238266/4	Lab Control Sample	104	104	105
LCS 680-238539/4	Lab Control Sample	108	98	105
LCSD 680-238252/5	Lab Control Sample Dup	107	99	107
LCSD 680-238266/5	Lab Control Sample Dup	104	100	107
LCSD 680-238539/5	Lab Control Sample Dup	106	94	101
MB 680-238252/8	Method Blank	95	98	105
MB 680-238266/7	Method Blank	92	108	106
MB 680-238539/7	Method Blank	93	96	105

Surrogate Legend

BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPH
Lab Sample ID	Client Sample ID	(38-130)	(39-130)	(10-143)
680-79445-16	ABKSWL01F002	72	77	36
680-79445-17	ABKSWL02F002	77	82	41
680-79445-18	ABKSWL03F002	75	75	57
680-79445-19	ABKSWL04F002	73	81	60
680-79445-20	ABKSWL05F002	76	83	50
680-79445-21	ABKSWL06F002	74	82	64
680-79445-22	ABKSWL07F002	70	77	57
680-79445-23	ABKSWL07D002	73	82	33
680-79445-24	ABKTB01F002	57	64	61
680-79445-24 MS	ABKTB01F002	72	79	71
680-79445-24 MSD	ABKTB01F002	57	59	73
LCS 680-237226/12-A	Lab Control Sample	67	71	81
MB 680-237226/11-A	Method Blank	55	60	61

Surrogate Legend

FBP = 2-Fluorobiphenyl
NBZ = Nitrobenzene-d5
TPH = Terphenyl-d14

Surrogate Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(36-130)	(36-130)	(40-130)	(40-130)
680-79445-16	ABKSWL01F002	65	62	53	50
680-79445-16 MS	ABKSWL01F002	69	68	43	45
680-79445-16 MSD	ABKSWL01F002	70	69	22 X	22 X
680-79445-17	ABKSWL02F002	52	49	29 X	27 X
680-79445-18	ABKSWL03F002	59	56	23 X	23 X
680-79445-19	ABKSWL04F002	68	65	36 X	34 X
680-79445-20	ABKSWL05F002	69	68	37 X	38 X
680-79445-21	ABKSWL06F002	67	64	27 X	28 X
680-79445-22	ABKSWL07F002	66	65	23 X	24 X
680-79445-23	ABKSWL07D002	78	75	29 X	28 X
680-79445-24	ABKTB01F002	59	59	44	46
LCS 680-237229/22-A	Lab Control Sample	73	73	57	57
LCSD 680-237229/30-A	Lab Control Sample Dup	57	58	41	40
MB 680-237229/16-A	Method Blank	70	69	43	40

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCB = DCB Decachlorobiphenyl

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-238252/8 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238252

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 12:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*70 - 130*		*05/23/12 12:05*	*1*
Dibromofluoromethane	*98*		*70 - 130*		*05/23/12 12:05*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/23/12 12:05*	*1*

Lab Sample ID: LCS 680-238252/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238252

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene			50.0	53.2		ug/L		106	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*106*		*70 - 130*
Dibromofluoromethane	*103*		*70 - 130*
Toluene-d8 (Surr)	*107*		*70 - 130*

Lab Sample ID: LCSD 680-238252/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238252

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene			50.0	53.8		ug/L		108	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*107*		*70 - 130*
Dibromofluoromethane	*99*		*70 - 130*
Toluene-d8 (Surr)	*107*		*70 - 130*

Lab Sample ID: MB 680-238266/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238266

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/23/12 12:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*92*		*70 - 130*		*05/23/12 12:19*	*1*
Dibromofluoromethane	*108*		*70 - 130*		*05/23/12 12:19*	*1*
Toluene-d8 (Surr)	*106*		*70 - 130*		*05/23/12 12:19*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-238266/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238266

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene			50.0	50.5		ug/L		101	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*104*		*70 - 130*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Lab Sample ID: LCSD 680-238266/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238266

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene			50.0	51.0		ug/L		102	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*104*		*70 - 130*
Dibromofluoromethane	*100*		*70 - 130*
Toluene-d8 (Surr)	*107*		*70 - 130*

Lab Sample ID: MB 680-238539/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238539

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	<0.13		1.0	0.13	ug/L			05/25/12 12:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*70 - 130*		*05/25/12 12:04*	*1*
Dibromofluoromethane	*96*		*70 - 130*		*05/25/12 12:04*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/25/12 12:04*	*1*

Lab Sample ID: LCS 680-238539/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238539

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene			50.0	52.4		ug/L		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*108*		*70 - 130*
Dibromofluoromethane	*98*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-238539/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 238539

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichloroethene	50.0	51.1		ug/L		102	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*106*		*70 - 130*
Dibromofluoromethane	*94*		*70 - 130*
Toluene-d8 (Surr)	*101*		*70 - 130*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-237226/11-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237763 — **Prep Batch: 237226**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	<0.87		10	0.87	ug/L		05/14/12 15:07	05/18/12 00:50	1
Benzo[k]fluoranthene	<1.2		10	1.2	ug/L		05/14/12 15:07	05/18/12 00:50	1
Acenaphthene	<0.76		10	0.76	ug/L		05/14/12 15:07	05/18/12 00:50	1
Acenaphthylene	<0.85		10	0.85	ug/L		05/14/12 15:07	05/18/12 00:50	1
Benzo[a]anthracene	<0.55		10	0.55	ug/L		05/14/12 15:07	05/18/12 00:50	1
Benzo[a]pyrene	<0.71		10	0.71	ug/L		05/14/12 15:07	05/18/12 00:50	1
Benzo[b]fluoranthene	<2.6		10	2.6	ug/L		05/14/12 15:07	05/18/12 00:50	1
1-Methylnaphthalene	<0.67		10	0.67	ug/L		05/14/12 15:07	05/18/12 00:50	1
Chrysene	<0.51		10	0.51	ug/L		05/14/12 15:07	05/18/12 00:50	1
Dibenz(a,h)anthracene	<1.0		10	1.0	ug/L		05/14/12 15:07	05/18/12 00:50	1
Fluoranthene	<0.74		10	0.74	ug/L		05/14/12 15:07	05/18/12 00:50	1
Fluorene	<0.96		10	0.96	ug/L		05/14/12 15:07	05/18/12 00:50	1
Indeno[1,2,3-cd]pyrene	<1.0		10	1.0	ug/L		05/14/12 15:07	05/18/12 00:50	1
Phenanthrene	<0.77		10	0.77	ug/L		05/14/12 15:07	05/18/12 00:50	1
Pyrene	<0.63		10	0.63	ug/L		05/14/12 15:07	05/18/12 00:50	1
Anthracene	<0.69		10	0.69	ug/L		05/14/12 15:07	05/18/12 00:50	1
Naphthalene	<0.70		10	0.70	ug/L		05/14/12 15:07	05/18/12 00:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*55*		*38 - 130*	*05/14/12 15:07*	*05/18/12 00:50*	*1*
Nitrobenzene-d5	*60*		*39 - 130*	*05/14/12 15:07*	*05/18/12 00:50*	*1*
Terphenyl-d14	*61*		*10 - 143*	*05/14/12 15:07*	*05/18/12 00:50*	*1*

Lab Sample ID: LCS 680-237226/12-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237763 — **Prep Batch: 237226**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[g,h,i]perylene	100	72.2		ug/L		72	54 - 130
Benzo[k]fluoranthene	100	79.2		ug/L		79	53 - 130
Acenaphthene	100	70.9		ug/L		71	55 - 130
Acenaphthylene	100	74.6		ug/L		75	60 - 130
Benzo[a]anthracene	100	85.7		ug/L		86	58 - 130
Benzo[a]pyrene	100	87.2		ug/L		87	61 - 130
Benzo[b]fluoranthene	100	81.5		ug/L		82	51 - 130

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-237226/12-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237763 — **Prep Batch: 237226**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	100	63.0		ug/L		63	50 - 130
Chrysene	100	80.3		ug/L		80	59 - 130
Dibenz(a,h)anthracene	100	79.8		ug/L		80	55 - 130
Fluoranthene	100	80.4		ug/L		80	56 - 130
Fluorene	100	77.6		ug/L		78	61 - 130
Indeno[1,2,3-cd]pyrene	100	74.5		ug/L		75	47 - 130
Phenanthrene	100	78.9		ug/L		79	62 - 130
Pyrene	100	84.8		ug/L		85	60 - 130
Anthracene	100	77.6		ug/L		78	61 - 130
Naphthalene	100	61.2		ug/L		61	50 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*67*		*38 - 130*
Nitrobenzene-d5	*71*		*39 - 130*
Terphenyl-d14	*81*		*10 - 143*

Lab Sample ID: 680-79445-24 MS — **Client Sample ID: ABKTB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237763 — **Prep Batch: 237226**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[g,h,i]perylene	1.9	J	96.7	54.8		ug/L		55	54 - 130
Benzo[k]fluoranthene	<1.2		96.7	65.3		ug/L		68	53 - 130
Acenaphthene	<0.74		96.7	66.2		ug/L		68	55 - 130
Acenaphthylene	<0.83		96.7	27.6	F	ug/L		29	60 - 130
Benzo[a]anthracene	<0.54		96.7	70.5		ug/L		73	58 - 130
Benzo[a]pyrene	<0.69		96.7	59.6		ug/L		62	61 - 130
Benzo[b]fluoranthene	<2.5		96.7	85.3		ug/L		88	51 - 130
1-Methylnaphthalene	<0.65		96.7	64.5		ug/L		67	50 - 130
Chrysene	<0.50		96.7	65.9		ug/L		68	59 - 130
Dibenz(a,h)anthracene	1.3	J	96.7	70.3		ug/L		71	55 - 130
Fluoranthene	<0.72		96.7	68.0		ug/L		70	56 - 130
Fluorene	<0.94		96.7	71.3		ug/L		74	61 - 130
Indeno[1,2,3-cd]pyrene	1.2	J	96.7	54.8		ug/L		55	47 - 130
Phenanthrene	<0.75		96.7	71.6		ug/L		74	62 - 130
Pyrene	<0.61		96.7	61.2		ug/L		63	60 - 130
Anthracene	<0.67		96.7	63.4		ug/L		66	61 - 130
Naphthalene	<0.68		96.7	62.9		ug/L		65	50 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*38 - 130*
Nitrobenzene-d5	*79*		*39 - 130*
Terphenyl-d14	*71*		*10 - 143*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-79445-24 MSD — **Client Sample ID: ABKTB01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237763 — **Prep Batch: 237226**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[g,h,i]perylene	1.9	J	93.0	64.0		ug/L		67	54 - 130	16	50
Benzo[k]fluoranthene	<1.2		93.0	72.4		ug/L		78	53 - 130	10	50
Acenaphthene	<0.74		93.0	57.7		ug/L		62	55 - 130	14	50
Acenaphthylene	<0.83		93.0	60.3	F	ug/L		65	60 - 130	74	50
Benzo[a]anthracene	<0.54		93.0	74.5		ug/L		80	58 - 130	6	50
Benzo[a]pyrene	<0.69		93.0	80.5		ug/L		87	61 - 130	30	50
Benzo[b]fluoranthene	<2.5		93.0	88.4		ug/L		95	51 - 130	4	50
1-Methylnaphthalene	<0.65		93.0	50.4		ug/L		54	50 - 130	25	50
Chrysene	<0.50		93.0	67.9		ug/L		73	59 - 130	3	50
Dibenz(a,h)anthracene	1.3	J	93.0	70.3		ug/L		74	55 - 130	0	50
Fluoranthene	<0.72		93.0	71.8		ug/L		77	56 - 130	5	50
Fluorene	<0.94		93.0	64.2		ug/L		69	61 - 130	10	50
Indeno[1,2,3-cd]pyrene	1.2	J	93.0	65.5		ug/L		69	47 - 130	18	50
Phenanthrene	<0.75		93.0	69.6		ug/L		75	62 - 130	3	50
Pyrene	<0.61		93.0	71.9		ug/L		77	60 - 130	16	50
Anthracene	<0.67		93.0	66.2		ug/L		71	61 - 130	4	50
Naphthalene	<0.68		93.0	48.1		ug/L		52	50 - 130	27	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*57*		*38 - 130*
Nitrobenzene-d5	*59*		*39 - 130*
Terphenyl-d14	*73*		*10 - 143*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC)

Lab Sample ID: MB 680-237229/16-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237791 — **Prep Batch: 237229**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.071		1.0	0.071	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1221	<0.28		2.0	0.28	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1232	<0.11		1.0	0.11	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1242	<0.18		1.0	0.18	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1248	<0.36		1.0	0.36	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1254	<0.26		1.0	0.26	ug/L		05/14/12 15:07	05/17/12 01:48	1
PCB-1260	<0.20		1.0	0.20	ug/L		05/14/12 15:07	05/17/12 01:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*36 - 130*	*05/14/12 15:07*	*05/17/12 01:48*	*1*
Tetrachloro-m-xylene	*69*		*36 - 130*	*05/14/12 15:07*	*05/17/12 01:48*	*1*
DCB Decachlorobiphenyl	*43*		*40 - 130*	*05/14/12 15:07*	*05/17/12 01:48*	*1*
DCB Decachlorobiphenyl	*40*		*40 - 130*	*05/14/12 15:07*	*05/17/12 01:48*	*1*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC) (Continued)

Lab Sample ID: LCS 680-237229/22-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237791 — **Prep Batch: 237229**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	10.0	7.80		ug/L		78	38 - 172
PCB-1260	10.0	6.93		ug/L		69	46 - 138

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*73*		*36 - 130*
Tetrachloro-m-xylene	*73*		*36 - 130*
DCB Decachlorobiphenyl	*57*		*40 - 130*
DCB Decachlorobiphenyl	*57*		*40 - 130*

Lab Sample ID: LCSD 680-237229/30-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237791 — **Prep Batch: 237229**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	10.0	6.62		ug/L		66	38 - 172	16	50
PCB-1260	10.0	5.02		ug/L		50	46 - 138	32	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*57*		*36 - 130*
Tetrachloro-m-xylene	*58*		*36 - 130*
DCB Decachlorobiphenyl	*41*		*40 - 130*
DCB Decachlorobiphenyl	*40*		*40 - 130*

Lab Sample ID: 680-79445-16 MS — **Client Sample ID: ABKSWL01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237885 — **Prep Batch: 237229**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	<0.068		9.83	7.79		ug/L		79	38 - 172
PCB-1260	<0.19		9.83	5.80		ug/L		59	46 - 138

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*69*		*36 - 130*
Tetrachloro-m-xylene	*68*		*36 - 130*
DCB Decachlorobiphenyl	*43*		*40 - 130*
DCB Decachlorobiphenyl	*45*		*40 - 130*

Lab Sample ID: 680-79445-16 MSD — **Client Sample ID: ABKSWL01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237885 — **Prep Batch: 237229**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	<0.068		9.16	7.04		ug/L		77	38 - 172	10	50
PCB-1260	<0.19		9.16	4.07	F	ug/L		44	46 - 138	35	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*70*		*36 - 130*
Tetrachloro-m-xylene	*69*		*36 - 130*

Method: 8081A_8082 - Organochlorine Pesticides & PCBs (GC) (Continued)

Lab Sample ID: 680-79445-16 MSD — **Client Sample ID: ABKSWL01F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237885 — **Prep Batch: 237229**

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*22*	*X*	*40 - 130*
DCB Decachlorobiphenyl	*22*	*X*	*40 - 130*

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-36357/33 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:06	1

Lab Sample ID: MB 180-36357/47 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			05/17/12 12:27	1

Lab Sample ID: LCS 180-36357/31 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Available cyanide			0.100	0.103		mg/L		103	82 - 132		

Lab Sample ID: LCS 180-36357/45 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Available cyanide			0.100	0.102		mg/L		102	82 - 132		

Lab Sample ID: LCSD 180-36357/32 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide			0.100	0.104		mg/L		104	82 - 132	1	20

Lab Sample ID: LCSD 180-36357/46 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 36357

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide			0.100	0.115		mg/L		115	82 - 132	12	20

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 680-237526/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			05/15/12 18:03	5

Lab Sample ID: LCS 680-237526/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.9		mg/L		109	90 - 110

Lab Sample ID: LCSD 680-237526/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237526

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.9		mg/L		109	90 - 110	0	30

Lab Sample ID: MB 680-237684/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237684

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			05/16/12 18:55	5

Lab Sample ID: LCS 680-237684/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237684

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.9		mg/L		109	90 - 110

Lab Sample ID: LCSD 680-237684/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237684

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.9		mg/L		109	90 - 110	0	30

Lab Sample ID: MB 680-237876/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			05/18/12 17:03	5

Lab Sample ID: LCS 680-237876/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.8		mg/L		108	90 - 110

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 680-237876/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride			10.0	10.8		mg/L		108	90 - 110	0	30

Lab Sample ID: 680-79445-19 MS — **Client Sample ID: ABKSWL04F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	<0.20		10.0	10.4		mg/L		104	90 - 110		

Lab Sample ID: 680-79445-19 MSD — **Client Sample ID: ABKSWL04F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237876

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	<0.20		10.0	10.5		mg/L		105	90 - 110	1	30

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-237567/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 03:50	1

Lab Sample ID: LCS 680-237567/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			20.0	21.2		mg/L		106	80 - 120		

Lab Sample ID: 680-79445-17 DU — **Client Sample ID: ABKSWL02F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237567

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon	7.7			7.70		mg/L				0.5	25

Lab Sample ID: MB 680-237568/26 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237568

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			05/16/12 10:43	1

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 680-237568/31 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237568

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			20.0	21.4		mg/L		107	80 - 120		

Lab Sample ID: 680-79445-22 MS — **Client Sample ID: ABKSWL07F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237568

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	3.1		20.0	24.4		mg/L		107	80 - 120		

Lab Sample ID: 680-79445-22 MSD — **Client Sample ID: ABKSWL07F002**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 237568

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	3.1		20.0	24.7		mg/L		108	80 - 120	1	25

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL01F002 — Lab Sample ID: 680-79445-16

Date Collected: 05/11/12 10:10 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238252	05/23/12 16:11	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237763	05/18/12 03:45	MES	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 20:02	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:15	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 22:48	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 09:37	JR	TAL SAV

Client Sample ID: ABKSWL02F002 — Lab Sample ID: 680-79445-17

Date Collected: 05/11/12 10:25 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238252	05/23/12 16:39	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237763	05/18/12 04:14	MES	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 20:30	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:17	PJ	TAL PIT
Total/NA	Analysis	9056		5	237526	05/15/12 23:01	PAT	TAL SAV
Total/NA	Analysis	9060		1	237567	05/16/12 09:55	JR	TAL SAV

Client Sample ID: ABKSWL03F002 — Lab Sample ID: 680-79445-18

Date Collected: 05/11/12 10:45 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 15:57	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237763	05/18/12 04:43	MES	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 20:57	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:18	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 11:00	JR	TAL SAV
Total/NA	Analysis	9056		5	237684	05/16/12 21:49	PAT	TAL SAV

Client Sample ID: ABKSWL04F002 — Lab Sample ID: 680-79445-19

Date Collected: 05/11/12 11:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238539	05/25/12 12:50	RB	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL04F002 — Lab Sample ID: 680-79445-19

Date Collected: 05/11/12 11:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237884	05/18/12 20:25	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 21:25	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:29	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 11:18	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 18:54	SMP	TAL SAV

Client Sample ID: ABKSWL05F002 — Lab Sample ID: 680-79445-20

Date Collected: 05/11/12 11:30 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238252	05/23/12 19:09	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237884	05/18/12 20:54	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 21:53	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:30	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 11:35	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 19:31	SMP	TAL SAV

Client Sample ID: ABKSWL06F002 — Lab Sample ID: 680-79445-21

Date Collected: 05/11/12 11:45 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 19:23	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237884	05/18/12 21:22	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 22:22	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:32	PJ	TAL PIT
Total/NA	Analysis	9060		1	237567	05/16/12 11:51	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 20:08	SMP	TAL SAV

Client Sample ID: ABKSWL07F002 — Lab Sample ID: 680-79445-22

Date Collected: 05/11/12 12:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 19:52	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Client Sample ID: ABKSWL07F002 — Lab Sample ID: 680-79445-22

Date Collected: 05/11/12 12:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270C		1	237884	05/18/12 21:51	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 22:50	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:33	PJ	TAL PIT
Total/NA	Analysis	9060		1	237568	05/16/12 12:28	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 20:21	SMP	TAL SAV

Client Sample ID: ABKSWL07D002 — Lab Sample ID: 680-79445-23

Date Collected: 05/11/12 12:15 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 20:21	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237884	05/18/12 22:20	BB	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 23:19	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:35	PJ	TAL PIT
Total/NA	Analysis	9060		1	237568	05/16/12 13:16	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 20:33	SMP	TAL SAV

Client Sample ID: ABKTB01F002 — Lab Sample ID: 680-79445-24

Date Collected: 05/11/12 07:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238266	05/23/12 12:47	RB	TAL SAV
Total/NA	Prep	3520C			237226	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8270C		1	237763	05/18/12 01:48	MES	TAL SAV
Total/NA	Prep	3520C			237229	05/14/12 15:07	RBS	TAL SAV
Total/NA	Analysis	8081A_8082		1	237885	05/17/12 23:47	JK	TAL SAV
Total/NA	Analysis	1677		1	36357	05/17/12 12:36	PJ	TAL PIT
Total/NA	Analysis	9060		1	237568	05/16/12 13:34	JR	TAL SAV
Total/NA	Analysis	9056		5	237876	05/18/12 20:46	SMP	TAL SAV

Client Sample ID: Trip — Lab Sample ID: 680-79445-25

Date Collected: 05/11/12 00:00 — **Matrix: Water**
Date Received: 05/12/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	238252	05/23/12 15:42	RB	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 52203

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location: PITTSBURGH FOR FREE CN

Phone:
Fax:

PROJECT REFERENCE: PSC SAMPLE	PROJECT NO.	PROJECT LOCATION (STATE): NC
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER	CONTRACT NO.
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814739005	CLIENT FAX: 2814739007
CLIENT NAME: ENVIRONEERING INC	CLIENT E-MAIL: mworden@environeering inc.com	
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ☒

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 6

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	8260/TCE	9060/TOC	4500/F	8082/PCBS	8270/PAHs	1677/FREE CN					REMARKS
								HCl	HCl	PRESERVATIVE			NaOH					
5/11/12	1010	ABICSWL01F002		X				3	1	1	2	2	1					
	1025	ABICSWL02F002		X				3	1	1	2	2	1					
	1045	ABICSWL03F002		X				3	1	1	2	2	1					
	1100	ABICSWL04F002		X				3	1	1	2	2	1					
	1130	ABICSWL05F002		X				3	1	1	2	2	1					
	1145	ABICSWL06F002		X				3	1	1	2	2	1					
	1200	ABICSWL07F002		X				3	1	1	2	2	1					
	1215	ABICSWL07D002		X				3	1	1	2	2	1					
	0700	ABICTB01F002		X				3	1	1	2	2	1					

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	5/11/12	1645						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
FEDEX	5/11/12	1645						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	05/12/12	0953	YES ○ NO ○		680-79445	1.2°C/1.8°C/2.2°C/1.5°C/3.6°C/3.5°C

TAL 8240-680 (1008)

8/2/2012

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Certification Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	08-15-12
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-12
Guam	State Program	9	09-005r	04-17-12
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-12
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-12
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-12
Oklahoma	State Program	6	9984	08-31-12
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-12
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-12
USDA	Federal		SAV 3-04	04-07-14
Vermont	State Program	1	87052	11-16-12
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-12
Wyoming	State Program	8	8TMS-Q	06-30-12

Laboratory: TestAmerica Pittsburgh

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Certification Summary

Client: Environeering Inc
Project/Site: ALCOA BL Sample

TestAmerica Job ID: 680-79445-2

Laboratory: TestAmerica Pittsburgh (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-13
California	NELAC	9	4224CA	03-31-13
Connecticut	State Program	1	PH-0688	09-30-12
Florida	NELAC	4	E871008	06-30-13
Illinois	NELAC	5	002602	06-30-13
Kansas	NELAC	7	E-10350	01-31-13
L-A-B	DoD ELAP		L2314	02-24-13
Louisiana	NELAC	6	04041	06-30-13
New Hampshire	NELAC	1	203011	04-04-13
New Jersey	NELAC	2	PA005	06-30-13
New York	NELAC	2	11182	04-01-13
North Carolina DENR	State Program	4	434	12-31-12
Pennsylvania	NELAC	3	02-00416	04-30-13
Pennsylvania	State Program	3	02-416	12-31-12
South Carolina	State Program	4	89014002	04-30-13
USDA	Federal		P-Soil-01	04-16-15
USDA	Federal		P330-10-00139	04-28-13
Utah	NELAC	8	STLP	04-30-13
Virginia	NELAC	3	460189	09-14-12
West Virginia DEP	State Program	3	142	01-31-13
Wisconsin	State Program	5	998027800	08-31-12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-81627-1
Client Project/Site: ABL CMS GW

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
8/15/2012 3:25:43 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Job ID: 680-81627-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Environeering Inc

Project: ABL CMS GW

Report Number: 680-81627-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 08/01/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 5.1 C.

CYANIDE
Samples ABLMW06F003 (680-81627-1), ABLMW02F003 (680-81627-2), ABLMW4F003 (680-81627-3), ABLMW5F003 (680-81627-4), ABLMW3F003 (680-81627-5) and ABLMW3D003 (680-81627-6) were analyzed for cyanide in accordance with Available Cyanide. The samples were analyzed on 08/06/2012.

No difficulties were encountered during the cyanide analyses.

All quality control parameters were within the acceptance limits.

ANIONS
Samples ABLMW06F003 (680-81627-1), ABLMW02F003 (680-81627-2), ABLMW4F003 (680-81627-3), ABLMW5F003 (680-81627-4), ABLMW3F003 (680-81627-5) and ABLMW3D003 (680-81627-6) were analyzed for anions in accordance with EPA SW-846 Method 9056. The samples were analyzed on 08/13/2012.

Samples ABLMW06F003 (680-81627-1)[5X], ABLMW02F003 (680-81627-2)[5X], ABLMW4F003 (680-81627-3)[5X], ABLMW5F003 (680-81627-4)[5X], ABLMW3F003 (680-81627-5)[5X] and ABLMW3D003 (680-81627-6)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analyses.

All quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON
Samples ABLMW06F003 (680-81627-1), ABLMW02F003 (680-81627-2), ABLMW4F003 (680-81627-3), ABLMW5F003 (680-81627-4), ABLMW3F003 (680-81627-5) and ABLMW3D003 (680-81627-6) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 08/08/2012.

No difficulties were encountered during the TOC analyses.

All quality control parameters were within the acceptance limits.

Job ID: 680-81627-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

Sample Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-81627-1	ABLMW06F003	Water	07/30/12 13:05	08/01/12 09:38
680-81627-2	ABLMW02F003	Water	07/30/12 16:00	08/01/12 09:38
680-81627-3	ABLMW4F003	Water	07/31/12 10:05	08/01/12 09:38
680-81627-4	ABLMW5F003	Water	07/31/12 12:50	08/01/12 09:38
680-81627-5	ABLMW3F003	Water	07/31/12 15:10	08/01/12 09:38
680-81627-6	ABLMW3D003	Water	07/31/12 15:15	08/01/12 09:38

Method Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Method	Method Description	Protocol	Laboratory
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9056	Anions, Ion Chromatography	SW846	TAL SAV
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Client Sample ID: ABLMW06F003 — Lab Sample ID: 680-81627-1

Date Collected: 07/30/12 13:05 — **Matrix: Water**
Date Received: 08/01/12 09:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/06/12 15:02	1
Fluoride	<0.20		1.0	0.20	mg/L			08/13/12 21:45	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/08/12 11:54	1

Client Sample ID: ABLMW02F003 — Lab Sample ID: 680-81627-2

Date Collected: 07/30/12 16:00 — **Matrix: Water**
Date Received: 08/01/12 09:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/06/12 15:03	1
Fluoride	<0.20		1.0	0.20	mg/L			08/13/12 21:58	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/08/12 12:11	1

Client Sample ID: ABLMW4F003 — Lab Sample ID: 680-81627-3

Date Collected: 07/31/12 10:05 — **Matrix: Water**
Date Received: 08/01/12 09:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/06/12 15:05	1
Fluoride	<0.20		1.0	0.20	mg/L			08/13/12 22:10	5
Total Organic Carbon	**0.59**	**J**	1.0	0.50	mg/L			08/08/12 12:27	1

Client Sample ID: ABLMW5F003 — Lab Sample ID: 680-81627-4

Date Collected: 07/31/12 12:50 — **Matrix: Water**
Date Received: 08/01/12 09:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	**0.016**		0.0020	0.00030	mg/L			08/06/12 15:06	1
Fluoride	<0.20		1.0	0.20	mg/L			08/13/12 22:22	5
Total Organic Carbon	**0.89**	**J**	1.0	0.50	mg/L			08/08/12 12:44	1

Client Sample ID: ABLMW3F003 — Lab Sample ID: 680-81627-5

Date Collected: 07/31/12 15:10 — **Matrix: Water**
Date Received: 08/01/12 09:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/06/12 15:08	1
Fluoride	<0.20		1.0	0.20	mg/L			08/13/12 23:00	5
Total Organic Carbon	**0.51**	**J**	1.0	0.50	mg/L			08/08/12 13:00	1

Client Sample ID: ABLMW3D003 — Lab Sample ID: 680-81627-6

Date Collected: 07/31/12 15:15 — **Matrix: Water**
Date Received: 08/01/12 09:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/06/12 15:09	1
Fluoride	<0.20		1.0	0.20	mg/L			08/13/12 23:12	5

Client Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Client Sample ID: ABLMW3D003

Lab Sample ID: 680-81627-6

Date Collected: 07/31/12 15:15

Matrix: Water

Date Received: 08/01/12 09:38

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.50	J	1.0	0.50	mg/L			08/08/12 13:17	1

QC Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-43987/97 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 43987

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/06/12 14:57	1

Lab Sample ID: LCS 180-43987/95 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 43987

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.105		mg/L		105	82 - 132

Lab Sample ID: LCSD 180-43987/96 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 43987

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.0960		mg/L		96	82 - 132	9	20

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 680-246632/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246632

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			08/13/12 21:08	5

Lab Sample ID: LCS 680-246632/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246632

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.6		mg/L		106	90 - 110

Lab Sample ID: LCSD 680-246632/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246632

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.6		mg/L		106	90 - 110	0	30

Lab Sample ID: 680-81627-4 MS — **Client Sample ID: ABLMW5F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246632

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	<0.20		10.0	10.1		mg/L		101	90 - 110

QC Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 680-81627-4 MSD — **Client Sample ID: ABLMW5F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246632

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	<0.20		10.0	10.2		mg/L		102	90 - 110	1	30

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-246133/27 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246133

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/08/12 07:42	1

Lab Sample ID: LCS 680-246133/28 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246133

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			20.0	20.9		mg/L		104	80 - 120		

QC Association Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

General Chemistry

Analysis Batch: 43987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81627-1	ABLMW06F003	Total/NA	Water	1677	
680-81627-2	ABLMW02F003	Total/NA	Water	1677	
680-81627-3	ABLMW4F003	Total/NA	Water	1677	
680-81627-4	ABLMW5F003	Total/NA	Water	1677	
680-81627-5	ABLMW3F003	Total/NA	Water	1677	
680-81627-6	ABLMW3D003	Total/NA	Water	1677	
LCS 180-43987/95	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-43987/96	Lab Control Sample Dup	Total/NA	Water	1677	
MB 180-43987/97	Method Blank	Total/NA	Water	1677	

Analysis Batch: 246133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81627-1	ABLMW06F003	Total/NA	Water	9060	
680-81627-2	ABLMW02F003	Total/NA	Water	9060	
680-81627-3	ABLMW4F003	Total/NA	Water	9060	
680-81627-4	ABLMW5F003	Total/NA	Water	9060	
680-81627-5	ABLMW3F003	Total/NA	Water	9060	
680-81627-6	ABLMW3D003	Total/NA	Water	9060	
LCS 680-246133/28	Lab Control Sample	Total/NA	Water	9060	
MB 680-246133/27	Method Blank	Total/NA	Water	9060	

Analysis Batch: 246632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81627-1	ABLMW06F003	Total/NA	Water	9056	
680-81627-2	ABLMW02F003	Total/NA	Water	9056	
680-81627-3	ABLMW4F003	Total/NA	Water	9056	
680-81627-4	ABLMW5F003	Total/NA	Water	9056	
680-81627-4 MS	ABLMW5F003	Total/NA	Water	9056	
680-81627-4 MSD	ABLMW5F003	Total/NA	Water	9056	
680-81627-5	ABLMW3F003	Total/NA	Water	9056	
680-81627-6	ABLMW3D003	Total/NA	Water	9056	
LCS 680-246632/3	Lab Control Sample	Total/NA	Water	9056	
LCSD 680-246632/4	Lab Control Sample Dup	Total/NA	Water	9056	
MB 680-246632/2	Method Blank	Total/NA	Water	9056	

Lab Chronicle

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Client Sample ID: ABLMW06F003 — Lab Sample ID: 680-81627-1

Date Collected: 07/30/12 13:05 — **Matrix: Water**
Date Received: 08/01/12 09:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			43987	08/06/12 15:02	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246133	08/08/12 11:54	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246632	08/13/12 21:45	PAT	TAL SAV

Client Sample ID: ABLMW02F003 — Lab Sample ID: 680-81627-2

Date Collected: 07/30/12 16:00 — **Matrix: Water**
Date Received: 08/01/12 09:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			43987	08/06/12 15:03	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246133	08/08/12 12:11	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246632	08/13/12 21:58	PAT	TAL SAV

Client Sample ID: ABLMW4F003 — Lab Sample ID: 680-81627-3

Date Collected: 07/31/12 10:05 — **Matrix: Water**
Date Received: 08/01/12 09:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			43987	08/06/12 15:05	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246133	08/08/12 12:27	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246632	08/13/12 22:10	PAT	TAL SAV

Client Sample ID: ABLMW5F003 — Lab Sample ID: 680-81627-4

Date Collected: 07/31/12 12:50 — **Matrix: Water**
Date Received: 08/01/12 09:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			43987	08/06/12 15:06	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246133	08/08/12 12:44	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246632	08/13/12 22:22	PAT	TAL SAV

Client Sample ID: ABLMW3F003 — Lab Sample ID: 680-81627-5

Date Collected: 07/31/12 15:10 — **Matrix: Water**
Date Received: 08/01/12 09:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			43987	08/06/12 15:08	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246133	08/08/12 13:00	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246632	08/13/12 23:00	PAT	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Client Sample ID: ABLMW3D003

Lab Sample ID: 680-81627-6

Date Collected: 07/31/12 15:15

Matrix: Water

Date Received: 08/01/12 09:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			43987	08/06/12 15:09	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246133	08/08/12 13:17	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246632	08/13/12 23:12	PAT	TAL SAV

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 54434

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location: PETT FOR FREE CN

Phone:
Fax:

PROJECT REFERENCE: ABL CMS GW	PROJECT NO.	PROJECT LOCATION (STATE): NC
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER: 137-177	CONTRACT NO.
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 7814939805	CLIENT FAX: 7814939807
CLIENT NAME: ENVIRONMENTAL INC	CLIENT E-MAIL: mworden@environmentalinc.com	
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 258 HOUSTON TX 77079		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE ___ OF ___

STANDARD REPORT DELIVERY: X

DATE DUE ___

EXPEDITED REPORT DELIVERY (SURCHARGE): ○

DATE DUE ___

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

REQUIRED ANALYSIS / NUMBER OF CONTAINERS SUBMITTED

	Fluoride (4500)	Free CN (1677)	TOC (9060)
PRESERVATIVE	NaOH	HCl	

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	Fluoride (4500)	Free CN (1677)	TOC (9060)	REMARKS
7/30/12	1305	ABLMW06F003	G	X							
7/30/12	1600	ABLMW02F003	G	X							
7/31/12	1005	ABLMW4F003	G	X							
7/31/12	1250	ABLMW5F003	G	X							
7/31/12	1510	ABLMW3F003	G	X							
7/31/12	1515	ABLMW3D003	G	X							
		ABL									
		ABL									
		ABL									
		ABL									
		ABL									
		ABL									

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	7/31/12	600PM						

RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
FEDEX-Concord	7/31/12	600PM						

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	08/01/12	0938	YES ○ NO ○		680-81627	5.1°

TAL 8240-680 (1008)

Login Sample Receipt Checklist

Client: Environeering Inc

Job Number: 680-81627-1

Login Number: 81627
List Number: 1
Creator: Barnett, Eddie T

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Environeering Inc

Job Number: 680-81627-1

Login Number: 81627
List Number: 1
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh
List Creation: 08/02/12 12:42 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	08-15-12
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-12
Guam	State Program	9	09-005r	04-17-12
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-12
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-12
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-12
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-12
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-12
USDA	Federal		SAV 3-04	04-07-14
Vermont	State Program	1	87052	11-16-12
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-12
Wyoming	State Program	8	8TMS-Q	06-30-12

Laboratory: TestAmerica Pittsburgh

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Certification Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81627-1

Laboratory: TestAmerica Pittsburgh (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-13
California	NELAC	9	4224CA	03-31-13
Connecticut	State Program	1	PH-0688	09-30-12
Florida	NELAC	4	E871008	06-30-13
Illinois	NELAC	5	002602	06-30-13
Kansas	NELAC	7	E-10350	01-31-13
L-A-B	DoD ELAP		L2314	02-24-13
Louisiana	NELAC	6	04041	06-30-13
New Hampshire	NELAC	1	203011	04-04-13
New Jersey	NELAC	2	PA005	06-30-13
New York	NELAC	2	11182	04-01-13
North Carolina DENR	State Program	4	434	12-31-12
Pennsylvania	NELAC	3	02-00416	04-30-13
South Carolina	State Program	4	89014	04-30-13
USDA	Federal		P-Soil-01	04-16-15
USDA	Federal		P330-10-00139	04-28-13
Utah	NELAC	8	STLP	04-30-13
Virginia	NELAC	3	460189	09-14-12
West Virginia DEP	State Program	3	142	01-31-13
Wisconsin	State Program	5	998027800	08-31-12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-81759-1
Client Project/Site: ABL CMS GW

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
8/17/2012 3:23:31 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Job ID: 680-81759-1

Laboratory: TestAmerica Savannah

Narrative

Job Narrative

CASE NARRATIVE

Client: Environeering Inc

Project: ABL CMS GW

Report Number: 680-81759-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 08/04/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.1 and 1.4 C.

CYANIDE
Samples ABLMW1F003 (680-81759-1), ABLPZ15F003 (680-81759-2), ABLPZ16F003 (680-81759-3), ABLPZ16D003 (680-81759-4), ABLPZ17F003 (680-81759-5), ABLPZ18F003 (680-81759-6) and ABLEB01F003 (680-81759-7) were analyzed for cyanide in accordance with Available Cyanide. The samples were analyzed on 08/10/2012.

Available cyanide was detected in method blank MB 180-44609/34 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been “B” flagged.

Refer to the QC report for details.

No other difficulties were encountered during the cyanide analyses.

All other quality control parameters were within the acceptance limits.

ANIONS
Samples ABLMW1F003 (680-81759-1), ABLPZ15F003 (680-81759-2), ABLPZ16F003 (680-81759-3), ABLPZ16D003 (680-81759-4), ABLPZ17F003 (680-81759-5), ABLPZ18F003 (680-81759-6), ABLEB01F003 (680-81759-7) and TRIP BLANK (680-81759-8) were analyzed for anions in accordance with EPA SW-846 Method 9056. The samples were analyzed on 08/15/2012 and 08/16/2012.

Samples ABLMW1F003 (680-81759-1)[5X], ABLPZ15F003 (680-81759-2)[10X], ABLPZ16F003 (680-81759-3)[5X], ABLPZ16D003 (680-81759-4)[5X], ABLPZ17F003 (680-81759-5)[10X], ABLPZ18F003 (680-81759-6)[5X], ABLEB01F003 (680-81759-7)[5X] and TRIP BLANK (680-81759-8)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analyses.

All quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON
Samples ABLMW1F003 (680-81759-1), ABLPZ15F003 (680-81759-2), ABLPZ16F003 (680-81759-3), ABLPZ16D003 (680-81759-4),

Job ID: 680-81759-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

ABLPZ17F003 (680-81759-5), ABLPZ18F003 (680-81759-6), ABLEB01F003 (680-81759-7) and TRIP BLANK (680-81759-8) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 08/10/2012 and 08/11/2012.

No difficulties were encountered during the TOC analyses.

All quality control parameters were within the acceptance limits.

Sample Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-81759-1	ABLMW1F003	Water	08/03/12 08:10	08/04/12 10:38
680-81759-2	ABLPZ15F003	Water	08/03/12 09:25	08/04/12 10:38
680-81759-3	ABLPZ16F003	Water	08/03/12 12:15	08/04/12 10:38
680-81759-4	ABLPZ16D003	Water	08/03/12 12:25	08/04/12 10:38
680-81759-5	ABLPZ17F003	Water	08/03/12 15:00	08/04/12 10:38
680-81759-6	ABLPZ18F003	Water	08/03/12 19:15	08/04/12 10:38
680-81759-7	ABLEB01F003	Water	08/03/12 10:15	08/04/12 10:38
680-81759-8	TRIP BLANK	Water	08/03/12 00:00	08/04/12 10:38

Method Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Method	Method Description	Protocol	Laboratory
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9056	Anions, Ion Chromatography	SW846	TAL SAV
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Definitions/Glossary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Client Sample ID: ABLMW1F003 — Lab Sample ID: 680-81759-1

Date Collected: 08/03/12 08:10 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.0010	J B	0.0020	0.00030	mg/L			08/10/12 12:34	1
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 05:45	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/10/12 22:11	1

Client Sample ID: ABLPZ15F003 — Lab Sample ID: 680-81759-2

Date Collected: 08/03/12 09:25 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/10/12 14:08	1
Fluoride	51		2.0	0.40	mg/L			08/15/12 11:01	10
Total Organic Carbon	11		1.0	0.50	mg/L			08/10/12 22:28	1

Client Sample ID: ABLPZ16F003 — Lab Sample ID: 680-81759-3

Date Collected: 08/03/12 12:15 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.0040		0.0020	0.00030	mg/L			08/10/12 14:10	1
Fluoride	11		1.0	0.20	mg/L			08/15/12 11:13	5
Total Organic Carbon	2.6		1.0	0.50	mg/L			08/10/12 22:46	1

Client Sample ID: ABLPZ16D003 — Lab Sample ID: 680-81759-4

Date Collected: 08/03/12 12:25 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.0010	J	0.0020	0.00030	mg/L			08/10/12 14:11	1
Fluoride	10		1.0	0.20	mg/L			08/15/12 11:26	5
Total Organic Carbon	2.4		1.0	0.50	mg/L			08/10/12 23:05	1

Client Sample ID: ABLPZ17F003 — Lab Sample ID: 680-81759-5

Date Collected: 08/03/12 15:00 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/10/12 14:13	1
Fluoride	68		2.0	0.40	mg/L			08/16/12 12:13	10
Total Organic Carbon	5.3		1.0	0.50	mg/L			08/10/12 23:21	1

Client Sample ID: ABLPZ18F003 — Lab Sample ID: 680-81759-6

Date Collected: 08/03/12 19:15 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.0010	J	0.0020	0.00030	mg/L			08/10/12 14:14	1
Fluoride	25		1.0	0.20	mg/L			08/15/12 11:50	5

Client Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Client Sample ID: ABLPZ18F003

Lab Sample ID: 680-81759-6
Date Collected: 08/03/12 19:15
Matrix: Water
Date Received: 08/04/12 10:38

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	11		1.0	0.50	mg/L			08/10/12 23:40	1

Client Sample ID: ABLEB01F003

Lab Sample ID: 680-81759-7
Date Collected: 08/03/12 10:15
Matrix: Water
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/10/12 14:16	1
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 12:28	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/11/12 00:47	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-81759-8
Date Collected: 08/03/12 00:00
Matrix: Water
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.25	J	1.0	0.20	mg/L			08/15/12 12:40	5
Total Organic Carbon	0.51	J	1.0	0.50	mg/L			08/11/12 01:04	1

QC Sample Results

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-44609/34 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.00200		0.0020	0.00030	mg/L			08/10/12 12:19	1

Lab Sample ID: MB 180-44609/76 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/10/12 14:07	1

Lab Sample ID: LCS 180-44609/32 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.0970		mg/L		97	82 - 132

Lab Sample ID: LCS 180-44609/74 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.0970		mg/L		97	82 - 132

Lab Sample ID: LCSD 180-44609/33 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.100		mg/L		100	82 - 132	3	20

Lab Sample ID: LCSD 180-44609/75 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.0980		mg/L		98	82 - 132	1	20

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 680-246731/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246731

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 01:00	5

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 680-246731/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246731

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.4		mg/L		104	90 - 110

Lab Sample ID: LCSD 680-246731/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246731

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.4		mg/L		104	90 - 110	0	30

Lab Sample ID: MB 680-246784/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246784

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 10:24	5

Lab Sample ID: LCS 680-246784/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246784

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.5		mg/L		105	90 - 110

Lab Sample ID: LCSD 680-246784/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246784

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.5		mg/L		105	90 - 110	0	30

Lab Sample ID: 680-81759-6 MS — **Client Sample ID: ABLPZ18F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246784

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	25		10.0	34.5		mg/L		96	90 - 110

Lab Sample ID: 680-81759-6 MSD — **Client Sample ID: ABLPZ18F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246784

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	25		10.0	34.4		mg/L		95	90 - 110	0	30

Lab Sample ID: MB 680-246892/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246892

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			08/16/12 10:34	5

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 680-246892/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246892

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 680-246892/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246892

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.3		mg/L		103	90 - 110	0	30

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-246445/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246445

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/10/12 17:33	1

Lab Sample ID: LCS 680-246445/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	20.6		mg/L		103	80 - 120

Lab Sample ID: 680-81759-6 DU — **Client Sample ID: ABLPZ18F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246445

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	11		11.0		mg/L		2	25

General Chemistry

Analysis Batch: 44609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81759-1	ABLMW1F003	Total/NA	Water	1677	
680-81759-2	ABLPZ15F003	Total/NA	Water	1677	
680-81759-3	ABLPZ16F003	Total/NA	Water	1677	
680-81759-4	ABLPZ16D003	Total/NA	Water	1677	
680-81759-5	ABLPZ17F003	Total/NA	Water	1677	
680-81759-6	ABLPZ18F003	Total/NA	Water	1677	
680-81759-7	ABLEB01F003	Total/NA	Water	1677	
LCS 180-44609/32	Lab Control Sample	Total/NA	Water	1677	
LCS 180-44609/74	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-44609/33	Lab Control Sample Dup	Total/NA	Water	1677	
LCSD 180-44609/75	Lab Control Sample Dup	Total/NA	Water	1677	
MB 180-44609/34	Method Blank	Total/NA	Water	1677	
MB 180-44609/76	Method Blank	Total/NA	Water	1677	

Analysis Batch: 246445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81759-1	ABLMW1F003	Total/NA	Water	9060	
680-81759-2	ABLPZ15F003	Total/NA	Water	9060	
680-81759-3	ABLPZ16F003	Total/NA	Water	9060	
680-81759-4	ABLPZ16D003	Total/NA	Water	9060	
680-81759-5	ABLPZ17F003	Total/NA	Water	9060	
680-81759-6	ABLPZ18F003	Total/NA	Water	9060	
680-81759-6 DU	ABLPZ18F003	Total/NA	Water	9060	
680-81759-7	ABLEB01F003	Total/NA	Water	9060	
680-81759-8	TRIP BLANK	Total/NA	Water	9060	
LCS 680-246445/4	Lab Control Sample	Total/NA	Water	9060	
MB 680-246445/2	Method Blank	Total/NA	Water	9060	

Analysis Batch: 246731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81759-1	ABLMW1F003	Total/NA	Water	9056	
LCS 680-246731/3	Lab Control Sample	Total/NA	Water	9056	
LCSD 680-246731/4	Lab Control Sample Dup	Total/NA	Water	9056	
MB 680-246731/2	Method Blank	Total/NA	Water	9056	

Analysis Batch: 246784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81759-2	ABLPZ15F003	Total/NA	Water	9056	
680-81759-3	ABLPZ16F003	Total/NA	Water	9056	
680-81759-4	ABLPZ16D003	Total/NA	Water	9056	
680-81759-6	ABLPZ18F003	Total/NA	Water	9056	
680-81759-6 MS	ABLPZ18F003	Total/NA	Water	9056	
680-81759-6 MSD	ABLPZ18F003	Total/NA	Water	9056	
680-81759-7	ABLEB01F003	Total/NA	Water	9056	
680-81759-8	TRIP BLANK	Total/NA	Water	9056	
LCS 680-246784/3	Lab Control Sample	Total/NA	Water	9056	
LCSD 680-246784/4	Lab Control Sample Dup	Total/NA	Water	9056	
MB 680-246784/2	Method Blank	Total/NA	Water	9056	

Analysis Batch: 246892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81759-5	ABLPZ17F003	Total/NA	Water	9056	

General Chemistry (Continued)

Analysis Batch: 246892 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-246892/3	Lab Control Sample	Total/NA	Water	9056	
LCSD 680-246892/4	Lab Control Sample Dup	Total/NA	Water	9056	
MB 680-246892/2	Method Blank	Total/NA	Water	9056	

Lab Chronicle

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Client Sample ID: ABLMW1F003 — Lab Sample ID: 680-81759-1

Date Collected: 08/03/12 08:10 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 12:34	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/10/12 22:11	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246731	08/15/12 05:45	PAT	TAL SAV

Client Sample ID: ABLPZ15F003 — Lab Sample ID: 680-81759-2

Date Collected: 08/03/12 09:25 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:08	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/10/12 22:28	JR	TAL SAV
Total/NA	Analysis	9056		10	1 mL	5 mL	246784	08/15/12 11:01	PAT	TAL SAV

Client Sample ID: ABLPZ16F003 — Lab Sample ID: 680-81759-3

Date Collected: 08/03/12 12:15 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:10	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/10/12 22:46	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 11:13	PAT	TAL SAV

Client Sample ID: ABLPZ16D003 — Lab Sample ID: 680-81759-4

Date Collected: 08/03/12 12:25 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:11	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/10/12 23:05	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 11:26	PAT	TAL SAV

Client Sample ID: ABLPZ17F003 — Lab Sample ID: 680-81759-5

Date Collected: 08/03/12 15:00 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:13	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/10/12 23:21	JR	TAL SAV
Total/NA	Analysis	9056		10	1 mL	5 mL	246892	08/16/12 12:13	PAT	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Client Sample ID: ABLPZ18F003

Lab Sample ID: 680-81759-6

Date Collected: 08/03/12 19:15
Matrix: Water
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:14	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/10/12 23:40	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 11:50	PAT	TAL SAV

Client Sample ID: ABLEB01F003

Lab Sample ID: 680-81759-7

Date Collected: 08/03/12 10:15
Matrix: Water
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:16	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/11/12 00:47	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 12:28	PAT	TAL SAV

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-81759-8

Date Collected: 08/03/12 00:00
Matrix: Water
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/11/12 01:04	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 12:40	PAT	TAL SAV

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 37053

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location: PITT FOR FREE CN

Phone:
Fax:

PROJECT REFERENCE: ABL CMS GW	PROJECT NO.	PROJECT LOCATION (STATE): NC
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER: 137-177	CONTRACT NO.
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 7814939005	CLIENT FAX: 7814939007
CLIENT NAME: ENVIRONSERVICE	CLIENT E-MAIL: mworden@environservicesinc.com	
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079		
COMPANY CONTRACTING THIS WORK (if applicable)		

PAGE 1 OF 1

STANDARD REPORT DELIVERY ☒

DATE DUE _____

EXPEDITED REPORT DELIVERY (SURCHARGE) ○

DATE DUE _____

NUMBER OF COOLERS SUBMITTED PER SHIPMENT: 1

REQUIRED ANALYSIS

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	Cyanide (9056)	Free CN (16377)	TOC (9060)	REMARKS
		PRESERVATIVE						NaOH	HCl		
8/2/12	810	ABLMW1F003	G	X				1	1	1	
8/2/12	925	ABLP215F003	G	X				1	1	1	
8/1/12	1215	ABLP216F003	G	X				1	1	1	
8/1/12	1225	ABLP216D003	G	X				1	1	1	
8/1/12	1500	ABLP217F003	G	X				1	1	1	
8/1/12	1915	ABLP218F003	G	X				1	1	1	
8/2/12	1015	ABLEB01F003	G	X				1	1	1	
		TRIP BLANK	G	X				1		1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	8/3/12	625PM	[signature]	8/3/12	1900			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
[signature]	8/3/12	625PM	FEDEX	8/3/12	1900			

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
George K Comey	8/4/12	1033	YES ○ NO ○		680-81759	3.1/1.4°C

Page 16 of 20

8/17/2012

Login Sample Receipt Checklist

Client: Environeering Inc

Job Number: 680-81759-1

Login Number: 81759
List Number: 1
Creator: Conner, Keaton

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Environeering Inc

Job Number: 680-81759-1

Login Number: 81759
List Number: 1
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh
List Creation: 08/07/12 12:24 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	08-15-12
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-12
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-12
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-12
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-12
USDA	Federal		SAV 3-04	04-07-14
Vermont	State Program	1	87052	11-16-12
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-12
Wyoming	State Program	8	8TMS-Q	06-30-13

Laboratory: TestAmerica Pittsburgh

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Certification Summary

Client: Environeering Inc
Project/Site: ABL CMS GW

TestAmerica Job ID: 680-81759-1

Laboratory: TestAmerica Pittsburgh (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-13
California	NELAC	9	4224CA	03-31-13
Connecticut	State Program	1	PH-0688	09-30-12
Florida	NELAC	4	E871008	06-30-13
Illinois	NELAC	5	002602	06-30-13
Kansas	NELAC	7	E-10350	01-31-13
L-A-B	DoD ELAP		L2314	02-24-13
Louisiana	NELAC	6	04041	06-30-13
New Hampshire	NELAC	1	203011	04-04-13
New Jersey	NELAC	2	PA005	06-30-13
New York	NELAC	2	11182	04-01-13
North Carolina DENR	State Program	4	434	12-31-12
Pennsylvania	NELAC	3	02-00416	04-30-13
South Carolina	State Program	4	89014	04-30-13
USDA	Federal		P-Soil-01	04-16-15
USDA	Federal		P330-10-00139	04-28-13
Utah	NELAC	8	STLP	04-30-13
Virginia	NELAC	3	460189	09-14-12
West Virginia DEP	State Program	3	142	01-31-13
Wisconsin	State Program	5	998027800	08-31-12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-81759-2
Client Project/Site: OBL CMS GW

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
8/16/2012 4:54:54 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Job ID: 680-81759-2

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Environeering Inc

Project: OBL CMS GW

Report Number: 680-81759-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 08/04/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.8, 1.8 C.

CYANIDE
Samples OBLMW02F003 (680-81759-9), OBLMW03F003 (680-81759-10), OBLMW04F003 (680-81759-11), OBLMW05F003 (680-81759-12), OBLMW06F003 (680-81759-13), OBLMW04P003 (680-81759-14) and OBLEB01F003 (680-81759-15) were analyzed for cyanide in accordance with Available Cyanide. The samples were analyzed on 08/10/2012.

Available cyanide was detected in method blank MB 180-44609/92 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged “J”. If the associated sample reported a result above the MDL and/or RL, the result has been “B” flagged.

Refer to the QC report for details.

No other difficulties were encountered during the cyanide analyses.

All other quality control parameters were within the acceptance limits.

ANIONS
Samples OBLMW02F003 (680-81759-9), OBLMW03F003 (680-81759-10), OBLMW04F003 (680-81759-11), OBLMW05F003 (680-81759-12), OBLMW06F003 (680-81759-13), OBLMW04P003 (680-81759-14), OBLEB01F003 (680-81759-15) and TRIP BLANK (680-81759-16) were analyzed for anions in accordance with EPA SW-846 Method 9056. The samples were analyzed on 08/15/2012.

Samples OBLMW02F003 (680-81759-9)[5X], OBLMW03F003 (680-81759-10)[5X], OBLMW04F003 (680-81759-11)[5X], OBLMW05F003 (680-81759-12)[5X], OBLMW06F003 (680-81759-13)[5X], OBLMW04P003 (680-81759-14)[5X], OBLEB01F003 (680-81759-15)[5X] and TRIP BLANK (680-81759-16)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analyses.

All quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON
Samples OBLMW02F003 (680-81759-9), OBLMW03F003 (680-81759-10), OBLMW04F003 (680-81759-11), OBLMW05F003

Job ID: 680-81759-2 (Continued)

Laboratory: TestAmerica Savannah (Continued)

(680-81759-12), OBLMW06F003 (680-81759-13), OBLMW04P003 (680-81759-14), OBLEB01F003 (680-81759-15) and TRIP BLANK (680-81759-16) were analyzed for total organic carbon in accordance with EPA SW-846 Method 9060. The samples were analyzed on 08/11/2012.

No difficulties were encountered during the TOC analyses.

All quality control parameters were within the acceptance limits.

Sample Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-81759-9	OBLMW02F003	Water	08/03/12 09:25	08/04/12 10:38
680-81759-10	OBLMW03F003	Water	08/03/12 12:00	08/04/12 10:38
680-81759-11	OBLMW04F003	Water	08/03/12 12:50	08/04/12 10:38
680-81759-12	OBLMW05F003	Water	08/03/12 14:30	08/04/12 10:38
680-81759-13	OBLMW06F003	Water	08/03/12 14:35	08/04/12 10:38
680-81759-14	OBLMW04P003	Water	08/03/12 13:00	08/04/12 10:38
680-81759-15	OBLEB01F003	Water	08/03/12 15:20	08/04/12 10:38
680-81759-16	TRIP BLANK	Water	08/03/12 00:00	08/04/12 10:38

Method Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

Method	Method Description	Protocol	Laboratory
1677	Cyanide, Available (Flow Injection)	EPA	TAL PIT
9056	Anions, Ion Chromatography	SW846	TAL SAV
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

Client Sample ID: OBLMW02F003 — Lab Sample ID: 680-81759-9

Date Collected: 08/03/12 09:25 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.031		0.0020	0.00030	mg/L			08/10/12 14:17	1
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 12:52	5
Total Organic Carbon	3.8		1.0	0.50	mg/L			08/11/12 01:20	1

Client Sample ID: OBLMW03F003 — Lab Sample ID: 680-81759-10

Date Collected: 08/03/12 12:00 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.014		0.0020	0.00030	mg/L			08/10/12 14:19	1
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 13:30	5
Total Organic Carbon	0.57	J	1.0	0.50	mg/L			08/11/12 01:39	1

Client Sample ID: OBLMW04F003 — Lab Sample ID: 680-81759-11

Date Collected: 08/03/12 12:50 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.022		0.0020	0.00030	mg/L			08/10/12 14:20	1
Fluoride	0.56	J	1.0	0.20	mg/L			08/15/12 13:42	5
Total Organic Carbon	1.3		1.0	0.50	mg/L			08/11/12 01:57	1

Client Sample ID: OBLMW05F003 — Lab Sample ID: 680-81759-12

Date Collected: 08/03/12 14:30 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.0010	J	0.0020	0.00030	mg/L			08/10/12 14:22	1
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 13:54	5
Total Organic Carbon	0.71	J	1.0	0.50	mg/L			08/11/12 02:16	1

Client Sample ID: OBLMW06F003 — Lab Sample ID: 680-81759-13

Date Collected: 08/03/12 14:35 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.0010	J B	0.0020	0.00030	mg/L			08/10/12 14:33	1
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 14:07	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/11/12 02:50	1

Client Sample ID: OBLMW04P003 — Lab Sample ID: 680-81759-14

Date Collected: 08/03/12 13:00 — **Matrix: Water**
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.017	B	0.0020	0.00030	mg/L			08/10/12 14:34	1
Fluoride	0.56	J	1.0	0.20	mg/L			08/15/12 14:19	5

Client Sample Results

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

Client Sample ID: OBLMW04P003

Lab Sample ID: 680-81759-14

Date Collected: 08/03/12 13:00
Matrix: Water
Date Received: 08/04/12 10:38

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.1		1.0	0.50	mg/L			08/11/12 04:15	1

Client Sample ID: OBLEB01F003

Lab Sample ID: 680-81759-15

Date Collected: 08/03/12 15:20
Matrix: Water
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.0010	J B	0.0020	0.00030	mg/L			08/10/12 14:36	1
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 14:32	5
Total Organic Carbon	0.50	J	1.0	0.50	mg/L			08/11/12 04:31	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-81759-16

Date Collected: 08/03/12 00:00
Matrix: Water
Date Received: 08/04/12 10:38

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.26	J	1.0	0.20	mg/L			08/15/12 14:44	5
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/11/12 04:48	1

QC Sample Results

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

Method: 1677 - Cyanide, Available (Flow Injection)

Lab Sample ID: MB 180-44609/76 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	<0.00030		0.0020	0.00030	mg/L			08/10/12 14:07	1

Lab Sample ID: MB 180-44609/92 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Available cyanide	0.00100	J	0.0020	0.00030	mg/L			08/10/12 14:31	1

Lab Sample ID: LCS 180-44609/74 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.0970		mg/L		97	82 - 132

Lab Sample ID: LCS 180-44609/90 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Available cyanide	0.100	0.0990		mg/L		99	82 - 132

Lab Sample ID: LCSD 180-44609/75 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.0980		mg/L		98	82 - 132	1	20

Lab Sample ID: LCSD 180-44609/91 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 44609

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Available cyanide	0.100	0.106		mg/L		106	82 - 132	7	20

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 680-246784/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246784

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.20		1.0	0.20	mg/L			08/15/12 10:24	5

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 680-246784/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246784

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.5		mg/L		105	90 - 110

Lab Sample ID: LCSD 680-246784/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246784

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.5		mg/L		105	90 - 110	0	30

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-246445/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246445

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/10/12 17:33	1

Lab Sample ID: LCS 680-246445/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	20.6		mg/L		103	80 - 120

Lab Sample ID: MB 680-246447/26 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246447

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/11/12 00:31	1

Lab Sample ID: LCS 680-246447/33 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246447

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	20.8		mg/L		104	80 - 120

Lab Sample ID: 680-81759-13 MS — **Client Sample ID: OBLMW06F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246447

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	<0.50		20.0	21.1		mg/L		106	80 - 120

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 680-81759-13 MSD
Matrix: Water
Analysis Batch: 246447

Client Sample ID: OBLMW06F003
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	<0.50		20.0	20.9		mg/L		104	80 - 120	1	25

QC Association Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

General Chemistry

Analysis Batch: 44609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81759-9	OBLMW02F003	Total/NA	Water	1677	
680-81759-10	OBLMW03F003	Total/NA	Water	1677	
680-81759-11	OBLMW04F003	Total/NA	Water	1677	
680-81759-12	OBLMW05F003	Total/NA	Water	1677	
680-81759-13	OBLMW06F003	Total/NA	Water	1677	
680-81759-14	OBLMW04P003	Total/NA	Water	1677	
680-81759-15	OBLEB01F003	Total/NA	Water	1677	
LCS 180-44609/74	Lab Control Sample	Total/NA	Water	1677	
LCS 180-44609/90	Lab Control Sample	Total/NA	Water	1677	
LCSD 180-44609/75	Lab Control Sample Dup	Total/NA	Water	1677	
LCSD 180-44609/91	Lab Control Sample Dup	Total/NA	Water	1677	
MB 180-44609/76	Method Blank	Total/NA	Water	1677	
MB 180-44609/92	Method Blank	Total/NA	Water	1677	

Analysis Batch: 246445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81759-9	OBLMW02F003	Total/NA	Water	9060	
680-81759-10	OBLMW03F003	Total/NA	Water	9060	
680-81759-11	OBLMW04F003	Total/NA	Water	9060	
680-81759-12	OBLMW05F003	Total/NA	Water	9060	
LCS 680-246445/4	Lab Control Sample	Total/NA	Water	9060	
MB 680-246445/2	Method Blank	Total/NA	Water	9060	

Analysis Batch: 246447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81759-13	OBLMW06F003	Total/NA	Water	9060	
680-81759-13 MS	OBLMW06F003	Total/NA	Water	9060	
680-81759-13 MSD	OBLMW06F003	Total/NA	Water	9060	
680-81759-14	OBLMW04P003	Total/NA	Water	9060	
680-81759-15	OBLEB01F003	Total/NA	Water	9060	
680-81759-16	TRIP BLANK	Total/NA	Water	9060	
LCS 680-246447/33	Lab Control Sample	Total/NA	Water	9060	
MB 680-246447/26	Method Blank	Total/NA	Water	9060	

Analysis Batch: 246784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81759-9	OBLMW02F003	Total/NA	Water	9056	
680-81759-10	OBLMW03F003	Total/NA	Water	9056	
680-81759-11	OBLMW04F003	Total/NA	Water	9056	
680-81759-12	OBLMW05F003	Total/NA	Water	9056	
680-81759-13	OBLMW06F003	Total/NA	Water	9056	
680-81759-14	OBLMW04P003	Total/NA	Water	9056	
680-81759-15	OBLEB01F003	Total/NA	Water	9056	
680-81759-16	TRIP BLANK	Total/NA	Water	9056	
LCS 680-246784/3	Lab Control Sample	Total/NA	Water	9056	
LCSD 680-246784/4	Lab Control Sample Dup	Total/NA	Water	9056	
MB 680-246784/2	Method Blank	Total/NA	Water	9056	

Lab Chronicle

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

Client Sample ID: OBLMW02F003 — Lab Sample ID: 680-81759-9

Date Collected: 08/03/12 09:25 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:17	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/11/12 01:20	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 12:52	PAT	TAL SAV

Client Sample ID: OBLMW03F003 — Lab Sample ID: 680-81759-10

Date Collected: 08/03/12 12:00 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:19	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/11/12 01:39	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 13:30	PAT	TAL SAV

Client Sample ID: OBLMW04F003 — Lab Sample ID: 680-81759-11

Date Collected: 08/03/12 12:50 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:20	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/11/12 01:57	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 13:42	PAT	TAL SAV

Client Sample ID: OBLMW05F003 — Lab Sample ID: 680-81759-12

Date Collected: 08/03/12 14:30 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:22	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246445	08/11/12 02:16	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 13:54	PAT	TAL SAV

Client Sample ID: OBLMW06F003 — Lab Sample ID: 680-81759-13

Date Collected: 08/03/12 14:35 — **Matrix: Water**
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:33	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246447	08/11/12 02:50	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 14:07	PAT	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

Client Sample ID: OBLMW04P003

Lab Sample ID: 680-81759-14

Date Collected: 08/03/12 13:00
Matrix: Water
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:34	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246447	08/11/12 04:15	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 14:19	PAT	TAL SAV

Client Sample ID: OBLEB01F003

Lab Sample ID: 680-81759-15

Date Collected: 08/03/12 15:20
Matrix: Water
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1677		1			44609	08/10/12 14:36	PJ	TAL PIT
Total/NA	Analysis	9060		1	25 mL	25 mL	246447	08/11/12 04:31	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 14:32	PAT	TAL SAV

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-81759-16

Date Collected: 08/03/12 00:00
Matrix: Water
Date Received: 08/04/12 10:38

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	25 mL	25 mL	246447	08/11/12 04:48	JR	TAL SAV
Total/NA	Analysis	9056		5	1 mL	5 mL	246784	08/15/12 14:44	PAT	TAL SAV

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 37041

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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Phone:
Fax:

PROJECT REFERENCE: OBL CMS GW	PROJECT NO.	PROJECT LOCATION (STATE): NC	PAGE 1 OF 1
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER: 157-177	CONTRACT NO.	STANDARD REPORT DELIVERY ☒
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 2814939605	CLIENT FAX: 2814939607	DATE DUE
CLIENT NAME: ENVIRONMENTAL INC	CLIENT E-MAIL: mworden@environmentalinc.com		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS: 810 HWY 6 SOUTH STE 200 HOUSTON TX 77079			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	Fluoride (9056)	Free CN (1677)	TOC (9060)							REMARKS
								NOT PRESERVATIVE									
~~8/3/12~~	~~635AM~~	~~OBL MW01F003~~	~~G~~	~~X~~				WELL DRY NO SAMPLE									
8/3/12	925	OBL MW02F003	G	X				1	1	1							
8/3/12	1200	OBL MW03F003	G	X				1	1	1							
8/2/12	1250	OBL MW04F003	G	X				1	1	1							
8/3/12	1430	OBL MW05F003	G	X				1	1	1							
8/2/12	1435	OBL MW06F003	G	X				1	1	1							
8/2/12	1300	OBL MW04D003	G	X				1	1	1							
8/3/12	1520	OBL EB01F003	G	X				1	1	1							
		TRIP BLANK	G	X				1		1							

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	8/3/12	625PM	[signature]	8/3/12	1900			
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**
[signature]	8/3/12	625PM	FEDEX	8/3/12	1900			

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	8/4/12	1033	YES ○ NO ○		680-81759	3.8/1.8°C

TAL 8240-680 (1008)

Login Sample Receipt Checklist

Client: Environeering Inc

Job Number: 680-81759-2

Login Number: 81759
List Number: 1
Creator: Conner, Keaton

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Environeering Inc

Job Number: 680-81759-2

Login Number: 81759
List Number: 1
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh
List Creation: 08/07/12 12:24 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	08-15-12
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-12
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-12
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-12
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-12
USDA	Federal		SAV 3-04	04-07-14
Vermont	State Program	1	87052	11-16-12
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-12
Wyoming	State Program	8	8TMS-Q	06-30-13

Laboratory: TestAmerica Pittsburgh

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Certification Summary

Client: Environeering Inc
Project/Site: OBL CMS GW

TestAmerica Job ID: 680-81759-2

Laboratory: TestAmerica Pittsburgh (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-13
California	NELAC	9	4224CA	03-31-13
Connecticut	State Program	1	PH-0688	09-30-12
Florida	NELAC	4	E871008	06-30-13
Illinois	NELAC	5	002602	06-30-13
Kansas	NELAC	7	E-10350	01-31-13
L-A-B	DoD ELAP		L2314	02-24-13
Louisiana	NELAC	6	04041	06-30-13
New Hampshire	NELAC	1	203011	04-04-13
New Jersey	NELAC	2	PA005	06-30-13
New York	NELAC	2	11182	04-01-13
North Carolina DENR	State Program	4	434	12-31-12
Pennsylvania	NELAC	3	02-00416	04-30-13
South Carolina	State Program	4	89014	04-30-13
USDA	Federal		P-Soil-01	04-16-15
USDA	Federal		P330-10-00139	04-28-13
Utah	NELAC	8	STLP	04-30-13
Virginia	NELAC	3	460189	09-14-12
West Virginia DEP	State Program	3	142	01-31-13
Wisconsin	State Program	5	998027800	08-31-12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-81839-1
Client Project/Site: Plant CMS GW

For:
Environeering Inc
810 Hwy 6 South
Suite 200
Houston, Texas 77079

Attn: Mr. Mike Worden

Authorized for release by:
8/22/2012 4:48:40 PM

Sheila Hoffman
Project Manager I
sheila.hoffman@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Sample Summary

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-81839-1	ABPF02F003	Water	08/07/12 12:20	08/08/12 09:37
680-81839-2	ABPMW04F003	Water	08/07/12 11:15	08/08/12 09:37
680-81839-3	ABPMW09F003	Water	08/07/12 13:45	08/08/12 09:37
680-81839-4	ABPMW09D009	Water	08/07/12 13:50	08/08/12 09:37
680-81839-5	ABPMW10F003	Water	08/07/12 13:15	08/08/12 09:37
680-81839-6	ABPMW16F003	Water	08/07/12 14:15	08/08/12 09:37
680-81839-7	ABPEB01F003	Water	08/07/12 14:30	08/08/12 09:37
680-81839-8	TRIP BLANK	Water	08/07/12 00:00	08/08/12 09:37

Method Summary

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

Method	Method Description	Protocol	Laboratory
9060	Organic Carbon, Total (TOC)	SW846	TAL SAV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Definitions/Glossary

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

Client Sample ID: ABPF02F003 — Lab Sample ID: 680-81839-1

Date Collected: 08/07/12 12:20
Date Received: 08/08/12 09:37
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.80	J	1.0	0.50	mg/L			08/11/12 05:43	1

Client Sample ID: ABPMW04F003 — Lab Sample ID: 680-81839-2

Date Collected: 08/07/12 11:15
Date Received: 08/08/12 09:37
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.6		1.0	0.50	mg/L			08/11/12 06:00	1

Client Sample ID: ABPMW09F003 — Lab Sample ID: 680-81839-3

Date Collected: 08/07/12 13:45
Date Received: 08/08/12 09:37
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2.0		1.0	0.50	mg/L			08/11/12 06:16	1

Client Sample ID: ABPMW09D009 — Lab Sample ID: 680-81839-4

Date Collected: 08/07/12 13:50
Date Received: 08/08/12 09:37
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.9		1.0	0.50	mg/L			08/11/12 06:33	1

Client Sample ID: ABPMW10F003 — Lab Sample ID: 680-81839-5

Date Collected: 08/07/12 13:15
Date Received: 08/08/12 09:37
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.69	J	1.0	0.50	mg/L			08/21/12 11:52	1

Client Sample ID: ABPMW16F003 — Lab Sample ID: 680-81839-6

Date Collected: 08/07/12 14:15
Date Received: 08/08/12 09:37
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.1		1.0	0.50	mg/L			08/21/12 12:38	1

Client Sample ID: ABPEB01F003 — Lab Sample ID: 680-81839-7

Date Collected: 08/07/12 14:30
Date Received: 08/08/12 09:37
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/21/12 12:55	1

Client Sample Results

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-81839-8

Date Collected: 08/07/12 00:00

Matrix: Water

Date Received: 08/08/12 09:37

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/21/12 13:11	1

QC Sample Results

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-246447/26 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246447

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/11/12 00:31	1

Lab Sample ID: LCS 680-246447/33 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246447

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	20.8		mg/L		104	80 - 120

Lab Sample ID: 680-81839-4 DU — **Client Sample ID: ABPMW09D009**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 246447

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	1.9		1.85		mg/L		1	25

Lab Sample ID: MB 680-247371/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 247371

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			08/21/12 11:19	1

Lab Sample ID: LCS 680-247371/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 247371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	20.1		mg/L		101	80 - 120

Lab Sample ID: 680-81839-5 MS — **Client Sample ID: ABPMW10F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 247371

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	0.69	J	20.0	20.5		mg/L		99	80 - 120

Lab Sample ID: 680-81839-5 MSD — **Client Sample ID: ABPMW10F003**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 247371

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	0.69	J	20.0	20.3		mg/L		98	80 - 120	1	25

QC Association Summary

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

General Chemistry

Analysis Batch: 246447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81839-1	ABPF02F003	Total/NA	Water	9060	
680-81839-2	ABPMW04F003	Total/NA	Water	9060	
680-81839-3	ABPMW09F003	Total/NA	Water	9060	
680-81839-4	ABPMW09D009	Total/NA	Water	9060	
680-81839-4 DU	ABPMW09D009	Total/NA	Water	9060	
LCS 680-246447/33	Lab Control Sample	Total/NA	Water	9060	
MB 680-246447/26	Method Blank	Total/NA	Water	9060	

Analysis Batch: 247371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-81839-5	ABPMW10F003	Total/NA	Water	9060	
680-81839-5 MS	ABPMW10F003	Total/NA	Water	9060	
680-81839-5 MSD	ABPMW10F003	Total/NA	Water	9060	
680-81839-6	ABPMW16F003	Total/NA	Water	9060	
680-81839-7	ABPEB01F003	Total/NA	Water	9060	
680-81839-8	TRIP BLANK	Total/NA	Water	9060	
LCS 680-247371/3	Lab Control Sample	Total/NA	Water	9060	
MB 680-247371/2	Method Blank	Total/NA	Water	9060	

Lab Chronicle

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

Client Sample ID: ABPF02F003 — Lab Sample ID: 680-81839-1

Date Collected: 08/07/12 12:20 — **Matrix: Water**
Date Received: 08/08/12 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	246447	08/11/12 05:43	JR	TAL SAV

Client Sample ID: ABPMW04F003 — Lab Sample ID: 680-81839-2

Date Collected: 08/07/12 11:15 — **Matrix: Water**
Date Received: 08/08/12 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	246447	08/11/12 06:00	JR	TAL SAV

Client Sample ID: ABPMW09F003 — Lab Sample ID: 680-81839-3

Date Collected: 08/07/12 13:45 — **Matrix: Water**
Date Received: 08/08/12 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	246447	08/11/12 06:16	JR	TAL SAV

Client Sample ID: ABPMW09D009 — Lab Sample ID: 680-81839-4

Date Collected: 08/07/12 13:50 — **Matrix: Water**
Date Received: 08/08/12 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	246447	08/11/12 06:33	JR	TAL SAV

Client Sample ID: ABPMW10F003 — Lab Sample ID: 680-81839-5

Date Collected: 08/07/12 13:15 — **Matrix: Water**
Date Received: 08/08/12 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	247371	08/21/12 11:52	JR	TAL SAV

Client Sample ID: ABPMW16F003 — Lab Sample ID: 680-81839-6

Date Collected: 08/07/12 14:15 — **Matrix: Water**
Date Received: 08/08/12 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	247371	08/21/12 12:38	JR	TAL SAV

Client Sample ID: ABPEB01F003 — Lab Sample ID: 680-81839-7

Date Collected: 08/07/12 14:30 — **Matrix: Water**
Date Received: 08/08/12 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	247371	08/21/12 12:55	JR	TAL SAV

Lab Chronicle

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-81839-8

Date Collected: 08/07/12 00:00

Matrix: Water

Date Received: 08/08/12 09:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	247371	08/21/12 13:11	JR	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 51613

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: PLANT CMS GW	PROJECT NO.	PROJECT LOCATION (STATE): NC	PAGE 1 OF 1
TAL (LAB) PROJECT MANAGER: S. HOFFMAN	P.O. NUMBER: 137-177	CONTRACT NO.	STANDARD REPORT DELIVERY ☒
CLIENT (SITE) PM: M. WORDEN	CLIENT PHONE: 281-493-9025	CLIENT FAX: 281-493-9007	DATE DUE
CLIENT NAME: ENVIRONEERING	CLIENT E-MAIL: mworden@environeering.com		EXPEDITED REPORT DELIVERY (SURCHARGE) ○
CLIENT ADDRESS: 510 HWY 16 SOUTH STE 200 HOUSTON TX 77079			DATE DUE
COMPANY CONTRACTING THIS WORK (if applicable)			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

REQUIRED ANALYSIS: TCL/CLP

PRESERVATIVE: HCl

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	NUMBER OF CONTAINERS SUBMITTED	REMARKS
8/7/12	1135	~~ABP MW12 FOOS~~	~~G~~	~~X~~			~~X~~	1 NO SAMPLE	
8/7/12	1220	ABP FO2 FOOS	G	X				1	
8/7/12	1115	ABP MW04 FOOS	G	X				1	
8/7/12	1345	ABP MW09 FOOS	G	X				1	
8/7/12	1350	ABP MW09 D009	G	X				1	
8/7/12	1315	ABP MW10 FOOS	G	X				1	
8/7/12	1415	ABP MW16 FOOS	G	X				1	
8/7/12	1430	ABP EB01 FOOS	G	X				1	
8/7/12		TRIP BLANK	G	X				1	

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	8/7/12	615PM						
RECEIVED BY: (SIGNATURE) FEDEX	DATE 8/7/12	TIME 615PM	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	8/8/12	0937	YES ○ NO ○		680-3089	4.1°C

TAL 8240-680 (1008)

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8/22/2012

Login Sample Receipt Checklist

Client: Environeering Inc

Job Number: 680-81839-1

Login Number: 81839
List Number: 1
Creator: Conner, Keaton

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	False	-4 LABEL READS "D003" NOT "D009"
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Environeering Inc
Project/Site: Plant CMS GW

TestAmerica Job ID: 680-81839-1

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	08-15-12
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-12
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-12
USDA	Federal		SAV 3-04	04-07-14
Vermont	State Program	1	87052	11-16-12
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-12
Wyoming	State Program	8	8TMS-Q	06-30-13

APPENDIX K

ABL WELL MONITORING WELL SAMPLING LOGS

Well Sampling Log

Personnel	W. Ramsey, BHE Environmental, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	MW-1	**Date**	11/14/2011
Screened Interval	35-45' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	44.84'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	21.08' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	13:00
Actual Purge Volume	1.0 gallons	**Time Purging Ended**	14:26

Time	Purge Volume (gal)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:00	Start							21.08	
13:08	0.1	5.54	18.86	92	4.03	203.4	10	21.85	
13:13	0.15	5.56	19.35	93	3.87	20.52	9.48	21.62	
13:18	0.2	5.58	19.93	93	3.79	206.1	8.74	21.55	
13:23	0.25	5.58	20.46	93	3.83	207.9	7.9	21.51	
13:28	0.3	5.58	19.57	94	4.05	209.7	8.38	21.81	
13:38	0.4	5.55	19.26	93	3.66	208.4	6.57	21.68	
13:48	0.5	5.55	19.64	93	3.36	207.7	3.82	21.45	
14:06	0.6	5.56	20.33	93	3.3	206.3	4.95	21.63	
14:11	0.65	5.57	20.33	93	3.3	205.4	4.18	21.56	
14:16	0.7	5.57	20.54	93	3.33	204.3	3.87	21.53	
14:21	0.9	5.58	20.55	93	3.38	204.6	3.06	21.55	
14:26	1	5.56	20.61	93	3.37	206.3	2.39	21.54	
									Sampled: ABLMW1F001 (14:30)

Well Sampling Log

Personnel	W. Ramsey, BHE Environmental, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	MW-2	**Date**	11/15/2011

Screened Interval	37-47' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	53.33'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	30.86' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	8:07
Actual Purge Volume	2.1 gallons	**Time Purging Ended**	9:14

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
8:07	Start							30.86	
8:28	0.3	5.36	17.38	82	1.43	299.6	5.68	31.75	
8:33	0.4	5.36	17.65	82	1.76	334.8	5.47	31.85	
8:38	NM	NM	NM	NM	NM	NM	NM	NM	Regulating flow
8:54	1	5.31	17.81	76	0.56	395.5	1.89	31.8	
8:59	1.3	5.34	17.82	76	0.54	410.9	1.58	31.94	
9:04	1.5	5.34	17.82	75	0.48	424.4	1.4	31.95	
9:09	1.8	5.34	17.88	75	0.44	432.8	1.31	31.96	
9:14	2.1	5.34	17.93	75	0.4	434.1	1.17	31.98	
									Sampled: ABLMW2F001 (09:15)

Well Sampling Log

Personnel	W. Ramsey, BHE Environmental, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	MW-3	**Date**	11/15/2011

Screened Interval	4-14' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	15.27'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	0.22' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	10:16
Actual Purge Volume	6.0 gallons	**Time Purging Ended**	11:30

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
10:16	Start								
10:20	1	5.42	16.4	80	2.16	262.6	303	2.85	
10:25	2	5.44	16.66	80	1.79	260.1	143	2.55	
10:30	2.5	5.47	16.77	81	1.69	254.9	92	2.45	
10:35	3	5.48	16.73	81	1.61	255.1	73.9	2.5	
10:40	3.3	5.48	16.74	81	1.6	253.8	69.5	2.45	
10:45	3.6	5.55	16.84	81	1.95	246.3	54.7	2.45	
10:50	3.9	5.55	16.8	81	1.61	246.7	46	2.45	
10:55	4.1	5.54	16.82	81	1.59	245.1	36.1	2.45	
11:00	4.3	5.56	16.79	81	1.64	241.7	33.2	2.45	
11:05	4.5	5.55	16.85	81	1.58	241.6	26.8	2.45	
11:10	4.7	5.56	16.88	82	1.56	240.1	23.2	2.45	
11:15	5	5.54	16.88	82	1.55	239.3	24.9	2.48	
11:20	5.3	5.54	16.85	82	1.56	239	18.7	2.52	
11:25	5.6	5.55	16.88	81	1.52	238.4	18.8	2.52	
11:30	6	5.55	16.9	82	1.51	237.4	18.8	2.52	
									Sampled: ABLMW3F001 (11:35)

Well Sampling Log

Personnel	W. Ramsey, BHE Environmental, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	MW-4	**Date**	11/15/2011
Screened Interval	4-14' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	16.09'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	2.74' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	13:20
Actual Purge Volume	1.8 gallons	**Time Purging Ended**	14:15

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:20	Start							2.74	
13:25	0.1	6.63	18.46	325	2.26	142.9	54.9	3.43	
13:30	0.15	6.57	17.73	325	6.57	134.3	46.3	3.61	
13:35	NM	NM	NM	NM	NM	NM	NM	NM	
13:40	0.25	6.58	17.27	326	1.05	145	28.2	3.75	
13:45	0.4	6.57	17.24	327	1.33	141.7	22.7	3.85	
13:50	0.5	6.57	17.32	329	0.87	138.9	17.4	3.8	
13:55	0.6	6.57	17.41	330	0.94	138.4	15.4	3.73	
14:00	0.75	6.57	17.5	331	0.93	136.3	13.6	3.74	
14:05	1	6.57	17.47	333	0.94	140.7	12.2	3.74	
14:10	1.4	6.57	17.41	335	0.91	142.9	12.6	3.74	
14:15	1.8	6.57	17.41	337	0.87	145.8	12.2	3.75	
									Sampled: ABLMW4F001 (14:20)
									Sampled: ABLMW4D001 (14:20)

Well Sampling Log

Personnel	W. Ramsey, BHE Environmental, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	MW-5	**Date**	11/15/2011

Screened Interval	4-14' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	14.49'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	3.81' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	15:47
Actual Purge Volume	5.3 gallons	**Time Purging Ended**	18:01

Time	Purge Volume (gal)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
15:47	Start							3.81	
15:56	0.15	6.35	17.44	531	2.73	89.8	667	3.91	
16:01	0.25	6.3	17.31	531	1.35	104.2	312	3.91	
16:06	0.5	6.29	17.16	533	1.22	112.4	187	3.92	
16:11	0.75	6.27	17.17	534	1.15	125.5	147	3.93	
16:16	1	6.28	17.17	536	1.16	134.2	125	3.94	
16:21	1.25	6.28	17.08	537	1.1	140.8	91.6	3.94	
16:26	1.5	6.28	17.05	538	1.1	147.1	81	3.96	
16:31	2	6.28	17.12	539	1.11	150.9	69.6	3.95	
16:36	2.25	6.28	17.11	540	1.08	155.7	68.7	3.95	
16:41	2.5	6.29	17.14	540	1.05	155.6	55.4	3.94	
16:46	2.75	6.29	17.07	541	1.03	156	56	3.95	
16:51	3	6.29	16.95	541	1.06	150.7	62.5	3.95	
16:56	3.25	6.3	16.81	542	3.77	160.4	64.4	3.95	Cleaned cell
17:01	3.5	6.28	16.79	543	1.47	164.1	49.8	3.95	
17:06	3.75	6.28	16.76	543	1.16	169.8	37.2	3.95	
17:11	4	6.29	16.68	543	1.07	172.3	34.2	3.95	
17:16	4.1	6.27	16.62	543	1.08	178.5	30.5	3.94	
17:21	4.25	6.27	16.55	543	1.02	180.5	29.1	3.95	
17:26	4.5	6.27	16.44	544	1.01	184.6	28.6	3.95	
17:31	4.6	6.26	16.36	544	1	186.2	26.3	3.95	
17:36	4.7	6.27	16.3	544	0.99	188.5	25	3.95	
17:41	4.75	6.27	16.21	544	1.01	189.9	24	3.95	
17:46	4.8	6.27	16.13	544	0.98	191.6	23.2	3.95	
17:51	5	6.27	16.1	544	0.99	193	21.8	3.95	
17:56	5.2	6.27	16.05	545	0.99	193.7	20.4	3.95	
18:01	5.3	6.27	16.02	545	0.98	194	19.2	3.95	
									Sampled: ABLMW5F001 (18:06)

Well Sampling Log

Personnel	W. Ramsey, BHE Environmental, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	MW-6	**Date**	11/14/2011

Screened Interval	25-35' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	39.63'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	24.81' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	9:30
Actual Purge Volume	0.55 gallons	**Time Purging Ended**	10:37

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
9:30	Start							24.81	
9:46	NM	5.87	18.96	145	3.42	166	NM	25.33	
9:56	NM	5.81	19.58	136	2.44	201	4.58	26.13	
10:12	0.3	5.77	19.66	123	9.68	254.6	6.87	26.79	
10:22	0.4	5.8	20.15	122	1.48	225.8	3.76	26.88	
10:27	0.45	5.8	20.4	125	1.34	220.5	3.24	26.74	
10:32	0.5	5.81	20.56	126	1.32	215.1	2.99	26.7	
10:37	0.55	5.82	20.83	127	1.31	204.8	3.09	26.65	
									Sampled: ABLMW6F001 (11:00)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	PZ-15	**Date**	11/14/2011

Screened Interval	28-38' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	39.95'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	36.57' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	12:35
Actual Purge Volume	1000 ml	**Time Purging Ended**	14:00

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
12:35	Start							36.57	
12:50	0	NM	NM	NM	NM	NM	NM	37.9	
13:10	200	7.41	21.78	2322	0.94	-75.4	>1000	>38.5	
13:20	400	7.41	21.8	2366	0.31	-78.7	>1000	>38.5	
13:30	600	7.52	22.36	2373	0.23	-77.5	>1000	>38.5	
13:40	800	7.53	23.08	2325	0.24	-69.1	>1000	>38.5	
13:50	1000	7.54	23.12	2375	0.24	-70.1	>1000	>38.5	
14:00	1000	7.59	24.72	2416	0.43	-57	>1000	>38.5	Dry/Recovering
11/15/11									
11:45	N/A	7.5	19.52	2172	0.6	-38.7	>1000	36.91	Sampled: ABLPZ15F001 (11:45)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	PZ-16	**Date**	11/15/2011

Screened Interval	30-40' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	42.9'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	34.11' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	7:55
Actual Purge Volume	3000 ml	**Time Purging Ended**	11:25

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
7:55	Start							34.11	
8:30	0	7.22	17.44	1484	0.2	-80	>1000	34.15	
									Shutdown to return to plant
10:35	0	7.52	21.4	1643	0.41	-90.4	>1000	34.11	
10:40	300	7.25	20	1388	1.61	-64.6	>1000	34.15	
10:45	600	7.35	19.37	1423	0.59	-98.8	>1000	34.17	
10:50	900	7.35	19.2	1388	0.42	-100.4	502	34.15	
10:55	1200	7.31	19.17	1277	0.36	-95.6	211	34.14	
11:00	1500	7.25	19.08	1230	0.38	-82.7	104	34.13	
11:05	1800	7.25	19.1	1204	0.39	-82.9	64.7	34.13	
11:10	2100	7.24	19.15	1190	0.37	-80.5	34.5	34.13	
11:15	2400	7.22	19.13	1187	0.32	-78.1	22.9	34.13	
11:20	2700	7.22	19.15	1187	0.3	-79.1	23.8	34.13	
11:25	3000	7.24	19.2	1187	0.28	-84	20.9	34.13	
									Sampled: ABLPZ16F001 (11:25)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	PZ-17	**Date**	11/15/2011

Screened Interval	19-34' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	36.7'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	31.16' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	12:00
Actual Purge Volume	3700 ml	**Time Purging Ended**	14:20

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
12:00	Start							31.16	
12:20	0	8.59	20.68	4124	1.11	-93.8	>1000	NM	Water level probe malfunction
12:25	100	8.13	20.47	3810	0.77	-144.6	>1000	NM	
12:30	400	7.78	20.21	3413	0.48	-133.1	>1000	NM	
12:35	700	7.57	20	3143	0.28	-128.9	>1000	NM	
12:40	1000	7.53	19.92	3024	0.2	-125.8	791	NM	
12:45	1300	7.62	20.29	3104	0.14	-138.4	819	NM	
12:50	1600	7.73	20.56	3188	0..09	-142.4	>1000	NM	
13:45	1600	7.78	23.7	3408	0.4	-127.7	>1000	NM	
13:50	1900	7.57	20.99	3052	0.64	-100	559	NM	
13:55	2200	7.43	20.12	2838	0.3	-114.8	140	NM	
14:00	2500	7.33	19.84	2734	0.14	-99.6	86.2	NM	
14:05	2800	7.3	19.59	2705	0.1	-97.8	78.6	NM	
14:10	3100	7.31	19.58	2709	0.1	-99.4	26.7	NM	
14:15	3400	7.29	19.69	2724	0.1	-99.5	24.3	NM	
14:20	3700	7.3	19.85	2802	0.1	-99.8	24.9	NM	
									Sampled: ABLPZ17F001 (14:20)
									Sampled: ABLPZ17D001 (14:40)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	Location	Stanly Co, NC
Well Identification	PZ-18	Date	11/16/2011
Screened Interval	2.2-7.2' below land surface (BLS)	Pump Type	0.66" submersible bladder
Total Well Depth	9.95'	Tubing Type	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	6.20' BTOC	Bailer Type	N/A
Well Diameter	1"	String Type	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	Time Purging Started	7:40
Actual Purge Volume	1150 ml	Time Purging Ended	8:35

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
7:40	Start							6.2	
7:55	0	7.05	17.01	1662	1.17	-52.7	57.7	>6.40	
8:00	200	7.32	16.92	1674	0.48	-93	60.2	>6.40	
8:05	400	7.16	17.14	1693	0.51	-97.3	64	>6.40	
8:10	600	7.31	17.27	1690	0.55	-95.3	67.1	>6.40	
8:15	750	7.3	17.4	1697	0.58	-95.4	62.3	>6.40	
8:20	850	7.32	17.5	1697	0.6	-93.3	60.2	>6.40	
8:25	950	7.32	17.62	1698	0.62	-94.1	18.7	>6.40	Changed Hach turbidity vial
8:30	1050	7.34	17.7	1698	0.63	-93.7	19.4	>6.40	
8:35	1150	7.33	17.71	1699	0.64	-93.6	19.1	>6.40	
									Sampled: ABLPZ18F001 (08:40)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Stanly Co, NC
Well Identification	PZ-19	**Date**	11/15/2011

Screened Interval	6-16' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	17.9'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	15.19' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	15:10
Actual Purge Volume	600 ml	**Time Purging Ended**	16:15

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
15:10	Start							15.19	
15:50	0	7.37	21.3	1736	1.01	-133.6	53.7	17.6	
15:55	100	7.34	20.35	1705	0.61	-136.7	53.3	17.62	
16:00	200	7.4	20.19	1690	0.2	-145.5	48.6	17.71	
16:05	350	7.45	20.22	1689	0.21	-145.7	30.8	17.7	
16:10	500	7.43	20.28	1702	0.18	-139.2	30.2	17.77	
16:15	600	7.48	20.3	1704	0.18	-145.2	28.1	17.81	
									Sampled: ABLPZ19F001 (16:30)
									Could not complete analyses
11/16/11									Dry to 17.9
11/17/11									Dry to 17.9
11/18/11									Depth to water: 17.80; Could not sample
11/21/11									Depth to water: 17.41; Sampled available CN only

Well Sampling Log

Personnel	M Worden, Environeering Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-1	**Date**	5/8/2012

Screened Interval	35-45' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	44.84'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	25.61' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	13:55
Actual Purge Volume	3400 ml	**Time Purging Ended**	14:55

Time	Purge Volume (gal)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:55	Start								
14:10	0	5.50	19.61	93	5.01	245.80	9.56	25.29	
14:15	300	5.28	19.48	93	2.96	250.80	8.01	26.01	
14:20	600	5.39	19.63	93	2.75	242.20	7.17	26.31	
14:25	1000	5.29	18.67	92	2.60	248.00	8.79	26.49	
14:30	1400	5.28	18.63	92	2.41	246.30	8.01	26.60	
14:35	1800	5.26	18.56	92	2.34	241.90	7.23	26.69	
14:40	2200	5.27	18.61	92	2.26	240.20	5.08	26.72	
14:45	2600	5.29	18.57	93	2.24	239.70	4.41	26.76	
14:50	3000	5.30	18.55	93	2.21	238.20	4.23	26.77	
14:55	3400	5.31	18.56	93	2.18	237.60	4.26	26.78	
									Sampled: ABLMW01F002 (15:00)
									Sampled: ABLMW01D002 (15:10)

Well Sampling Log

Personnel	Mike Worden, Environeering Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-2	**Date**	5/8/2012

Screened Interval	37-47' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	53.33'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	33.23' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	17:00
Actual Purge Volume	3800 ml	**Time Purging Ended**	17:55

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
17:00	Start								
17:10	0	5.83	19.95	80	7.81	213.4	10.38	33.80	
17:15	400	5.53	19.86	80	5.42	212	7.57	33.82	
17:20	800	5.14	18.70	75	1.79	247.3	6.27	34.12	
17:25	1300	5.06	18.46	75	1.25	271.1	5.71	34.39	
17:30	1800	4.92	18.40	74	0.80	324.5	2.61	34.55	
17:35	2200	5.15	18.90	74	0.72	327.2	2.11	34.53	
17:40	2600	5.17	18.91	74	0.68	344.3	3.95	34.50	
17:45	3000	5.16	19.01	74	0.66	347.2	3.71	34.50	
17:50	3400	5.18	19.11	73	0.65	349.1	3.99	34.33	
17:55	3800	5.20	19.08	73	0.70	343.3	3.62	34.50	
									Sampled: ABLMW02F002 (18:00)

Well Sampling Log

Personnel	E Duenkel, BHE Environmental, Inc.		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-3	**Date**	5/10/2012

Screened Interval	4-14' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	15.27'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	1.49' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	8:15
Actual Purge Volume	7150 ml	**Time Purging Ended**	9:30

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
	Start								
8:20	0	5.36	15.6	107	10.5	274.5	23.00	1.95	
8:25	1000	4.35	15.41	90	3.05	297.0	16.80	2.02	
8:30	1800	4.18	15.15	84	2.17	279.1	11.00	2.09	
8:35	2300	4.43	15.07	83	2.06	231.2	7.93	2.00	
8:40	2850	4.72	15.07	81	2.09	188.8	6.55	2.02	
8:45	3350	4.85	15.03	80	2.07	163.0	5.03	2.07	
8:50	3900	4.97	15.03	80	2.12	125.6	4.34	2.09	
8:55	4400	5.03	15.09	79	2.07	80.3	4.18	2.11	
9:00	4900	5.14	15.26	79	2.06	58.7	3.20	2.13	
9:05	5450	5.23	15.49	79	2.03	63.6	3.26	2.15	
9:10	6050	5.30	15.64	79	2.03	44.5	2.42	2.17	
9:15	6600	5.30	15.66	79	2.01	43.4	2.09	2.19	
9:20	7150	5.27	15.55	79	2.02	40.0	2.11	2.21	
									Sampled: ABLMW03F002 (9:25)

Well Sampling Log

Personnel	E Duenkel, BHE Environmental, Inc.		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-4	**Date**	5/10/2012

Screened Interval	4-14' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	16.09'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	3.99' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	11:45
Actual Purge Volume	6200 ml	**Time Purging Ended**	12:55

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:45	Start								
11:50	0	6.44	16.57	434	4.27	-18.8	11.20	4.75	
11:55	550	6.36	16.28	372	2.90	-57.2	8.40	4.75	
12:00	1050	6.33	16.19	356	2.14	-81.1	4.33	4.8	
12:05	1600	6.32	16.09	351	1.61	-92.9	2.96	4.7	
12:10	2050	6.35	16.18	349	1.16	-107.0	1.94	4.65	
12:15	2400	6.36	16.07	348	1.06	-134.3	1.46	4.6	
12:20	2850	6.37	16.18	346	0.87	-131.7	1.16	4.6	
12:25	3400	6.38	16.15	347	0.79	-147.0	1.09	4.61	
12:30	3800	6.39	16.1	345	0.65	-147.9	1.13	4.61	
12:35	4300	6.38	15.95	347	0.63	-152.0	1.03	4.61	
12:40	4800	6.38	15.87	346	0.55	-157.5	0.87	4.63	
12:45	5200	6.38	15.87	346	0.55	-139.1	0.94	4.63	
12:50	5700	6.39	15.84	346	0.52	-141.1	0.83	4.64	
12:55	6200	6.38	15.87	346	0.53	-144.1	0.69	4.65	
									Sampled: ABLMW04F002 (13:00)

Well Sampling Log

Personnel	E Duenkel, BHE Environmental, Inc.		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-5	**Date**	5/10/2012

Screened Interval	4-14' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	14.49'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	4.27' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	14:47
Actual Purge Volume	4550 ml	**Time Purging Ended**	15:30

Time	Purge Volume (gal)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
14:37	Start								
14:40	0	6.29	16.84	1074	3.1	106.0	14.5	4.37	
14:45	750	6.27	16.45	637	1.36	39.5	10.4	4.38	
14:50	1450	6.24	16.16	551	1.27	17.2	7.31	4.39	
14:55	2100	6.22	16.13	531	1.08	-1.9	6.09	4.37	
15:00	2600	6.22	16.11	526	0.84	-13.8	4.06	4.34	
15:05	2800	6.25	16.57	525	0.86	-23.9	3.29	4.31	
15:10	3000	6.26	16.74	539	0.84	-31.9	2.91	4.29	
15:15	3250	6.25	17.15	527	0.88	-48.1	3.76	4.29	
15:20	3750	6.24	16.74	525	0.81	-55.5	3.62	4.32	
15:25	4150	6.25	16.58	525	0.85	-61.0	3.86	4.33	
15:30	4550	6.25	16.38	524	0.86	-59.2	3.64	4.34	
									Sampled: ABLMW05F002 (1535)

Well Sampling Log

Personnel	Mike Worden Environeering Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-6	**Date**	5/8/2012

Screened Interval	25-35' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	39.63'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	29.23' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	11:45
Actual Purge Volume	3900 ml	**Time Purging Ended**	12:55

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:45	Start								
11:55	0	5.99	22.13	165	6.76	234.4	7.32	29.70	
12:00	400	5.95	23.29	165	4.75	235.0	5.95	29.78	
12:05	600	5.99	23.81	165	4.62	230.1	5.44	29.79	
12:10	800	6.00	24.62	163	4.44	226.5	5.10	29.80	
12:15	1000	6.02	25.72	162	4.00	222.9	5.12	29.81	
12:20	1500	5.92	21.85	148	4.02	231.6	5.00	29.92	
12:25	1980	5.71	20.53	141	4.20	259.7	5.77	29.99	
12:30	2300	5.59	20.41	134	3.67	293.0	5.32	30.11	
12:35	2700	5.65	20.51	128	3.22	309.2	5.15	30.14	
12:40	3100	5.66	20.89	130	2.91	307.2	4.82	30.31	
12:45	3500	5.68	21.00	131	2.86	301.5	4.95	30.51	
12:50	3600	5.71	20.97	134	2.72	298.0	3.12	30.68	
12:55	3900	5.71	20.56	136	2.70	297.1	4.00	30.79	
									Sampled: ABLMW06F002 (13:00)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	PZ-15	**Date**	5/9/2012
Screened Interval	28-38' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	39.95'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	36.54' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	11:30
Actual Purge Volume	1000 ml	**Time Purging Ended**	12:40

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:30	Start								
12:10	0	7.23	23.5	1843	2.13	-34.9	31.3	>38.0	
12:15	50	7.22	23.54	1850	1.72	-35.4	28.7	>38.0	
12:20	100	7.22	23.64	1862	1.53	-34.3	26.6	>38.0	
12:25	150	7.26	23.71	1879	1.26	-40.2	24.7	>38.0	
12:30	700	7.28	23.87	1889	1.15	-41.2	23.8	>38.0	
12:35	750	7.29	24.01	1910	1.10	-39.1	25.2	>38.0	
12:40	300	7.29	24.11	1913	1.10	-38.9	23.2	>38.0	
									Sampled: ABLPZ15F002 (12:50)

Well Sampling Log

Project	Alcoa Badin: Badin Municipal Landfill	**Personnel**	M. Worden, Environeering, Inc
Well Identification	PZ-16	**Location**	Badin, NC
		Date	5/10/2012

Screened Interval	30-40' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	42.9'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	33.73' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	8:45
Actual Purge Volume	3000 ml	**Time Purging Ended**	10:10

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
8:40	Start							33.73	
9:15	0	7.35	17.70	1173	1.20	-65.5	105	33.73	
9:20	250	7.48	17.71	1175	1.11	-69.1	123	33.73	
9:25	500	7.51	17.74	1177	0.92	-77.6	68.8	33.73	
9:30	750	7.58	17.83	1175	0.91	-80.1	43.2	33.73	
9:35	1000	7.60	17.91	1169	0.89	-82.3	33.5	33.73	
9:40	1250	7.58	17.95	1168	0.88	-84.1	27.1	33.73	
9:45	1500	7.48	18.01	1164	0.91	-84.3	28.1	33.73	
9:50	1750	7.44	18.09	1164	0.90	-87.4	12.1	33.73	
9:55	2000	7.43	18.05	1162	0.89	-86.5	7.4	33.73	
10:00	2250	7.41	18.04	1161	0.86	-87.3	9.9	33.73	
10:05	2500	7.40	18.07	1156	0.83	-88.9	10.1	33.73	
10:10	2750	7.40	18.11	1158	0.82	-90.5	9.3	33.73	
									Sampled: ABLPZ16F002 (10:15)
									Sampled: ABLPZ16D002 (10:30)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	PZ-17	**Date**	5/10/2012

Screened Interval	19-34' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	36.7'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	30.78' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	12:00
Actual Purge Volume	3700 ml	**Time Purging Ended**	14:20

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:00	Start							31.18	
14:10	0	7.01	21.91	2498	2.30	120.9	94.4	31.24	
14:15	300	7.07	21.85	2500	1.31	103.9	71.2	31.25	
14:20	600	7.07	21.51	2500	0.78	13.4	50	31.24	
14:25	900	7.08	20.93	2499	0.63	1.2	54.7	31.24	
14:30	1200	6.93	19.75	2494	0.51	-26.6	32	31.24	
14:35	1500	6.90	19.48	2487	0.49	-24.8	31.4	31.24	
14:40	1800	7.00	20.11	2486	0.41	-30.1	12.5	31.24	
14:45	2100	7.05	20.38	2481	0.42	-44.0	10.4	31.24	
14:50	2400	7.07	20.92	2494	0.40	-46.2	12.1	31.24	
14:55	2700	7.18	21.18	2494	0.36	-54.4	8.32	31.24	
15:00	3000	7.19	21.03	2500	0.36	-58.9	8.7	31.25	
15:05	3300	7.27	21.35	2504	0.32	-65.2	7.76	31.24	
15:10	3600	7.27	21.11	2505	0.33	-73.0	8.12	31.24	
15:15	3900	7.23	20.99	2509	0.35	-68.9	7.73	31.24	
									Sampled: ABLPZ17F002 (15:20)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	PZ-18	**Date**	5/9/2012

Screened Interval	2.2-7.2' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	9.95'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	6.12' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	9:15
Actual Purge Volume	1150 ml	**Time Purging Ended**	10:15

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
9:15	Start							6.34	
9:35	0	7.30	19.34	1829	1.13	-88.9	119	7.5	
9:40	200	6.99	19.34	1831	0.7	-99.4	222	7.85	
9:45	300	7.00	19.61	1838	0.61	-108.7	214	NM	Below gaugeable point
9:50	400	7.02	19.82	1837	0.59	-111.4	137	NM	
9:55	500	7.04	20.05	1844	0.57	-112.8	217	NM	
10:00	600	7.05	20.11	1845	0.56	-113.5	213	NM	
10:05	700	7.08	20.14	1846	0.56	-116.2	165	NM	
10:10	800	7.10	20.22	1848	0.54	-119.6	172	NM	
10:15	900	7.11	20.23	1848	0.54	-120.0	177	NM	
									Sampled: ABLPZ18F002 (10:20)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	PZ-19	**Date**	5/10/2012

Screened Interval	6-16' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	17.9'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	14.99' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	11:45
Actual Purge Volume	600 ml	**Time Purging Ended**	12:45

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:45	Start								
12:20	0	7.08	21.87	2159	1.40	-90.5	16	>16.0	
12:25	100	7.09	22.21	2132	1.03	-93.3	17.5	>16.0	
12:30	200	7.12	23.59	2097	0.71	-91.2	10.6	>16.0	
12:35	250	7.12	22.45	2089	0.69	-92.5	7.3	>16.0	
12:40	270	7.16	22.51	2086	0.66	-93.2	7.73	>16.0	
12:45	290	7.14	22.63	2081	0.68	-95.7	8.05	>16.0	
									Sampled: ABLPZ19F002 (13:25)
									Could not complete analyses
									Dry after sample
									Dry to 17.9 BTOC

Well Sampling Log

Personnel	D. Parker Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-1	**Date**	8/2/2012

Screened Interval	35-45' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	44.84'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	25.58' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	7:30
Actual Purge Volume	3250 ml	**Time Purging Ended**	8:10

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
7:30	Start							25.40	
7:35	0	5.61	18.2	95	5.73	-144	14.40	27.70	
7:40	750	5.65	18.5	93	4.2	-175	6.50	27.27	
7:45	1200	5.70	19.1	95	3.58	-185	3.84	26.92	
7:50	1600	5.71	19.2	96	3.11	-196	2.04	26.74	
7:55	2000	5.71	19.1	96	2.82	-203	1.76	26.65	
8:00	2450	5.70	19.1	96	2.59	-206	2.00	26.63	
8:05	2850	5.69	19.1	95	2.63	-207	1.88	26.59	
8:10	3250	5.69	19.2	95	2.4	-208	1.51	26.59	
									Sampled: ABLMW1F003 (8:10)

Well Sampling Log

Personnel	D. Parker Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-2	**Date**	7/30/2012

Screened Interval	37-47' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	53.33'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	34.50' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	14:50
Actual Purge Volume	5750 ml	**Time Purging Ended**	15:55

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
14:50	Start							34.3	
14:55	0	5.45	22.7	87	2.62	-183.2	7.81	DRY	
									Replaced air tube
15:10	600	5.53	23.7	77	6.7	-213.1	10.6	35.1	
15:15	1100	5.41	21.1	75	4.67	-274.1	11.3	35.3	
15:20	1900	5.41	19.7	74	3.66	-255	5.89	35.58	
15:25	2250	5.48	21.2	75	7	-246	5.19	35.46	
15:30	2650	5.48	21.6	74	6.6	-300	3.74	35.41	
15:35	3250	5.48	20.7	74	6.81	-312	2.82	35.54	
15:40	3650	5.47	21.2	73	5.82	-310	4.98	35.4	
15:45	4350	5.48	19.4	73	6.24	-313	1.05	35.75	
15:50	5050	5.47	19.6	73	6.48	-316	1.27	35.88	
15:55	5750	5.48	19.7	72	6.18	-322	2.16	35.9	
									Sampled: ABLMW2F003 (16:00)

Well Sampling Log

Personnel	D. Parker Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-3	**Date**	7/31/2012

Screened Interval	4-14' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	15.27'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	2.48' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	13:55
Actual Purge Volume	11325 ml	**Time Purging Ended**	15:10

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:52	Start							2.73	
13:55	0	5.65	21.30	75	2.05	-206	96.50	2.84	
14:00	750	5.66	20.90	74	1.95	-201	78.70	2.95	
14:05	1550	5.65	20.60	74	1.9	-192	45.90	3.04	
14:10	2300	5.65	20.50	74	1.82	-186	36.20	3.09	
14:15	3050	5.65	20.30	74	1.89	-185	20.70	3.11	
14:20	3775	5.64	20.30	73	1.91	-183	15.10	3.15	
14:25	4525	5.65	20.40	73	1.87	-183	15.50	3.16	
14:30	5250	5.65	20.20	74	1.85	-183	11.50	3.20	
14:35	6000	5.65	20.00	74	1.83	-183	9.40	3.21	
14:40	6750	5.66	20.00	74	1.83	-180	9.22	3.22	
14:45	7450	5.66	20.00	74	1.86	-179	7.68	3.25	
14:50	8250	5.67	20.00	74	1.82	-179	7.44	3.27	
14:55	9050	5.66	19.80	74	1.89	-176	6.19	3.27	
15:00	9900	5.67	19.60	74	1.8	-172	3.74	3.33	
15:05	10625	5.67	19.70	74	1.83	-171	4.02	3.31	
15:10	11325	5.67	19.80	74	1.8	-170	3.62	3.31	
									Sampled: ABLMW03F003 (15:10)
									Sampled: ABLMW03D003 (15:15)

Well Sampling Log

Personnel	D. Parker Envieroneering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-4	**Date**	7/31/2012
Screened Interval	4-14' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	16.09'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	5.18' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	7:20
Actual Purge Volume	16550 ml	**Time Purging Ended**	10:05

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
7:20	Start							5.35	
7:25	0	6.49	17	306	1.07	-67.2	25.8	6.35	
7:30	1300	6.52	17.3	307	0.37	-166.8	15	6.4	
7:35	1550	6.54	18.5	307	0.4	-208.8	12.9	6.22	
7:40	2050	6.54	18.3	310	0.3	-220	6.92	6.19	
7:45	2550	6.54	17.8	310	0.34	-234.8	5.64	6.52	
7:50	2650	6.54	17.3	308	0.34	-237.5	6.52	6.61	
7:55	3500	6.53	17.5	311	6.77	-183.5	6.01	6.69	
8:00	4250	6.53	17.5	312	6.28	-201.9	4.37	6.7	
8:05	4750	6.53	17.7	313	5.69	-185	3.66	6.52	Bad battery
8:55	Restart								
9:00	0	6.53	18	313	0.54	-225.9	242	6.7	
9:05	700	6.51	18.1	219	0.39	-239.7	125	6.65	
9:10	1300	6.51	18	323	0.38	-244.2	118	6.65	
9:15	2050	6.52	17.4	325	0.81	-228	105	6.89	
9:20	3150	6.52	17.2	319	0.47	-236	96.6	7.12	
9:25	4100	6.53	17.2	310	0.7	-220	105	7.4	
9:30	5100	6.53	18	311	0.87	-204	161	7.6	
9:35	6100	6.51	17.2	322	0.67	-208	60.4	7.84	
9:40	7100	6.53	17.6	316	0.49	-223	34.2	8.26	
9:45	8100	6.51	18.1	326	0.25	-259	17.2	8.18	
9:50	9100	6.51	17.7	337	0.15	-299	7.87	8.14	
9:55	10100	6.51	17.7	341	0.14	-312	4.58	8.12	
10:00	11000	6.5	17.6	343	0.14	-314	4.56	8.09	
10:05	11800	6.51	17.6	345	0.15	-313	4.61	8.09	
									Sampled: ABLMW4F003 (10:05)

Well Sampling Log

Personnel	D. Parker Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-5	**Date**	7/31/2012

Screened Interval	4-14' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	14.49'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	4.55' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	11:15
Actual Purge Volume	12200 ml	**Time Purging Ended**	12:50

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:12	Start							4.62	
11:15	0	6.34	19.2	482	2.99	-95	169	4.62	
11:20	650	6.33	18.9	481	2.24	-122	107	4.64	
11:25	1350	6.33	19	479	1.86	-125	61.3	4.62	
11:30	2050	6.34	19	479	1.63	-135	53.5	4.62	
11:35	2700	6.34	18.9	479	1.44	-139	28.9	4.63	
11:40	3400	6.34	18.7	479	1.36	-143	20.9	4.62	
11:45	4000	6.34	18.7	479	1.28	-147	16.9	4.62	
11:50	4650	6.34	18.7	479	1.23	-150	13	4.62	
11:55	5300	6.34	18.8	479	1.31	-149	10.5	4.63	
12:00	5950	6.34	18.9	479	1.2	-150	9.3	4.63	
12:05	6600	6.34	18.8	479	1.19	-158	8.17	4.64	
12:10	7250	6.34	18.9	480	1.16	-167	6.94	4.62	
12:15	7850	6.34	18.7	479	1.15	-173	7.95	4.62	
12:20	8500	6.34	18.7	480	1.15	-173	6.25	4.62	
12:25	9100	6.34	18.8	480	1.15	-177	6.29	4.62	
12:30	9750	6.34	18.8	480	1.14	-183	5.06	4.62	
12:35	10400	6.34	18.8	479	1.14	-186	5.21	4.62	
12:40	11000	6.34	18.8	479	1.14	-194	4.05	4.62	
12:45	11600	6.34	18.8	479	1.14	-194	3.94	4.62	
12:50	12200	6.34	18.9	479	1.14	-192	3.88	4.62	
									Sampled: ABLMW5F003 (12:50)

Well Sampling Log

Personnel	M.Worden, D.Parker Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	MW-6	**Date**	7/30/2012

Screened Interval	25-35' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	39.63'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	30.30' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	11:10
Actual Purge Volume	9730 ml	**Time Purging Ended**	13:00

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:10	Start							29.40	
11:15	0	5.82	22.8	96	6.50	-119.3	3.2	30.02	
11:20	650	5.82	23.0	94	5.75	-143.2	2.73	29.99	
11:25	1250	5.81	22.6	93	6.40	-162.2	2.45	30.08	
11:30	1900	5.81	22.8	92	4.90	-158.2	3.02	30.40	
11:35	2500	5.81	22.9	92	4.75	-161.5	3.87	30.60	
11:40	3100	5.83	23.0	98	4.62	-165.5	2.79	30.79	
11:45	3680	5.85	23.1	102	4.60	-166.8	2.72	30.96	
11:50	4230	5.86	23.0	107	4.16	-178	2.07	31.20	
11:55	4830	5.86	23.0	110	3.87	-194.1	2.32	31.32	
12:00	5430	5.84	23.1	110	3.61	-204.1	2.12	31.49	
12:05	6030	5.81	23	108	3.22	-203.1	2.11	31.65	
12:10	6630	5.8	23.4	109	2.82	-220.2	1.1	31.7	
12:15	7280	5.79	23.3	109	2.44	-244	0.5	31.89	
12:20	7830	5.78	23.4	109	2.18	-254.7	0.43	32.1	
12:25	8080	5.8	24.1	111	2.03	-255.3	1.17	31.9	
12:30	8480	5.8	23.5	114	2.23	-251	0.5	32.1	
12:35	8830	5.86	25.5	117	5.17	-217	0.65	>32.10	
12:40	9030	5.87	26.6	142	1.48	-241	0.4	>32.10	
12:45	9280	5.89	27.4	123	1.18	-250	0.67	>32.10	
12:50	9330	5.9	27.7	124	0.89	-250	0.37	>32.10	
12:55	9530	5.93	28	125	0.83	-252.7	0.18	>32.10	
13:00	9730	5.94	28.3	128	0.79	-257	0.16	>32.10	
									Sampled: ABLMW6F003 (13:05)

Well Sampling Log

Personnel	D.Parker, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	PZ-15	**Date**	8/1/2012
Screened Interval	28-38' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	39.95'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	37.05' BTOC	**Bailer Type**	0.75" polyethylene
Well Diameter	1"	**String Type**	Nylon
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	8:09
Actual Purge Volume	100 ml	**Time Purging Ended**	8:25

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
8:09	Start							NM	Could not measure DTW
8:15	0	7.36	21.8	349	1.46	-189.8	>1000	NM	Could not measure DTW
8:20	100	7.35	21.7	352	1.12	-208	>1000	NM	Could not measure DTW
8:25	100	7.38	22	351	0.95	-220	NM	NM	Could not measure DTW
8/2/2012									
9:20								37.61	Well sampled to dry - partial fill sampling containers
									Sampled: ABLPZ15F003 (9:25)

Well Sampling Log

Personnel	D. Parker, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	PZ-16	**Date**	8/1/2012

Screened Interval	30-40' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	42.9'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	35.15' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	10:15
Actual Purge Volume	4775 ml	**Time Purging Ended**	12:10

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
9:06	Start							35.18	Clogged Line
10:15	0							35.18	Restart
10:35	0	7.34	29.2	1.46	0.70	-265	>1000	35.18	
10:40	0	7.34	29.9	1.47	0.60	-265	>1000	35.18	
10:45	50	7.34	30	151	0.62	-270	>1000	35.18	
10:50	125	7.37	27.8	156	0.98	-269	>1000	35.19	
10:55	250	7.37	24.9	153	1.16	-256	>1000	35.18	
11:00	350	7.37	25.5	155	0.48	-288	>1000	35.16	
11:05	525	7.46	24.1	149	1.2	-255	>1000	35.18	
11:10	775	7.45	21.2	139	1.6	-243	874	35.18	
11:15	1075	7.4	21.1	132	1.53	-243	363	35.18	
11:20	1425	7.39	20.8	129	1.43	-245	117	35.16	
11:25	1725	7.39	21.4	127	1.44	-248	80.6	35.17	
11:30	2075	7.4	21.1	128	1.32	-255	77.6	35.16	
11:35	2475	7.4	20.9	124	1.32	-260	51.2	35.16	
11:40	2750	7.4	21.3	123	1.31	-263	42.6	35.18	
11:45	3025	7.4	21.4	123	1.25	-268	33.1	35.19	
11:50	3350	7.4	21.4	123	1.23	-270	28.6	35.18	
11:55	3750	7.39	21.2	121	1.23	-273	24.4	35.18	
12:00	4075	7.39	21.4	121	1.19	-274	21.1	35.18	
12:05	4375	7.4	21.2	121	1.26	-272	19.4	35.19	
12:10	4775	7.4	21.1	121	1.24	-268	17.9	35.19	
									Sampled: ABLPZ16F003 (12:15)
									Sampled: ABLPZ16D003 (12:25)

Well Sampling Log

Personnel	D. Parker, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	PZ-17	**Date**	8/1/2012
Screened Interval	19-34' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	36.7'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	31.16' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	13:35
Actual Purge Volume	1025 ml	**Time Purging Ended**	15:00

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:35	Start							32.20	
13:40	0	7.43	24.4	306	0.67	-310	288	>34.40	
13:45	100	7.47	26.2	302	0.5	-317	258	>34.40	
13:50	150	7.69	28.2	322	0.4	-321	283	>34.40	
13:55	200	7.72	30.2	337	0.45	-337	380	>34.40	
14:00	275	7.68	29.9	337	0.47	-335	409	>34.40	
14:05	300	7.48	28.5	318	0.51	-318	NM	>34.40	Lower pump
14:10	325	7.47	29.3	314	0.48	-314	175	34.83	
14:15	475	7.82	24.9	366	0.27	-53	>1000	>35.43	Turbidity meter issues
14:20	575	7.71	24.8	354	0.16	-405	530	>35.43	
14:25	625	7.55	25.7	322	0.15	-387	279	>35.43	
14:30	675	7.53	26.9	314	0.15	-369	383	>35.43	
14:35	750	7.6	26.9	319	0.14	-387	597	>35.43	
14:40	825	7.52	27.1	313	0.13	-393	364	>35.43	
14:45	875	7.49	27.4	309	0.14	-366	234	>35.43	
14:50	925	7.48	26.6	307	0.15	-372	278	>35.43	
14:55	975	7.45	26.2	304	0.16	-368	253	>35.43	
15:00	1025	7.43	25.9	301	0.16	-364	153	>35.43	
15:50							13.3	35.80	Post sampling
									Sampled: ABLPZ17F003 (15:00)

Well Sampling Log

Personnel	D.Parker, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	PZ-18	**Date**	8/1/2012
Screened Interval	2.2-7.2' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	9.95'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	6.11' BTOC	**Bailer Type**	N/A
Well Diameter	1"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	17:50
Actual Purge Volume	1200 ml	**Time Purging Ended**	19:15

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
17:50	Start							6.11	
17:55	0	7.18	23.4	175	3.26	-324	>1000	9.7	
18:00	250	7.18	25.2	185	2.63	-302	>1000	9.68	
18:05	500	7.16	25.7	183	2.34	-277	417	>9.70	
18:10	550	7.13	25.6	179	2.19	-273	421	>9.70	
18:15	600	7.03	26.4	185	2.09	-283	703	>9.70	
18:20	650	7.01	27.1	191	2.05	-245	852	>9.70	
18:25	700	6.99	27.5	193	2.01	-225	481	>9.70	
18:30	750	6.99	27.9	192	1.99	-215	338	>9.70	
18:35	800	6.98	28	190	1.89	-210	209	>9.70	
18:40	850	6.99	28	189	1.78	-213	137	>9.70	
18:45	900	6.99	27.9	186	1.68	-221	96.6	>9.70	
18:50	950	7	27.8	184	1.58	-227	71.2	>9.70	
18:55	1000	7.01	27.6	182	1.51	-225	53.8	>9.70	
19:00	1050	7.02	27.6	181	1.48	-228	36.5	>9.70	
19:05	1100	7.03	27.6	180	1.45	-219	27.1	>9.70	
19:10	1150	7.04	27.5	179	1.43	-213	29.3	>9.70	
19:15	1200	7.04	27.4	179	1.36	-209	35.4	>9.70	
20:05							4.16	9.85	Post sampling
									Sampled: ABLPZ18F003 (19:15)

Well Sampling Log

Personnel	D. Parker, Environeering, Inc		
Project	Alcoa Badin: Badin Municipal Landfill	**Location**	Badin, NC
Well Identification	PZ-19	**Date**	8/1/2012

Screened Interval	6-16' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	17.9'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	15.10' BTOC	**Bailer Type**	0.75" polyethylene
Well Diameter	1"	**String Type**	Nylon
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	16:30
Actual Purge Volume	385 ml	**Time Purging Ended**	17:05

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
16:30	Start							16.50	
16:35	0	7.48	21.6	237	0.81	-376	35.8	> 16.60	
16:40	100	7.69	23.7	240	0.47	-310	20.7	> 16.60	
16:45	150	7.75	25.5	241	0.44	-384	17.3	> 16.60	
16:50	210	7.83	26.6	241	0.45	-364	13.2	> 16.60	
16:55	285	7.95	26.9	240	0.44	-377	11.5	> 16.60	
17:00	335	8.01	27.1	239	0.38	-355	11.1	> 16.60	
17:05	385	8.04	27.5	239	0.63	-369	11.5	> 16.60	
									No water production
17:15								17.88	Post pumping
8/2/2012									
9:05								17.69	Minimal water retrival via baller

APPENDIX L

OBL WELL MONITORING WELL SAMPLING LOGS

Well Sampling Log

Project	Alcoa Badin: Old Brick Landfill	Personnel	M. Worden, Environeering, Inc
Well Identification	MW-1	Location	Stanly Co, NC
		Date	11/17/2011

Screened Interval	92-102' below land surface (BLS)	Pump Type	N/A
Total Well Depth	106.9'	Tubing Type	N/A
Depth to Water Prior to Sampling	DRY/106.9'	Bailer Type	N/A
Well Diameter	2"	String Type	N/A
Well Volume			
Calculated Purge Volume		Time Purging Started	
Actual Purge Volume		Time Purging Ended	

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
									Could not sample. Well dry. Mud on tip.

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Stanly Co, NC
Well Identification	MW-2	**Date**	11/18/2012

Screened Interval	72-82' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	85.01'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	71.00' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	10:00
Actual Purge Volume	2200 ml	**Time Purging Ended**	11:55

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
10:00	Start							71	
10:35	0	7.88	14.1	380	4.08	132.7	214	71	
10:40	400	7.87	14.49	393	3.12	186.4	131	71.48	
10:45	600	7.81	14.09	394	2.94	205.1	168	71.54	
10:50	800	7.79	13.93	394	2.24	211.7	143	71.53	
10:55	1000	7.8	13.94	395	2.03	214.6	172	71.58	
11:00	1100	7.78	14.24	398	1.75	210.1	89.5	71.58	
11:05	1200	7.8	14.52	401	1.73	170.3	67.2	71.58	
11:10	1300	7.78	14.84	407	1.72	179.9	57.3	71.59	
11:15	1400	7.79	14.73	403	1.72	181.1	61.3	71.6	
11:20	1500	7.76	14.81	405	1.71	196.3	52.8	71.6	
11:25	1600	7.78	14.28	401	1.72	187.3	19.3	71.62	
11:30	1700	7.76	14.21	400	1.68	186.3	16.3	71.62	
11:35	1800	7.76	14	395	1.71	154.2	17.8	71.62	
11:40	1900	7.75	14.02	395	1.61	152.6	17.2	71.62	
11:45	2000	7.72	14.02	395	1.62	152.8	15.1	71.61	
11:50	2100	7.72	14.02	395	1.61	151.3	17.9	71.62	
11:55	2200	7.74	14.11	398	1.61	148.2	16.9	71.62	
									Sampled: OBLMW2F001 (12:00)

Well Sampling Log

Project	Alcoa Badin: Old Brick Landfill	Personnel	M. Worden, Environeering, Inc
Well Identification	MW-3	Location	Stanly Co, NC
		Date	11/17/2011

Screened Interval	46-56' below land surface (BLS)	Pump Type	1.66" submersible bladder
Total Well Depth	58.9'	Tubing Type	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	50.40' BTOC	Bailer Type	N/A
Well Diameter	2"	String Type	N/A
Well Volume			
Calculated Purge Volume		Time Purging Started	
Actual Purge Volume		Time Purging Ended	

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
									Could not purge. Tubing returned per R. Kiser.

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Stanly Co, NC
Well Identification	MW-3	**Date**	11/18/2011

Screened Interval	46-56' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	58.9'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	49.71' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	9:40
Actual Purge Volume	1400 ml	**Time Purging Ended**	10:50

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
9:40	Start							49.71	
10:15	0	6.34	17.77	265	6.36	234.6	13.3	49.71	
10:20	200	6.31	17.82	235	5.12	239.7	12.9	49.71	
10:25	400	6.28	17.92	219	5.2	243.2	13.7	49.71	
10:30	600	6.28	18.08	216	5.13	243.9	15.4	49.71	
10:35	800	6.28	18.38	217	5.29	244.1	14.9	49.71	
10:40	1000	6.3	18.42	220	5.23	238.4	13.9	49.71	
10:45	1200	6.31	18.51	221	5.23	237.6	13.4	49.7	
10:50	1400	6.3	18.47	223	5.23	232.2	13.4	49.71	
									Sampled: OBLMW3F001 (10:55)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Stanly Co, NC
Well Identification	MW-4	**Date**	11/17/2011

Screened Interval	16-26' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	27.65'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	24.80' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	10:30
Actual Purge Volume	2200 ml	**Time Purging Ended**	11:30

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
10:30	Start							24.8	
11:00	0	6.94	13.89	890	3	250	36.5	24.81	
11:05	200	6.9	14.38	872	2.97	255.7	34.3	24.81	
11:10	600	6.93	14.52	800	3.27	248.9	24.9	24.83	
11:15	1000	6.89	14.53	735	3.11	244.6	10.3	24.83	
11:20	1400	6.87	14.6	676	3.14	239.3	6.73	24.84	
11:25	1800	6.86	14.63	675	3.09	239.1	6.84	24.84	
11:30	2200	6.83	14.65	666	3.11	240.1	7.18	24.84	
									Sampled: OBLMW4F001 (11:40)
									Sampled: OBLMW4D001 (12:00)

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Stanly Co, NC
Well Identification	MW-5	**Date**	11/21/2011

Screened Interval	67-77' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	77.20'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	64.81' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	13:35
Actual Purge Volume	2800 ml	**Time Purging Ended**	15:20

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:35	Start							64.81	
13:50	0	6.35	19.23	164	8.17	150	108	65.14	
13:55	100	6.26	18.83	108	6.69	150	112	65.21	
14:00	200	6.26	19.08	97	6.21	148	91.2	65.23	
14:05	400	6.24	18.81	88	6.06	154	83.5	65.24	
14:10	600	6.23	18.9	88	5.81	154	81.3	65.26	
14:15	800	6.22	18.72	87	5.66	156	76.5	65.27	
14:20	1000	6.19	18.49	83	5.26	153.6	71.9	65.3	
14:25	1200	6.15	18.4	80	4.55	152.6	65.3	65.32	
14:30	1400	6.14	18.42	80	4.4	152.8	68.7	65.33	
14:35	1600	6.18	18.75	78	3.73	148.2	65.3	65.35	
14:40	--	--	--	--	--	--	--	--	Cleaned cell - refilling
14:45	--	--	--	--	--	--	--	--	Cleaned cell - refilling
14:50	1600	6.18	18.35	75	4.32	192.6	23.5	65.41	
14:55	1800	6.11	18.44	77	3.72	168.1	19.8	65.43	
15:00	2000	6.16	18.48	78	3.61	162.1	21.2	65.43	
15:05	2200	6.2	18.44	78	3.81	151.9	19.7	65.44	
15:10	2400	6.19	18.34	78	3.82	150.9	15.1	65.44	
15:15	2600	6.19	18.38	78	3.78	149.1	16.2	65.45	
15:20	2800	6.18	18.34	78	3.82	147.9	15.9	65.46	
									Sampled: OBLMW5F001 (15:25)

Well Sampling Log

Personnel	W. Ramsey, BHE Environmental, Inc.		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Stanly Co, NC
Well Identification	MW-6	**Date**	11/17/2011
Screened Interval	44-54' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	54.3' BLS/57.02 BTOC	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	53.00' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	10:43
Actual Purge Volume	3.1 gallons	**Time Purging Ended**	16:01

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
10:43	Initial								
10:56	0	6.37	14.04	130	5.92	191.3	117	53.14	
11:01	0.3	6.32	13.93	120	5.26	185.8	102	53.18	
11:06	0.4	6.32	14.42	111	5.17	189	69.2	53.27	
11:11	0.45	6.3	14.11	111	5.26	193.2	41.5	53.3	
11:16	0.5	6.26	13.89	108	5.39	197.5	31.4	53.3	
11:21	0.55	6.26	13.88	106	5.25	197.1	22.2	53.3	
11:26	0.6	6.26	13.62	105	5.22	200.7	19.4	53.36	
14:56	2	6.38	12.63	110	8.63	193.4	62.5	53.52	
15:01	2.1	6.32	13.33	111	7.5	194.1	61	53.55	
15:06	2.21	6.29	14.01	111	5.97	197.6	59.7	53.63	
15:11	2.22	6.31	13.93	110	5.62	201.9	46	53.55	
15:16	2.3	6.28	13.53	109	5.65	204.4	33.6	53.58	
15:21	2.35	6.33	13.41	110	5.39	204.7	33.4	53.56	
15:26	2.4	6.24	13.28	108	5.49	210.6	25	53.6	
15:31	2.5	6.26	13.58	106	5.44	212.3	19.1	53.65	
15:36	2.6	6.23	13.91	105	5.42	216.5	13.2	53.66	
15:41	2.7	6.25	13.99	104	5.55	218.1	9.8	53.69	
15:46	2.8	6.25	14.14	103	5.49	220.9	7.51	53.72	
15:51	2.9	6.23	14.24	103	5.41	226.5	6.01	53.75	
15:56	3	6.24	14.28	102	5.37	227.4	6.21	53.79	
16:01	3.1	6.25	14.29	102	5.41	230.1	5.66	53.82	
									Sampled: OBLMW6F001 (16:14)

Well Sampling Log

Project	Alcoa Badin: Old Brick Landfill	Personnel	M. Worden, Environeering, Inc
Well Identification	MW-1	Location	Stanly Co, NC
		Date	5/7/2012

Screened Interval	92-102' below land surface (BLS)	Pump Type	N/A
Total Well Depth	106.9'	Tubing Type	N/A
Depth to Water Prior to Sampling	DRY/106.9'	Bailer Type	N/A
Well Diameter	2"	String Type	N/A
Well Volume			
Calculated Purge Volume		Time Purging Started	
Actual Purge Volume		Time Purging Ended	

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
									Could not sample. Well dry. Mud on tip.

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-2	**Date**	5/7/2012

Screened Interval	72-82' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	85.01'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	72.91' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	9:55
Actual Purge Volume	2700 ml	**Time Purging Ended**	10:45

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
9:55	Start							72.99	
10:05	0	6.05	16.58	554	3.28	261.50	2.64	73.17	
10:10	500	6.30	16.70	548	2.49	274.40	2.52	73.34	
10:15	900	6.72	16.90	531	1.70	221.10	2.71	73.38	
10:20	1200	6.80	16.82	517	1.20	217.00	2.48	73.43	
10:25	1500	6.81	16.71	517	1.00	219.00	2.48	73.49	
10:30	1800	6.81	16.68	519	0.83	223.30	2.41	73.55	
10:35	2100	6.77	16.62	520	0.78	228.50	3.01	73.61	
10:40	2400	6.76	16.61	522	0.76	230.50	2.75	73.63	
10:45	2700	6.78	16.60	524	0.74	232.50	2.99	73.65	
									Sampled: OBLMW2F002 (11:00)
									Sampled: OBLMW2D002 (11:10)

Well Sampling Log

Personnel	M.Worden Environeering, Inc.		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-3	**Date**	5/7/2012

Screened Interval	46-56' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	58.9'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	50.32' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	15:25
Actual Purge Volume	5150 ml	**Time Purging Ended**	16:40

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
15:25	Start								
15:30	0	6.28	18.65	248	7.10	148.1	80.80	50.32	
15:35	350	6.11	17.69	253	5.30	148.6	67.00	50.33	
15:40	3650	6.07	18.26	253	4.50	146.6	53.50	50.34	
15:45	1100	6.05	17.45	256	4.28	147.3	45.50	50.35	
15:50	1350	5.97	17.38	254	3.95	153.1	35.40	50.35	
15:55	1700	6.09	17.62	255	3.89	147.0	28.70	50.35	
16:00	2050	6.00	17.26	254	3.90	151.5	22.00	50.36	
16:05	2400	6.00	17.13	253	3.86	153.7	18.30	50.36	
16:10	2500	5.98	16.97	252	4.04	156.5	15.80	50.36	
16:15	3200	6.00	16.92	251	4.05	157.9	12.00	50.36	
16:20	3550	6.07	17.20	249	3.98	155.7	11.40	50.37	
16:25	3900	6.08	17.30	249	3.86	157.0	11.20	50.37	
16:30	4300	6.10	17.44	249	3.91	158.0	9.35	50.37	
16:35	4650	6.09	17.49	248	4.00	161.4	8.93	50.37	
16:40	5150	6.08	17.29	249	4.03	166.1	8.24	50.38	
									Sampled: OBLMW3F002 (16:50)

Well Sampling Log

Project	Alcoa Badin: Old Brick Landfill	Personnel	M. Worden, Environeering, Inc
Well Identification	MW-4	Location	Badin, NC
		Date	5/8/2012

Screened Interval	16-26' below land surface (BLS)	Pump Type	1.66" submersible bladder
Total Well Depth	27.65'	Tubing Type	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	24.69' BTOC	Bailer Type	N/A
Well Diameter	2"	String Type	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	Time Purging Started	
Actual Purge Volume		Time Purging Ended	

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
									Bend in pipe @ 4.6' below TOC
									Could not use larger diameter pump

Well Sampling Log

Personnel	M. Worden, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-4	**Date**	5/9/2012
Screened Interval	16-26' below land surface (BLS)	**Pump Type**	0.66" submersible bladder
Total Well Depth	27.65'	**Tubing Type**	0.17" polyethylene air; 0.17" polyethylene discharge
Depth to Water Prior to Sampling	24.64' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	16:30
Actual Purge Volume	3400 ml	**Time Purging Ended**	17:15

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
16:30	Start							24.70	
16:45	0	6.05	17.73	827	3.72	273.4	84.6	24.70	
16:50	400	6.02	17.34	831	2.55	289.3	36.0	24.74	
16:55	1000	5.92	16.89	757	2.63	291.3	15.2	24.76	
17:00	1600	6.10	16.71	731	2.68	288.7	8.1	24.76	
17:05	2200	6.11	16.65	681	2.59	287.3	7.0	24.76	
17:10	2800	6.12	16.62	687	2.67	281.6	6.4	24.77	
17:15	3400	6.15	16.63	678	2.62	290.3	6.8	24.77	
									Sampled: OBLMW4F002 (17:20)

Well Sampling Log

Personnel	M.Worden Environeering, Inc.		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-5	**Date**	5/7/2012

Screened Interval	67-77' below land surface (BLS)	**Pump Type**	1.66" submersible bladder set
Total Well Depth	77.20'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	64.20' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	18:25
Actual Purge Volume	2550 ml	**Time Purging Ended**	19:20

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
18:25	Start								
18:30	0	6.04	18.83	97	7.95	237.4	-	64.72	
18:35	450	5.99	18.48	96	7.36	241.7	-	64.72	
18:40	650	5.95	18.41	95	7.35	243.5	-	64.80	
18:45	850	5.91	18.61	94	6.99	246.2	-	64.89	
18:50	1050	5.94	18.18	94	6.76	246.5	-	64.92	
18:55	1300	6.00	18.16	93	6.53	242.1	20.20	62.02	Changed turbidity meter
19:00	1600	5.94	17.99	93	6.33	246.8	13.70	65.08	
19:05	1800	5.92	17.79	93	6.37	248.4	11.10	65.17	
19:10	2050	5.89	17.61	93	6.39	250.9	8.27	65.23	
19:15	2300	5.90	17.46	93	6.34	250.1	6.90	65.27	
19:20	2550	5.88	17.24	93	6.37	252.3	5.84	65.33	
									Sampled: OBLMW5F002 (19:27)

Well Sampling Log

Personnel	M.Worden Environeering, Inc.		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-6	**Date**	5/7/2012

Screened Interval	44-54' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	57.02 BTOC	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	52.80' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	12:15
Actual Purge Volume	NM	**Time Purging Ended**	14:10

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
12:15	Start								
12:25	0	5.28	17.46	114	5.39	105.8	42.80	52.93	
12:30	200	3.64	17.79	115	4.70	168.4	31.20	52.97	
12:35	600	4.58	17.35	N/A	4.98	131.2	25.10	53.07	
									Cleaned cell
12:50	0	5.17	16.89	107	37	88.8	122.00	53.18	
12:55	300	5.15	16.89	118	38.9	96.2	76.10	53.22	
13:00	650	5.17	16.87	115	39.1	102.4	43.00	53.25	
13:05	1100	5.15	16.70	NM	40.8	110.2	22.20	53.31	
13:10	1400	5.15	16.71	NM	4.02	113.9	13.60	53.34	Changed water quality probe
13:15	1800	6.14	16.85	421	4.38	193.9	10.70	53.34	
13:20	2150	6.08	16.73	220	4.25	186.2	7.00	53.38	
13:25	2550	6.03	16.64	116	4.29	187.9	5.01	53.41	
13:30	2900	6.01	16.60	134	4.2	191.0	3.81	53.44	
13:35	3330	6.06	16.74	121	4.19	190.5	3.05	53.46	
13:40	3700	6.04	16.65	115	4.23	193.2	2.73	53.49	
13:45	4050	6.01	16.59	112	4.22	196.4	2.44	53.51	
13:50	4450	6.05	16.69	111	4.19	196.3	2.20	53.54	
13:55	4750	6.05	16.69	110	4.18	197.1	2.16	53.58	
14:00	5150	6.06	16.83	109	4.09	197.8	1.62	53.50	
14:05	5550	6.06	16.83	109	4.16	198.1	1.94	53.61	
14:10	NM	6.06	16.95	109	4.19	198.1	2.00	53.62	
									Sampled: OBLMW6F002 (14:15)

Well Sampling Log

Personnel	D Parker, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	Location	Badin, NC
Well Identification	MW-1	Date	8/3/2012
Screened Interval	92-102' below land surface (BLS)	Pump Type	N/A
Total Well Depth	106.9'	Tubing Type	N/A
Depth to Water Prior to Sampling	DRY/106.9'	Bailer Type	N/A
Well Diameter	2"	String Type	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	Time Purging Started	N/A
Actual Purge Volume	N/A	Time Purging Ended	N/A

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
6:35									Could not sample. Well dry. Mud on tip.

Well Sampling Log

Personnel	D. Parker, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-2	**Date**	8/2/2012

Screened Interval	72-82' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	85.01'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	75.72' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	13:45
Actual Purge Volume	N/A	**Time Purging Ended**	18:00

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:45	Start							75.61	
16:10	0							75.80	
17:00	Start							75.96	
17:05	0	6.87	26.5	60	3.24	125	2.06	76.00	
17:10	150	6.84	24.7	61	3.24	146	3.52	76.05	
									Air in lines, Adjusted to eliminate
									Flow Stoppped: Replaced Bladder
									Switched pump
17:55	0	6.90	23.2	56	6.88	118	7.61	76.34	Water flow resumed
18:00		6.89	21.6	56	5.70	170			Water flow stopped again-> incoming storm
									Replaced bladder and all o-rings
									Try again tomorrow
									Sampled: OBLMW2F003 (n/a)

Well Sampling Log

Personnel	D. Parker, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-2	**Date**	8/3/2012

Screened Interval	72-82' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	85.01'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	76.65' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	5:50
Actual Purge Volume	2200 ml	**Time Purging Ended**	9:25

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
5:50	Start							76.35	
8:25	0	7.06	20.3	59	5.34	120.4	107	76.94	
8:30	200	6.99	19.6	60	3.63	130	169	77.04	
8:35	375	6.98	19.5	60	2.98	144	187	77.11	
8:40	500	6.97	19.6	60	2.44	152	141	77.2	
8:45	725	6.96	19.6	60	1.81	162	87.7	77.3	
8:50	900	6.96	19.7	60	1.64	172	61.6	77.39	
8:55	1100	6.96	19.5	60	1.63	179	48.7	77.5	
9:00	1300	6.96	19.5	60	1.53	184	42.9	77.57	
9:05	1500	6.96	19.5	60	1.53	190	32.1	77.68	
9:10	1675	6.95	19.5	60	1.54	197	32.9	77.78	
9:15	1850	6.95	19.6	60	1.53	198	27.5	77.88	
9:20	2025	6.95	19.8	60	1.55	196	24.8	77.95	
9:25	2200	6.95	19.9	60	1.56	197	22.7	78.03	
									Sampled: OBLMW2F003 (9:25)

Well Sampling Log

Personnel	D. Parker, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-3	**Date**	8/3/2012

Screened Interval	46-56' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	58.9'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	50.94' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	10:22
Actual Purge Volume	9900 ml	**Time Purging Ended**	12:00

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
10:22	Start							50.94	
10:40	0	6.35	17.8	137	1.85	-100	>1000	50.94	
10:45	600	6.35	17.3	271	2.43	-124	732	50.96	
10:50	1200	6.35	16.9	264	2.98	-123	533	50.94	
10:55	1800	6.34	17	260	3.83	-116	296	50.94	
11:00	2600	6.35	17.1	260	3.45	-105	168	50.95	
11:05	3200	6.34	17.4	259	3.25	-133	125	50.94	
11:10	3800	6.34	17	261	3.42	-133	94.7	50.94	
11:15	4500	6.34	16.6	261	3.36	-140	137	50.94	
11:20	5100	6.34	16.9	262	3.49	-147	62.3	50.94	
11:25	5700	6.35	17.4	261	3.53	-131	141	50.94	
11:30	6300	6.34	16.9	262	3.38	-158	89.1	50.94	
11:35	6900	6.35	17.3	262	3.3	-164	68.3	50.94	
11:40	7500	6.35	16.8	264	3.48	-172	55.2	50.96	
11:45	8100	6.35	16.9	264	3.49	-174	72.11	50.96	
11:50	8700	6.35	16.8	264	3.42	-182	46	50.96	
11:55	9300	6.35	16.8	265	3.56	-188	39.1	50.95	
12:00	9900	6.35	16.8	264	3.48	-186	44.7	50.95	
									Sampled: OBLMW3F003 (12:00)

Well Sampling Log

Personnel	D. Parker, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-4	**Date**	8/2/2012

Screened Interval	16-26' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	27.65'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	25.75' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	11:45
Actual Purge Volume	3400 ml	**Time Purging Ended**	12:55

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:45	Start							25.75	
11:50	0	7.02	20.1	112	1.59	15.3	301	25.8	
11:55	350	7.04	19.7	110	1.70	32	42	25.81	
12:00	650	7.03	19.8	109	1.78	26.1	23.9	25.81	
12:05	950	6.97	19.9	102	1.88	-26.5	17.8	25.84	
12:10	1300	6.89	20.0	92	2.02	-11.1	9.86	26.82	
12:15	1600	6.86	19.7	87	2.00	-165	8.76	25.82	
12:20	1900	6.85	19.9	85	2.00	-163	8.64	25.83	
12:25	2250	6.85	19.7	84	1.98	-177	6.24	25.84	
12:30	2550	6.84	19.9	83	1.97	-173	4.36	25.85	
12:35	2850	6.84	19.6	84	1.98	-197	2.95	25.84	
12:45	3150	6.84	19.4	83	1.96	-198	2.05	25.84	
12:55	3400	6.84	19.5	84	1.92	-194	1.68	25.87	
									Sampled: OBLMW4F003 (12:50)
									Sampled: OBLMW4D003 (13:00)

Well Sampling Log

Personnel	D. Parker, Environeering, Inc		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-5	**Date**	8/3/2012

Screened Interval	67-77' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	77.20'	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	65.21' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	13:05
Actual Purge Volume	8175 ml	**Time Purging Ended**	14:30

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:05	Start							65.30	
13:20	0	6.41	18.0	99	6.22	-205	>1000	65.72	
13:25	300	6.36	18	98	6.01	-209	>1000	66.01	
13:30	850	6.33	17.5	97	6.35	-215.7	599	66.18	
13:35	1450	6.36	17.5	97	6.34	-218	234	66.4	
13:40	2000	6.36	17.3	97	6.3	-220	162	66.6	
13:45	2600	6.34	17.2	98	6.22	-222	108	66.76	
13:50	3175	6.35	17.2	98	6.1	-221	67.8	67.12	
13:55	3875	6.35	17.2	98	6.02	-221	52.1	67.19	
14:00	4475	6.35	17.1	98	6	-218	36.2	67.54	
14:05	5175	6.35	17.1	98	6.04	-217	25	67.55	
14:10	5775	6.35	17.1	98	6.04	-218	20.5	67.81	
14:15	6375	6.35	17.1	98	6.03	-216	15.8	68.96	
14:20	6975	6.36	17.2	98	6.05	-214	13.3	68.09	
14:25	7575	6.36	17.1	98	6.02	-214	11.1	68.23	
14:30	8175	6.36	17.2	98	6.01	-213	10.02	68.39	
									Sampled: OBLMW5F003 (14:30)

Well Sampling Log

Personnel	D. Parker Environeering, Inc.		
Project	Alcoa Badin: Old Brick Landfill	**Location**	Badin, NC
Well Identification	MW-6	**Date**	8/2/2012

Screened Interval	44-54' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	54.3' BLS/57.02 BTOC	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	53.49' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	13:55
Actual Purge Volume	4100 ml	**Time Purging Ended**	14:35

Time	Purge Volume (gallons)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:55	Start							53.40	
14:00	0	6.2	20.8	135	6.99	-253	25.9	53.75	
14:05	750	6.05	19.6	118	4.32	-279	9.74	53.85	
14:10	1400	6.09	19.5	117	4.29	-272	6.07	53.84	
14:15	2050	6.11	18.7	116	4.13	-268	3.3	53.93	
14:20	2800	6.13	18.9	115	4.09	-265	2.22	53.97	
14:25	3200	6.14	19.5	115	4.01	-260	1.4	54.02	
14:30	3650	6.14	19.6	115	4.03	-254	1.5	54.03	
14:35	4100	6.14	19.6	115	3.96	-250	1.22	54.06	
									Sampled: OBLMW6F003 (14:35)

APPENDIX M

ALCOA BADIN WORKS PLANT AREA
MONITORING WELL SAMPLING LOGS

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: BF-2
PN: 990.225
Weather: Clear 79°F
Date: 6/14/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
24.87	2	5.75	19.12	3.25	9.75	10	15

Comments:

Vol. Removed (L)	0.30	0.40	0.50	0.60	0.70	0.80	0.90	
Water Level (ft from TOC)	6.28	6.29	6.29	6.29	6.29	6.29	6.29	
Time	0905	0910	0915	0920	0925	0930	0935	
Temperature (°C)	22.40	22.45	22.48	22.51	22.52	22.56	22.61	
pH (std. units)	6.07	6.03	5.98	5.96	5.94	5.93	5.92	
Conductivity (m S/cm)	0.519	0.525	0.530	0.531	0.533	0.534	0.534	
Turbidity (NTU)	10.7	10.1	9.3	9.0	8.6	8.2	7.9	
DO (mg/L)	1.34	1.48	1.23	1.12	0.97	0.91	0.86	
ORP (mV)	240	243	244	246	247	247	247	
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection:
Laboratory: Test America
SAMPLE ID # ABP-MW202-F003
Comments/Other: ABP-MW202-D003 (Duplicate)

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: BF-3
PN: 990.225
Weather: Clear 70°F
Date: 6/14/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
28.05	2	11.13	16.92	2.88	8.63	10	20

Comments:

Vol. Removed (L)	Initial	0.20	0.30	0.40	0.50	0.60	0.75	0.85
Water Level (ft from TOC)	11.13	11.08	11.05	11.10	11.11	11.10	11.10	11.10
Time	0740	0745	0750	0755	0800	0805	0810	0815
Temperature (°C)	21.89	22.47	22.75	22.97	23.03	23.14	23.25	23.30
pH (std. units)	6.34	6.75	6.94	7.07	7.17	7.27	7.31	7.38
Conductivity (m S/cm)	0.663	0.667	0.670	0.671	0.674	0.674	0.675	0.676
Turbidity (NTU)	2.1	1.5	4.0	4.0	4.2	4.4	4.6	4.4
DO (mg/L)	1.21	0.80	0.78	0.78	0.70	0.59	0.56	0.52
ORP (mV)	240	223	215	209	204	200	198	194
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 0820
Laboratory: Test America
SAMPLE ID # ABP-MW203-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: BF-5
PN: 990.225
Weather: Clear 88°F
Date: 6/14/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
18.60	2	10.11	8.49	1.44	4.33	10	12

Comments:

Vol. Removed (L)	Initial	0.1	0.2	0.3	0.4	0.5	0.6	0.7
Water Level (ft from TOC)	10.3	10.29	10.27	10.25	10.26	10.26	10.26	10.26
Time	1340	1345	1350	1355	1400	1405	1410	1415
Temperature (°C)	29.42	29.43	29.40	29.53	29.72	29.97	30.22	30.51
pH (std. units)	7.76	7.74	7.64	7.61	7.61	7.60	7.57	7.56
Conductivity (m S/cm)	0.318	0.262	0.245	0.229	0.218	0.212	0.206	0.202
Turbidity (NTU)	41.9	44.2	38.7	365	34.9	32.4	27.3	22.6
DO (mg/L)	0.98	0.37	0.21	0.14	0.13	0.11	0.11	0.11
ORP (mV)	43	16	21	25	26	25	25	18
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 75 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1445
Laboratory: Test America
SAMPLE ID # ABP-MW205-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: BF-5
PN: 990.225
Weather: Clear 88°F
Date: 6/14/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
18.60	2	10.11	8.49	1.44	4.33	10	12

Comments:

Vol. Removed (L)	0.8	0.9	1.0	1.1	1.2			
Water Level (ft from TOC)	10.26	10.26	10.26	10.26	10.26			
Time	1420	1425	1430	1435	1440			
Temperature (°C)	31.02	31.34	31.47	31.67	32.12			
pH (std. units)	7.54	7.53	7.52	7.51	7.50			
Conductivity (m S/cm)	0.198	0.196	0.194	0.192	0.190			
Turbidity (NTU)	19.9	20.8	19.0	18.2	15.2			
DO (mg/L)	0.10	0.09	0.09	0.09	0.09			
ORP (mV)	12	5	2	-2	-3			
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear			

Comments: 1. Flow rate = 75 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1445
Laboratory: Test America
SAMPLE ID # ABP-MW205-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: BF-7
PN: 990.225
Weather: Clear 95°F
Date: 6/11/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
37.00	2	9.53	27.47	4.67	14.01	15	15

Comments:

Vol. Removed (L)	Initial	0.40	0.45	0.50	0.55	0.60	0.65	
Water Level (ft from TOC)	10.48	10.48	10.71	10.60	10.50	10.48	10.40	
Time	1510	1515	1520	1525	1530	1535	1540	
Temperature (°C)	26.24	26.64	26.46	26.87	26.97	26.87	27.06	
pH (std. units)	11.21	11.58	11.92	11.95	11.97	11.98	11.99	
Conductivity (m S/cm)	0.749	0.840	0.837	0.864	0.882	0.880	0.881	
Turbidity (NTU)	2.6	11.5	0.9	3.8	5.2	3.4	3.3	
DO (mg/L)	4.53	6.32	3.86	5.75	5.94	5.23	5.40	
ORP (mV)	50	41	33	33	31	31	31	
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	

Comments: 1. Flow rate = 50 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1545
Laboratory: Test America
SAMPLE ID # ABP-MW207-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-1
PN: 990.225
Weather: Clear 94°F
Date: 6/9/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
34.68	2	26.65	8.03	1.37	4.10	10	30

Comments:

Vol. Removed (L)	Initial	0.20	0.30	0.40	0.50	0.60		
Water Level (ft from TOC)	27.20	27.15	27.13	27.13	27.12	27.12		
Time	1430	1435	1440	1445	1450	1455		
Temperature (°C)	21.18	22.23	23.28	24.02	24.28	24.50		
pH (std. units)	5.32	5.31	5.29	5.28	5.28	5.27		
Conductivity (m S/cm)	0.159	0.162	0.161	0.160	0.158	0.157		
Turbidity (NTU)	17.7	18.9	18.0	15.6	8.0	7.4		
DO (mg/L)	4.71	4.76	4.63	4.48	4.25	4.12		
ORP (mV)	266	272	277	280	283	286		
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear		

Comments: 1. Flow rate = 90 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1500
Laboratory: Test America
SAMPLE ID # ABP-MW001-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-4
PN: 990.225
Weather: Clear 80°F
Date: 6/15/2011

Project Manager: T. Gessner
Samplers: WRJ

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
16.00	2	8.61	7.39	1.26	3.77	10	10

Comments:

Vol. Removed (L)	Initial	0.20	0.30	0.70	1.0	1.2	1.3	1.4
Water Level (ft from TOC)	9.21	9.22	9.22	9.23	9.27	9.3	9.36	9.4
Time	1100	1105	1110	1130	1140	1150	1155	1200
Temperature (°C)	22.74	23.38	24.58	26.03	26.30	26.37	26.48	26.70
pH (std. units)	6.98	7.15	7.27	7.43	7.46	7.46	7.46	7.45
Conductivity (m S/cm)	0.867	0.831	0.872	0.945	0.958	0.902	0.877	0.864
Turbidity (NTU)	8.3	8.1	29.9	64.2	31.8	17.5	13.7	10.3
DO (mg/L)	5.20	4.5	4.32	4.02	3.50	3.45	3.54	3.41
ORP (mV)	227	218	214	223	231	234	234	235
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X
PAHs	1x1-L	Glass				X	X

Comments:

Time of Sample Collection: 1205
Laboratory: Test America
SAMPLE ID # ABP-MW004-F001
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-5
PN: 990.225
Weather: Clear 83°F
Date: 6/8/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
16.00	2	9.50	6.50	1.11	0.19	10	12

Comments:

Vol. Removed (L)	Intial	0.2	0.3	0.35	0.45	0.55	0.7	0.95
Water Level (ft from TOC)	9.6	9.7	9.72	9.73	9.74	9.75	9.75	9.75
Time	1030	1035	1040	1045	1050	1055	1100	1105
Temperature (°C)	24.87	24.41	24.34	24.28	24.23	24.24	24.33	24.59
pH (std. units)	6.28	6.30	6.30	6.30	6.31	6.30	6.30	6.30
Conductivity (m S/cm)	0.378	0.381	0.385	0.388	0.391	0.394	0.396	0.399
Turbidity (NTU)	57.4	51.2	49.6	47.9	36.5	34.4	34.4	29.7
DO (mg/L)	3.08	2.87	2.72	2.78	2.68	2.64	2.69	2.81
ORP (mV)	228	230	231	232	234	235	234	232
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X
PAHs	2x1-L	Amber Glass				X	X

Comments:

Time of Sample Collection: 1130
Laboratory: Test America
SAMPLE ID # ABP-MW005-F001
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-5
PN: 990.225
Weather: Clear 83°F
Date: 6/8/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
16.00	2	9.50	6.50	1.11	0.19	10	12

Comments:

Vol. Removed (L)	1.1	1.2	1.25	1.3				
Water Level (ft from TOC)	9.75	9.75	9.74	9.74				
Time	1110	1115	1120	1125				
Temperature (°C)	24.90	25.36	25.79	26.27				
pH (std. units)	6.29	6.29	6.30	6.30				
Conductivity (m S/cm)	0.400	0.399	0.399	0.400				
Turbidity (NTU)	22.7	17.9	16.9	3.5				
DO (mg/L)	2.73	2.63	2.62	2.69				
ORP (mV)	230	228	227	225				
Odor, Color, etc.	Clear	Clear	Clear	Clear				

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X
PAHs	2x1-L	Amber Glass				X	X

Comments:

Time of Sample Collection: 1130
Laboratory: Test America
SAMPLE ID # ABP-MW005-F001
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-6
PN: 990.225
Weather: Clear 84°F
Date: 6/13/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
19.28	2	10.15	9.13	1.55	4.66	10	12

Comments:

Vol. Removed (L)	Initial	0.3	0.40	0.50	0.60	0.70	0.8	0.85
Water Level (ft from TOC)	10.29	10.29	10.3	10.3	10.3	10.3	10.3	10.3
Time	1045	1050	1055	1100	1105	1110	1120	1125
Temperature (°C)	21.99	21.94	22.04	23.45	24.52	25.06	26.37	25.18
pH (std. units)	10.82	10.60	10.56	10.53	10.52	10.51	10.50	10.51
Conductivity (m S/cm)	7.78	8.12	8.55	8.32	8.07	8.11	8.76	8.80
Turbidity (NTU)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DO (mg/L)	1.22	1.11	1.04	0.94	0.79	0.70	1.84	0.95
ORP (mV)	52	98	114	113	114	1.4	108	111
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X
PAHs	2x1-L	Amber Glass				X	X

Comments:

Time of Sample Collection: 1205
Laboratory: Test America
SAMPLE ID # ABP-MW006-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-6
PN: 990.225
Weather: Clear 84°F
Date: 6/13/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
19.28	2	10.15	9.13	1.55	4.66	10	12

Comments:

Vol. Removed (L)	0.90	1.0	1.1	1.2	1.3	1.4	1.5	
Water Level (ft from TOC)	10.3	10.3	10.3	10.3	10.3	10.3	10.3	
Time	1130	1135	1140	1145	1150	1155	1200	
Temperature (°C)	24.50	24.36	24.54	24.59	24.61	24.72	24.84	
pH (std. units)	10.52	10.53	10.53	10.53	10.53	10.54	10.54	
Conductivity (m S/cm)	8.92	8.97	9.02	8.97	8.97	9.01	9.02	
Turbidity (NTU)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
DO (mg/L)	0.91	0.81	0.72	0.66	0.5	0.47	0.48	
ORP (mV)	107	108	108	108	108	108	108	
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X
PAHs	2x1-L	Amber Glass				X	X

Comments:

Time of Sample Collection: 1205
Laboratory: Test America
SAMPLE ID # ABP-MW006-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-7
PN: 990.225
Weather: Clear 79°F
Date: 6/14/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
37.50	2	23.29	14.21	2.42	7.25	10	30

Comments:

Vol. Removed (L)	Initial	0.30	0.35	0.37	0.40	0.45	0.50	0.55
Water Level (ft from TOC)	24.61	25.40	25.34	25.09	24.88	25.03	25.14	25.05
Time	1130	1135	1140	1145	1150	1155	1200	1205
Temperature (°C)	32.70	31.89	28.26	27.15	27.39	26.50	27.22	27.09
pH (std. units)	6.94	6.54	6.41	6.31	6.24	6.21	6.19	6.18
Conductivity (m S/cm)	0.066	0.036	0.041	0.045	0.046	0.042	0.040	0.039
Turbidity (NTU)	35.9	32.5	7.6	7.8	9.4	7.3	5.2	4.7
DO (mg/L)	6.08	5.13	5.74	5.82	5.74	5.99	5.11	5.69
ORP (mV)	160	183	191	197	200	202	206	207
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 50 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1215
Laboratory: Test America
SAMPLE ID # ABP-MW007-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-7
PN: 990.225
Weather: Clear 79°F
Date: 6/14/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
37.50	2	23.29	14.21	2.42	7.25	10	30

Comments:

Vol. Removed (L)	0.60							
Water Level (ft from TOC)	25.10							
Time	1210							
Temperature (°C)	26.97							
pH (std. units)	6.16							
Conductivity (m S/cm)	0.039							
Turbidity (NTU)	4.6							
DO (mg/L)	5.68							
ORP (mV)	208							
Odor, Color, etc.	Clear							

Comments: 1. Flow rate = 50 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1215
Laboratory: Test America
SAMPLE ID # ABP-MW007-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-8
PN: 990.225
Weather: Clear 94°F
Date: 6/8/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
23.50	2	13.48	10.02	1.70	5.11	10	16

Comments:

Vol. Removed (Gal)	Intial	0.20	0.60	1.0	1.1	1.2	1.25	1.3
Water Level (ft from TOC)	13.75	13.86	13.93	13.99	13.98	14.00	14.01	14.03
Time	1605	1615	1625	16.35	1640	1645	1650	1655
Temperature (°C)	28.61	28.25	28.67	28.08	27.76	27.38	27.30	27.31
pH (std. units)	7.41	6.99	6.85	6.81	6.80	6.79	6.77	6.77
Conductivity (m S/cm)	0.438	0.435	0.446	0.443	0.434	0.436	0.441	0.446
Turbidity (NTU)	63.4	65.8	47.7	28.2	20.3	21.8	16.4	14.3
DO (mg/L)	1.23	0.76	0.83	0.71	0.71	0.67	0.73	0.73
ORP (mV)	211	232	241	248	250	252	252	253
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1705
Laboratory: Test America
SAMPLE ID # ABP-MW008-F001
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-8
PN: 990.225
Weather: Clear 94°F
Date: 6/8/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
23.50	2	13.48	10.02	1.70	5.11	10	16

Comments:

Vol. Removed (L)	1.35							
Water Level (ft from TOC)	14.05							
Time	1700							
Temperature (°C)	27.47							
pH (std. units)	6.76							
Conductivity (m S/cm)	0.447							
Turbidity (NTU)	12.1							
DO (mg/L)	0.73							
ORP (mV)	253							
Odor, Color, etc.	Clear							

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1705
Laboratory: Test America
SAMPLE ID # ABP-MW008-F001
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-9
PN: 990.225
Weather: Clear 77°F
Date: 6/7/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
24.00	2	19.64	4.36	0.74	2.22	10	22

Comments:

Vol. Removed (L)	Intial	0.20	0.4	0.6	1	1.4	1.6	2.0
Water Level (ft from TOC)	19.65	19.65	19.65	19.65	19.65	19.65	19.65	19.65
Time	1600	1610	1620	1630	1640	1650	1700	1710
Temperature (°C)	29.20	28.62	28.27	27.83	27.47	27.37	27.19	27.00
pH (std. units)	6.83	6.97	7.04	7.11	7.13	7.15	7.17	7.17
Conductivity (m S/cm)	0.533	0.605	0.654	0.700	0.730	0.750	0.762	0.772
Turbidity (NTU)	87.1	92.7	81.2	77.3	72.0	58.4	50.6	48.2
DO (mg/L)	1.23	0.72	0.57	0.28	0.15	0.06	0.08	0.0
ORP (mV)	229	256	261	265	271	275	278	282
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1945
Laboratory: Test America
SAMPLE ID # ABP-MW009-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-9
PN: 990.225
Weather: Clear 77°F
Date: 6/7/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
24.00	2	19.64	4.36	0.74	2.22	10	22

Comments:

Vol. Removed (L)	2.1	2.2	2.6	3.0	3.1	3.2	3.4	3.6
Water Level (ft from TOC)	19.66	19.66	19.65	19.65	19.65	19.65	19.65	19.65
Time	1720	1730	1740	1750	1800	1810	1820	1830
Temperature (°C)	26.84	26.78	26.77	26.70	27.09	27.45	27.83	27.91
pH (std. units)	7.18	7.18	7.18	7.18	7.18	7.18	7.18	6.95
Conductivity (m S/cm)	0.777	0.782	0.787	0.803	0.800	0.795	0.790	0.717
Turbidity (NTU)	46.9	45.0	43.1	40.4	40.1	37.5	35.0	27.6
DO (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.22
ORP (mV)	28.5	287	288	289	289	290	290	NA
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1945
SAMPLE ID # ABP-MW009-F003
Comments/Other:

Laboratory: Test America

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-9
PN: 990.225
Weather: Clear 77°F
Date: 6/7/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
24.00	2	19.64	4.36	0.74	2.22	10	22

Comments:

Vol. Removed (L)	3.8	4.0	4.2	4.4	4.6	4.8		
Water Level (ft from TOC)	19.71	19.73	19.73	19.74	19.74	19.74		
Time	1840	1850	1855	1900	1905	1910		
Temperature (°C)	26.35	24.53	23.66	22.94	22.64	22.47		
pH (std. units)	7.09	7.13	7.10	7.06	7.04	7.04		
Conductivity (m S/cm)	0.733	0.808	0.781	0.767	0.762	0.762		
Turbidity (NTU)	11.4	30.5	20.4	7.9	5.9	5.5		
DO (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0		
ORP (mV)	293	300	302	305	307	308		
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear		

Comments: 1. Flow rate = 100 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1945
Laboratory: Test America
SAMPLE ID # ABP-MW009-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-10
PN: 990.225
Weather: Clear 81°F
Date: 6/9/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
32.00	2	22.10	9.90	1.68	5.05	10	25

Comments:

Vol. Removed (L)	Initial	0.20	0.30	0.35	0.40	0.45	0.5	0.55
Water Level (ft from TOC)	22.15	22.13	22.10	22.10	22.10	22.10	22.10	22.10
Time	1005	1010	1015	1020	1025	1030	1035	1040
Temperature (°C)	19.63	20.20	21.08	21.50	21.50	21.41	21.64	21.95
pH (std. units)	7.11	6.54	6.12	5.9	5.85	5.78	5.79	5.72
Conductivity (m S/cm)	0.189	0.190	0.190	0.186	0.184	0.183	0.182	0.182
Turbidity (NTU)	104	87.6	64.3	30.5	32.0	11.0	9.0	8.3
DO (mg/L)	3.40	3.42	3.43	3.42	3.14	3.23	3.15	3.12
ORP (mV)	261	277	291	296	295	290	285	280
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 90 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1045
Laboratory: Test America
SAMPLE ID # ABP-MW010-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-11
PN: 990.225
Weather: Clear 90°F
Date: 6/9/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
20.00	2	13.79	6.21	1.06	3.17	10	15

Comments:

Vol. Removed (L)	Initial	0.10	0.20	0.30	0.60	0.90	1.1	1.2
Water Level (ft from TOC)	14.42	14.18	14.10	14.10	14.10	14.10	14.10	14.10
Time	1205	1210	1215	1220	1225	1230	1235	1240
Temperature (°C)	21.16	21.62	22.05	22.07	22.09	21.9	21.78	22.30
pH (std. units)	5.97	5.79	5.73	5.71	5.69	5.69	5.69	5.69
Conductivity (m S/cm)	0.073	0.074	0.073	0.072	0.073	0.073	0.074	0.074
Turbidity (NTU)	7.9	4.0	2.1	1.5	1.8	4.0	2.7	4.0
DO (mg/L)	8.22	6.67	5.72	5.05	4.33	3.36	2.73	2.07
ORP (mV)	208	225	233	238	241	244	245	246
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 150 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1325
Laboratory: Test America
SAMPLE ID # ABP-MW011-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

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BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-11
PN: 990.225
Weather: Clear 90°F
Date: 6/9/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
20.00	2	13.79	6.21	1.06	3.17	10	15

Comments:

Vol. Removed (L)	1.3	1.5	1.7	1.95	2.2	2.3	2.5	2.7
Water Level (ft from TOC)	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10
Time	1245	1250	1255	1300	1305	1310	1315	1320
Temperature (°C)	22.41	22.49	22.56	22.30	22.26	22.27	22.13	22.10
pH (std. units)	5.68	5.68	5.68	5.69	5.69	5.69	5.69	5.69
Conductivity (m S/cm)	0.073	0.073	0.073	0.073	0.072	0.072	0.072	0.072
Turbidity (NTU)	1.3	2.0	0.0	4.4	2.9	1.4	0.0	3.3
DO (mg/L)	1.76	1.47	1.3	1.14	0.97	0.86	0.78	0.71
ORP (mV)	247	248	248	248	248	248	248	249
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 150 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1325
Laboratory: Test America
SAMPLE ID # ABP-MW011-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-14
PN: 990.225
Weather: Clear 81°F
Date: 6/15/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
18.50	2	9.75	8.75	1.49	4.46	10	12

Comments:

Vol. Removed (L)	Initial	0.2	0.3	0.4	0.5	0.6	0.7	0.8
Water Level (ft from TOC)	9.85	9.90	9.95	9.98	10.00	10.02	10.05	10.06
Time	1420	1425	1430	1435	1440	1445	1450	1455
Temperature (°C)	26.11	26.06	26.58	26.78	27.07	27.21	27.49	27.79
pH (std. units)	6.58	6.56	6.57	6.55	6.54	6.54	6.53	6.53
Conductivity (m S/cm)	1.81	1.82	1.81	1.81	1.8	1.79	1.78	1.77
Turbidity (NTU)	14.1	12.5	10	9.3	4.4	1.6	0.0	0.0
DO (mg/L)	2.54	1.53	1.12	1.10	1.19	1.00	1.10	1.08
ORP (mV)	242	240	237	232	227	222	220	217
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x500-mL	Plastic				X	X
Alkalinity	1x500-mL	Plastic				X	X
PAHs	2x1-L	Amber Glass				X	X

Comments:

Time of Sample Collection: 1500
Laboratory: Test America
SAMPLE ID # ABP-MW014-F003
Comments/Other: ABP-MW014-D001 (Duplicate)

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-15
PN: 990.225
Weather: Clear 90°F
Date: 6/14/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
19.62	2	10.61	9.01	1.53	4.60	10	12

Comments:

Vol. Removed (L)	Initial	0.20	0.40	0.60	0.70	0.80	0.9	
Water Level (ft from TOC)	10.81	10.97	11.04	11.13	11.16	11.21	11.23	
Time	1615	1625	1635	1645	1650	1655	1700	
Temperature (°C)	29.02	28.15	28.16	28.24	28.24	28.20	28.18	
pH (std. units)	7.03	6.73	6.65	6.60	6.59	6.58	6.58	
Conductivity (m S/cm)	0.544	0.544	0.550	0.549	0.549	0.548	0.547	
Turbidity (NTU)	121	97.2	52.5	19.9	9.8	7.6	7.5	
DO (mg/L)	6.20	3.98	3.82	3.76	3.76	3.75	3.74	
ORP (mV)	164	177	180	183	184	185	185	
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	

Comments: 1. Flow rate = 50ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1705
SAMPLE ID # ABP-MW-15-F004
Comments/Other:

Laboratory: Test America

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-16
PN: 990.225
Weather: Clear 82°F
Date: 6/9/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
17.50	2	12.51	4.99	0.85	2.54	10	14

Comments:

Vol. Removed (L)	Initial	0.40	1.00	1.20	1.50	1.80	2.10	
Water Level (ft from TOC)	12.79	12.65	12.65	12.65	12.65	12.65	12.65	
Time	0815	0820	0825	0830	0835	0840	0845	
Temperature (°C)	18.35	17.85	17.99	18.10	18.17	18.21	18.22	
pH (std. units)	6.09	6.83	7.01	7.04	7.06	7.06	7.06	
Conductivity (m S/cm)	0.880	0.858	0.730	0.679	0.650	0.626	0.610	
Turbidity (NTU)	19.1	6.6	4.0	3.2	2.6	2.4	2.3	
DO (mg/L)	1.42	0.85	1.2	1.35	1.48	1.56	1.6	
ORP (mV)	274	293	307	312	314	317	319	
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	

Comments: 1. Flow rate = 300 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 0850
Laboratory: Test America
SAMPLE ID # ABP-MW016-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-17
PN: 990.225
Weather: Clear 74°F
Date: 6/9/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
20.00	2	7.91	12.09	2.06	6.17	10	12

Comments:

Vol. Removed (L)	Initial	0.30	0.35	0.40	0.50	0.60	0.90	1.10
Water Level (ft from TOC)	10.0	9.88	10.06	9.90	9.81	NA	10.13	9.95
Time	0605	0610	0615	0620	0625	0630	0635	0640
Temperature (°C)	18.56	17.84	18.74	18.91	18.96	18.19	18.56	18.75
pH (std. units)	5.17	5.26	5.25	5.25	5.23	5.24	5.25	5.25
Conductivity (m S/cm)	0.080	0.080	0.077	0.077	0.078	0.080	0.079	0.079
Turbidity (NTU)	19.0	8.6	2.8	1.1	0.4	1.1	0.9	1.0
DO (mg/L)	0.21	0.34	0.13	0.13	0.10	0.12	0.12	0.07
ORP (mV)	309	308	308	309	311	311	311	311
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min
During purging measured water level from outer casing.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 0705
Laboratory: Test America
SAMPLE ID # ABP-MW017-F003/ABP-MW017-MS/MSD
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-17
PN: 990.225
Weather: Clear 74°F
Date: 6/9/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
20.00	2	7.91	12.09	2.06	6.17	10	12

Comments:

Vol. Removed (L)	1.20	1.30	1.40	1.50				
Water Level (ft from TOC)	9.89	9.83	9.83	9.82				
Time	0645	0650	0655	0700				
Temperature (°C)	18.85	18.89	18.91	18.83				
pH (std. units)	5.24	5.23	5.24	5.24				
Conductivity (m S/cm)	0.079	0.079	0.079	0.079				
Turbidity (NTU)	0.9	0.6	0.0	0.0				
DO (mg/L)	0.04	0.03	0.02	0.02				
ORP (mV)	312	312	313	313				
Odor, Color, etc.	Clear	Clear	Clear	Clear				

Comments: 1. Flow rate = 100 ml/min
During purging measured water level from outer casing.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 0705
Laboratory: Test America
SAMPLE ID # ABP-MW017-F003/ABP-MW017-MS/MSD
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-18
PN: 990.225
Weather: Clear 96°F
Date: 6/7/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
43.00	2	31.32	11.68	1.99	5.96	10	40

Comments:

Vol. Removed (L)	Intial	1.0	1.75	1.90	1.95	2.0	2.05	
Water Level (ft from TOC)	33.96	35.56	35.61	35.60	35.60	35.58	35.53	
Time	1243	1250	1300	1305	1310	1315	1320	
Temperature (°C)	23.09	24.48	26.10	26.62	27.05	27.21	27.27	
pH (std. units)	6.73	5.92	5.79	5.79	5.80	5.80	5.80	
Conductivity (m S/cm)	0.076	0.071	0.068	0.067	0.065	0.065	0.064	
Turbidity (NTU)	20.1	23.7	7.8	7.0	13.0	13.4	14.3	
DO (mg/L)	5.21	4.45	3.96	3.65	3.49	3.41	3.38	
ORP (mV)	176	202	209	212	214	216	218	
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	

Comments: 1. Flow rate = 125 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection:
Laboratory: Test America
SAMPLE ID # 1325
Comments/Other: ABP-MW018-F001

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-19
PN: 990.225
Weather: Cloudy 108°F
Date: 6/7/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
49.00	2	32.16	16.84	2.86	8.59	20	40

Comments:

Vol. Removed (L)	150 ml	1000 ml	2 L	2.25 L	2.50 L	2.75 L	2.80 L	
Water Level (ft from TOC)	33.23	33.45	33.45	33.44	33.45	33.45	33.45	
Time	1428	1435	1445	1450	1455	1500	1505	
Temperature (°C)	26.45	24.57	25.14	25.77	25.43	25.61	25.86	
pH (std. units)	5.90	5.78	5.74	5.75	5.72	5.74	5.72	
Conductivity (m S/cm)	0.053	0.055	0.056	0.056	0.055	0.055	0.055	
Turbidity (NTU)	14.3	11.9	12.4	15.7	12.6	11.7	10.7	
DO (mg/L)	4.12	3.64	3.39	3.08	3.27	3.21	3.11	
ORP (mV)	175	194	202	203	207	208	209	
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	

Comments: 1. Flow rate = 100 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1510
Laboratory: Test America
SAMPLE ID # ABP-MW019-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-23
PN: 990.225
Weather: Clear 90°F
Date: 6/13/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
19.00	2	7.20	11.80	2.01	6.02	10	10

Comments:

Vol. Removed (L)	Initial	1.0	1.1	1.2	1.3	1.4	1.5	1.6
Water Level (ft from TOC)	7.20	7.21	7.21	7.21	7.21	7.21	7.21	7.21
Time	0820	0840	0855	0910	0925	0930	0935	0940
Temperature (°C)	20.65	21.03	20.44	21.10	23.39	22.95	22.73	22.79
pH (std. units)	10.13	10.74	11.38	11.61	11.68	11.99	12.05	12.08
Conductivity (m S/cm)	7.69	12.6	14.5	15.3	13.8	15.4	15.9	15.9
Turbidity (NTU)	279	209	179	168	0.0	0.0	0.0	0.0
DO (mg/L)	0.39	0.53	0.58	0.35	2.16	1.81	1.53	1.36
ORP (mV)	-91	-121	-169	-178	-139	-174	-179	-181
Odor, Color, etc.	Clear	Cloudy	Cloudy/Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 75 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 0955
Laboratory: Test America
SAMPLE ID # ABP-MW023-F001
Comments/Other: ABP-MW023-D001

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-23
PN: 990.225
Weather: Clear 90°F
Date: 6/13/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
19.00	2	7.20	11.80	2.01	6.02	10	10

Comments:

Vol. Removed (L)	1.7	1.8						
Water Level (ft from TOC)	7.21	7.21						
Time	0945	0950						
Temperature (°C)	22.89	23.0						
pH (std. units)	12.09	12.10						
Conductivity (m S/cm)	15.9	16.0						
Turbidity (NTU)	0.0	0.0						
DO (mg/L)	1.33	1.23						
ORP (mV)	-183	-187						
Odor, Color, etc.	Clear	Clear						

Comments: 1. Flow rate = 75 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 0955
Laboratory: Test America
SAMPLE ID # ABP-MW023-F001
Comments/Other: ABP-MW023-D001 (Duplicate)

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-27
PN: 990.225
Weather: Clear 91°F
Date: 6/8/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
18.54	2	13.36	5.18	0.88	2.64	10	15

Comments:

Vol. Removed (L)	Initial	0.40	0.45	0.50	0.60	0.70	1.00	1.10
Water Level (ft from TOC)	13.94	13.84	13.82	13.80	13.84	13.86	13.90	13.86
Time	1225	1230	1235	1240	1245	1250	1255	1300
Temperature (°C)	26.78	26.21	26.08	26.09	25.45	26.50	26.19	26.21
pH (std. units)	9.03	9.18	9.22	9.23	9.22	9.22	9.21	9.22
Conductivity (m S/cm)	3.02	3.10	3.13	3.14	3.17	3.08	3.11	3.09
Turbidity (NTU)	20.9	22.5	22.6	24.5	21.9	20.4	16.0	13.5
DO (mg/L)	1.31	1.2	1.24	1.16	1.25	0.86	0.49	0.33
ORP (mV)	122	115	112	110	110	110	110	109
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1400
Laboratory: Test America
SAMPLE ID # ABP-MW027-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-27
PN: 990.225
Weather: Clear 91°F
Date: 6/8/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
18.54	2	13.36	5.18	0.88	2.64	10	15

Comments:

Vol. Removed (L)	1.15	1.20	1.30	1.40	1.50	1.60	1.80	1.90
Water Level (ft from TOC)	13.84	13.83	13.80	13.8	13.8	13.8	13.8	13.8
Time	1305	1310	1315	1320	1325	1330	1335	1340
Temperature (°C)	25.63	26.50	26.89	27.18	273.78	28.14	28.67	29.08
pH (std. units)	9.24	9.23	9.23	9.22	9.22	9.22	9.22	9.23
Conductivity (m S/cm)	3.13	3.10	3.13	3.14	3.13	3.14	3.12	3.10
Turbidity (NTU)	13.2	11.2	12.3	10.3	9.3	8.6	6.6	5.7
DO (mg/L)	0.30	0.24	0.21	0.20	0.13	0.12	0.08	0.05
ORP (mV)	110	111	113	116	120	122	124	125
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1400
Laboratory: Test America
SAMPLE ID # ABP-MW027-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-27
PN: 990.225
Weather: Clear 91°F
Date: 6/8/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
18.54	2	13.36	5.18	0.88	2.64	10	15

Comments:

Vol. Removed (L)	2.0	2.10	2.20					
Water Level (ft from TOC)	13.8	13.8	13.8					
Time	1345	1350	1355					
Temperature (°C)	29.44	29.6	30.01					
pH (std. units)	9.23	9.23	9.23					
Conductivity (m S/cm)	3.09	3.08	3.06					
Turbidity (NTU)	5.3	4.6	4.7					
DO (mg/L)	0.01	0.0	0.0					
ORP (mV)	126	127	129					
Odor, Color, etc.	Clear	Clear	Clear					

Comments: 1. Flow rate = 100 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1400
Laboratory: Test America
SAMPLE ID # ABP-MW027-F003
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-28
PN: 990.225
Weather: Clear 95°F
Date: 6/12/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
54.06	2	25.50	28.56	4.86	14.57	10	46

Comments:

Vol. Removed (L)	Initial	0.20	0.25	0.30	0.35	0.40	0.45	0.50
Water Level (ft from TOC)	26.45	26.26	26.02	25.95	25.85	25.80	25.78	25.77
Time	1245	1250	1255	1300	1305	1310	1315	1320
Temperature (°C)	30.63	30.33	30.04	30.33	31.13	31.24	31.42	31.77
pH (std. units)	7.92	7.12	6.67	5.99	5.61	5.50	5.43	5.41
Conductivity (m S/cm)	0.192	0.137	0.092	0.100	0.098	0.093	0.095	0.094
Turbidity (NTU)	61.0	56.9	48.6	53.5	52.8	53.0	43.9	45.1
DO (mg/L)	2.33	2.79	3.30	3.35	3.07	2.85	2.94	2.92
ORP (mV)	177	210	226	254	264	264	263	260
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 70 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1400
Laboratory: Test America
SAMPLE ID # ABP-MW077-F002
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-28
PN: 990.225
Weather: Clear 95°F
Date: 6/12/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
54.06	2	25.50	28.56	4.86	14.57	10	46

Comments:

Vol. Removed (L)	0.55	0.60	0.65	0.70	0.75			
Water Level (ft from TOC)	25.75	25.75	25.75	25.75	25.75			
Time	1325	1340	1345	1350	1355			
Temperature (°C)	32.24	32.49	32.43	32.39	32.37			
pH (std. units)	5.37	5.51	5.37	5.33	5.32			
Conductivity (m S/cm)	0.093	0.085	0.087	0.088	0.088			
Turbidity (NTU)	41.1	50.0	41.7	40.3	40.0			
DO (mg/L)	2.86	2.09	1.62	1.59	1.49			
ORP (mV)	256	229	240	241	240			
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear			

Comments: 1. Flow rate = 70 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1400
Laboratory: Test America
SAMPLE ID # ABP-MW077-F002
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-29
PN: 990.225
Weather: Clear 71°F
Date: 6/12/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
46.50	2	25.58	20.92	3.56	10.67	10	36

Comments:

Vol. Removed (L)	Initial	0.10	0.20	0.30	0.35	0.40	0.45	0.50
Water Level (ft from TOC)	26.2	26.0	25.98	25.98	25.98	25.97	25.97	25.97
Time	0815	8.20	0830	0840	0850	0900	0910	0920
Temperature (°C)	1950	20.02	20.18	20.19	20.44	20.70	21.04	21.44
pH (std. units)	6.50	6.59	6.61	6.61	6.61	6.63	6.64	6.65
Conductivity (m S/cm)	6.56	6.69	6.69	6.94	7.49	7.74	7.89	7.93
Turbidity (NTU)	99.3	105	99.4	93.7	71.8	58.9	46.1	41.3
DO (mg/L)	0.71	0.86	0.43	0.49	0.42	0.37	0.39	0.31
ORP (mV)	227	224	233	220	213	209	207	204
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 50 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1040
Laboratory: Test America
SAMPLE ID # ABP-MW029-F001
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-29
PN: 990.225
Weather: Clear 71°F
Date: 6/12/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
46.50	2	25.58	20.92	3.56	10.67	10	36

Comments:

Vol. Removed (L)	0.55	0.65	0.8	0.9	1.0	1.2	1.3	1.4
Water Level (ft from TOC)	25.96	25.96	25.96	25.96	25.96	25.96	25.96	25.96
Time	0930	0940	0950	1000	1010	1020	1025	1030
Temperature (°C)	21.69	21.96	22.23	22.48	22.63	22.93	23.11	23.32
pH (std. units)	6.66	6.67	6.68	6.69	6.68	6.69	6.68	6.69
Conductivity (m S/cm)	7.95	7.96	7.93	7.86	7.85	7.76	7.76	7.69
Turbidity (NTU)	36.7	32.8	31.5	26.8	29.4	25.2	19.3	15.2
DO (mg/L)	0.32	0.32	0.30	0.21	0.26	0.23	0.26	0.25
ORP (mV)	203	202	202	202	201	201	201	201
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 50 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1040
Laboratory: Test America
SAMPLE ID # ABP-MW029-F001
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-29
PN: 990.225
Weather: Clear 71°F
Date: 6/12/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
46.50	2	25.58	20.92	3.56	10.67	10	36

Comments:

Vol. Removed (L)	1.5							
Water Level (ft from TOC)	25.96							
Time	1035							
Temperature (°C)	23.39							
pH (std. units)	6.69							
Conductivity (m S/cm)	7.63							
Turbidity (NTU)	13.0							
DO (mg/L)	0.23							
ORP (mV)	202							
Odor, Color, etc.	Clear							

Comments: 1. Flow rate = 50 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1040
Laboratory: Test America
SAMPLE ID # ABP-MW029-F001
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-101
PN: 990.225
Weather: Clear 94°F
Date: 6/10/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
46.82	2	20.6	26.22	26.22	78.66	37	30

Comments:

Vol. Removed (L)	Initial	0.10	0.20	0.30	0.60	0.70	0.90	1.00
Water Level (ft from TOC)	21.0	20.90	21.0	NA	20.80	20.80	20.81	20.81
Time	1355	1400	1405	1410	1430	1435	1440	1445
Temperature (°C)	22.02	22.13	21.37	21.47	27.07	27.86	28.40	28.81
pH (std. units)	5.49	5.47	5.48	5.48	4.78	5.21	5.29	5.28
Conductivity (m S/cm)	0.237	0.238	0.241	0.244	0.292	0.238	0.244	0.234
Turbidity (NTU)	56.6	61.5	63.6	84.0	39.0	27	24.7	15.4
DO (mg/L)	4.27	5.23	4.87	6.52	3.73	5.21	5.05	4.94
ORP (mV)	223	234	241	245	325	284	279	283
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Probe calibrated at 0530. All numbers match calibration solution.
2. Flow rate = 100 ml/min
Cleaned flow thru cell at 1410 during purging.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1500
Laboratory: Test America
SAMPLE ID # ABP-MW101-F004
Comments/Other: ABP-MW101-D001 (Duplicate)

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-101
PN: 990.225
Weather: Clear 94°F
Date: 6/10/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
46.82	2	20.6	26.22	26.22	78.66	37	30

Comments:

Vol. Removed (L)	1.10	1.20						
Water Level (ft from TOC)	20.81	20.81						
Time	14.50	1455						
Temperature (°C)	28.98	29.20						
pH (std. units)	5.26	5.20						
Conductivity (m S/cm)	0.232	0.233						
Turbidity (NTU)	8.9	5.4						
DO (mg/L)	5.08	5.03						
ORP (mV)	287	288						
Odor, Color, etc.	Clear	Clear						

Comments: 1. Probe calibrated at 0530. All numbers match calibration solution.
2. Flow rate = 100 ml/min
Cleaned flow thru cell at 1410 during purging.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1500
Laboratory: Test America
SAMPLE ID # ABP-MW101-F004
Comments/Other: ABP-MW101-D001 (Duplicate)

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-102
PN: 990.225
Weather: Clear 97°F
Date: 6/12/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
35.51	2	7.4	28.11	4.78	14.34	30	25

Comments:

Vol. Removed (L)	Initial	0.30	0.40	0.5	0.6	0.7	1	1.2
Water Level (ft from TOC)	7.55	7.55	7.59	7.6	7.6	7.62	7.65	7.67
Time	1520	1530	1540	1550	1600	1610	1620	1630
Temperature (°C)	33.14	33.08	33.57	33.56	33.64	33.87	34.11	34.21
pH (std. units)	5.85	5.75	5.69	5.68	5.67	5.66	5.67	5.66
Conductivity (m S/cm)	0.108	0.104	0.105	0.103	0.105	0.104	0.104	0.104
Turbidity (NTU)	>800	494	305	267	189	165	138	115
DO (mg/L)	4.37	4.69	3.40	3.97	4.08	3.32	3.16	3.54
ORP (mV)	180	194	206	211	214	216	219	219
Odor, Color, etc.	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy/Clear

Comments: 1. Flow rate = 75 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1755
Laboratory: Test America
SAMPLE ID # ABP-MW102-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-102
PN: 990.225
Weather: Clear 97°F
Date: 6/12/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
35.51	2	7.4	28.11	4.78	14.34	30	25

Comments:

Vol. Removed (L)	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Water Level (ft from TOC)	7.68	7.69	7.69	7.73	7.75	7.76	7.78	7.79
Time	1640	1650	1700	1710	1720	1730	1740	1750
Temperature (°C)	34.56	34.90	35.44	35.80	35.91	35.90	36.6	36.17
pH (std. units)	5.65	5.65	5.64	5.65	5.66	5.65	5.67	5.65
Conductivity (m S/cm)	0.105	0.104	0.104	0.104	0.102	0.102	0.102	0.101
Turbidity (NTU)	98.3	94.0	76.1	70.0	62.2	60.7	45.6	42.8
DO (mg/L)	3.88	4.07	3.97	3.55	3.01	3.12	3.36	3.32
ORP (mV)	218	217	217	217	217	218	218	218
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 75 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1755
Laboratory: Test America
SAMPLE ID # ABP-MW102-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-103
PN: 990.225
Weather: Clear 81°F
Date: 6/11/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
11.66	2	7.69	3.97	0.67	2.02	8.0	8

Comments:

Vol. Removed (L)	Initial	0.20	0.25	0.30	0.35	0.40	0.45	0.50
Water Level (ft from TOC)	7.70	7.70	7.70	7.70	7.70	7.70	7.70	7.70
Time	1730	1740	1750	1755	1800	1805	1810	1815
Temperature (°C)	25.69	26.19	26.33	26.40	26.43	26.44	26.43	26.45
pH (std. units)	6.63	6.32	6.16	6.12	6.11	6.10	6.07	6.05
Conductivity (m S/cm)	0.335	0.327	0.312	0.308	0.307	0.303	0.301	0.299
Turbidity (NTU)	123	55.0	33.3	20.3	27.2	25.5	15.7	13.8
DO (mg/L)	3.07	3.20	3.40	3.44	3.45	3.51	3.55	3.52
ORP (mV)	178	201	212	217	219	223	225	227
Odor, Color, etc.	Cloudy/Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 50ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1825
Laboratory: Test America
SAMPLE ID # ABP-MW103-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-103
PN: 990.225
Weather: Clear 81°F
Date: 6/11/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
11.66	2	7.69	3.97	0.67	2.02	8.0	8

Comments:

Vol. Removed (L)	0.55							
Water Level (ft from TOC)	7.70							
Time	1820							
Temperature (°C)	26.47							
pH (std. units)	6.04							
Conductivity (m S/cm)	0.298							
Turbidity (NTU)	12.2							
DO (mg/L)	3.52							
ORP (mV)	228							
Odor, Color, etc.	Clear							

Comments: 1. Flow rate = 50 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1825
Laboratory: Test America
SAMPLE ID # ABP-MW103-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-104
PN: 990.225
Weather: Clear 95°F
Date: 5/10/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
17.40	2	13.00	4.40	0.75	2.24	10	15

Comments:

Vol. Removed (L)	Initial	0.1	0.2	0.3	0.4	0.45	0.5	0.55
Water Level (ft from TOC)	13.10	13.26	13.35	13.40	13.46	13.48	13.51	13.54
Time	1605	1610	1615	1620	1630	1635	1640	1645
Temperature (°C)	28.63	27.10	26.79	27.56	28.86	29.22	29.57	29.79
pH (std. units)	6.05	6.23	6.34	6.36	6.39	6.41	6.43	6.43
Conductivity (m S/cm)	0.265	0.270	0.274	0.276	0.275	0.274	0.274	0.273
Turbidity (NTU)	198	147	100	83.8	54.8	59.8	53.0	54.5
DO (mg/L)	10.96	10.96	10.62	10.58	6.41	6.14	6.87	6.33
ORP (mV)	216	212	209	208	205	205	203	203
Odor, Color, etc.	Cloudy	Cloudy	Cloudy	Cloudy	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 50 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1730
Laboratory: Test America
SAMPLE ID # ABP-MW104-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-104
PN: 990.225
Weather: Clear 95°F
Date: 5/10/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
17.40	2	13.00	4.40	0.75	2.24	10	15

Comments:

Vol. Removed (L)	0.6	0.65	0.70	0.80	0.85	0.9	1	1.1
Water Level (ft from TOC)	13.56	13.60	13.62	13.64	13.67	13.70	13.71	13.73
Time	1650	1655	1700	1705	1710	1715	1720	1725
Temperature (°C)	30.00	30.05	29.89	29.61	29.39	29.20	29.06	28.97
pH (std. units)	6.45	6.45	6.46	6.47	6.47	6.48	6.48	6.49
Conductivity (m S/cm)	0.273	0.271	0.270	0.271	0.271	0.271	0.271	0.272
Turbidity (NTU)	45.5	44.5	36.6	26.5	24	17.7	16.5	7.8
DO (mg/L)	6.33	6.38	6.47	6.48	6.44	6.39	6.38	6.27
ORP (mV)	204	205	206	208	209	210	211	212
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 50 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 1730
Laboratory: Test America
SAMPLE ID # ABP-MW104-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-105
PN: 990.225
Weather: Clear 71°F
Date: 6/14/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
29.88	2	16.01	13.87	2.36	7.07	20	18

Comments:

Vol. Removed (L)	Initial	0.25	1.0	1.1	1.2	1.3	1.40	
Water Level (ft from TOC)	16.15	16.10	16.10	16.10	16.10	16.10	16.10	
Time	615	620	0625	0630	0635	0640	0645	
Temperature (°C)	20.02	20.08	19.89	19.84	19.80	19.72	19.70	
pH (std. units)	5.72	5.69	5.66	5.65	5.63	5.61	5.61	
Conductivity (m S/cm)	0.248	0.212	0.196	0.192	0.191	0.190	0.189	
Turbidity (NTU)	27.1	14.8	9.3	7.1	5.9	4.5	3.9	
DO (mg/L)	2.45	2.02	2.51	2.12	1.87	1.97	1.95	
ORP (mV)	274	272	274	275	276	278	278	
Odor, Color, etc.	Clear	Clear	Clear	Clear	Clear	Clear	Clear	

Comments: 1. Flow rate = 100 ml/min

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 650
Laboratory: Test America
SAMPLE ID # ABP-MW105-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-108
PN: 990.225
Weather: Clear 77°F
Date: 6/8/2011

Project Manager: T. Gessner
Samplers: WR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
29.79	2	9.65	20.14	3.42	10.27	20	16

Comments:

Vol. Removed (L)	Initial	0.40	1.0	1.4	1.6	1.8	2	2.2
Water Level (ft from TOC)	9.68	9.69	9.69	9.69	9.69	9.69	9.69	9.69
Time	0830	0850	0900	0910	0920	0925	0930	0935
Temperature (°C)	22.22	20.75	20.51	20.47	20.49	20.69	20.79	20.77
pH (std. units)	5.37	5.36	5.36	5.34	5.33	5.33	5.32	5.32
Conductivity (m S/cm)	0.231	0.239	0.240	0.240	0.240	0.239	0.238	0.239
Turbidity (NTU)	244	131	68.8	29.8	23.4	18.9	18.1	17.6
DO (mg/L)	1.62	1.70	1.67	1.54	1.54	1.53	1.51	1.55
ORP (mV)	288	301	306	310	312	313	314	315
Odor, Color, etc.	Cloudy	Cloudy/Clear	Clear	Clear	Clear	Clear	Clear	Clear

Comments: 1. Flow rate = 100 ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x250-mL	Plastic				X	X
Alkalinity	1x250-mL	Plastic				X	X

Comments:

Time of Sample Collection: 940
Laboratory: Test America
SAMPLE ID # ABP-MW108-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-109
PN: 990.225
Weather: Cloudy 65°F
Date: 6/16/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
33	2	18.29	14.71	2.50	7.50	25.00	20

Comments:

Vol. Removed (L)	Initial	0.20	0.25	0.30	0.35	0.40	0.45	0.50
Water Level (ft from TOC)	18.98	18.94	18.95	18.96	18.97	18.98	18.99	18.99
Time	638	650	705	715	730	740	750	800
Temperature (°C)	20.63	19.32	18.74	18.78	19.43	20.36	21.20	22.04
pH (std. units)	6.27	6.43	6.48	6.46	6.42	6.44	6.43	6.44
Conductivity (m S/cm)	0.478	0.485	0.510	0.548	0.548	0.608	0.640	0.666
Turbidity (NTU)	278	226	190	178	148	126	106	94.4
DO (mg/L)	1.62	2.19	2.42	2.47	2.35	2.18	2.03	1.87
ORP (mV)	276	244	223	208	188	175	167	163
Odor, Color, etc.	Cloudy/Clear	Cloudy/Clear	Cloudy/Clear	Cloudy/Clear	Cloudy/Clear	Cloudy/Clear	Clear	Clear

Comments: 1. Probes calibrated at 0615 - all numbers matched calibration solution.
2. Flow rate = 50ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Plastic			X		X
Fluoride	1x500-mL	Plastic				X	X
Alkalinity	1x500-mL	Plastic				X	X

Comments:

Time of Sample Collection: 0850
Laboratory: Test America
SAMPLE ID # ABP-MW109-F004
Comments/Other:

Alcoa - BADIN, NC
Sampling Log

BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, Ohio 45246

Well Number: MW-109
PN: 990.225
Weather: Cloudy 65°F
Date: 6/16/2011

Project Manager: T. Gessner
Samplers: WJR

Well Information

Well Depth (feet)	Diameter (inches)	Water from TOC (feet)	Water in Well (feet)	One Well Volume column # 2 * 0.17 (gal)	Three Well Volumes (gal)	Screen length (ft)	Depth (ft) of pump inlet (from TOC)
	2						

Comments:

Vol. Removed (L)	0.55	0.60	0.65	0.70				
Water Level (ft from TOC)	19.00	19.00	19.00	19.00				
Time	810	820	0830	840				
Temperature (°C)	22.99	23.87	24.76	25.36				
pH (std. units)	6.44	6.43	6.42	6.42				
Conductivity (m S/cm)	0.688	0.706	0.714	0.699				
Turbidity (NTU)	83.0	67.2	67.1	65.2				
DO (mg/L)	1.68	1.53	1.44	1.51				
ORP (mV)	171	173	175	175				
Odor, Color, etc.	Clear	Clear	Clear	Clear				

Comments: 1. Probes calibrated at 0615 - all numbers matched calibration solution.
2. Flow rate = 50ml/min.

Sample Containers and Preservatives

Analyses	Bottle Number/Size	Bottle Media	Preservatives (indicate all that apply)				
			H_2SO_4	HNO3	NaOH	None	Ice
Cyanide	1x250-mL	Amber Plastic			X		X
Fluoride	1x500-mL	Plastic				X	X
Alkalinity	1x500-mL	Plastic				X	X

Comments:

Time of Sample Collection: 0850
Laboratory: Test America
SAMPLE ID # ABP-MW109-F004
Comments/Other:

Well Sampling Log

Personnel	M.Worden, Environeering, Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	MW-4	Date	12/1/2011
Screened Interval	6-16' below land surface (BLS)	Pump Type	1.66" submersible bladder
Total Well Depth	18.53' BTOC	Tubing Type	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	18.53' BTOC	Bailer Type	N/A
Well Diameter	2"	String Type	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	Time Purging Started	14:10
Actual Purge Volume	3600ml	Time Purging Ended	15:20

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
14:10	Start							7.35	
14:25	0	7.35	19.27	700	3.83	277.2	24.8	6.98	
14:30	500	7.34	19.38	703	3.39	274.5	19.7	7.92	
14:35	1000	7.35	19.36	701	3.12	270.3	16.6	8.71	
14:40	1300	7.37	18.94	702	2.73	263.9	14.7	8.72	
14:45	1600	7.35	18.58	711	2.49	260.7	15.3	8.58	
14:50	1900	7.39	18.34	719	2.33	251.1	14.8	8.40	
14:55	2100	7.41	18.10	747	1.67	241.9	12.3	8.36	
15:00	2400	7.44	18.00	772	1.29	236.5	13.2	8.33	
15:05	2700	7.44	18.04	778	1.24	235.0	10.1	8.31	
15:10	3000	7.45	17.94	800	1.21	231.5	11.7	8.29	
15:15	3300	7.45	17.93	803	1.18	230.8	11.8	8.27	
15:20	3600	7.45	18.00	808	1.19	230.1	10.9	8.26	
									Sample: ABPMW4F002 (15:25)

Well Sampling Log

Personnel	M Worden, Environeering, Inc.		
Project	Alcoa Badin: Badin Works Facility	**Location**	Badin, NC
Well Identification	MW-9	**Date**	11/30/2011
Screened Interval	14-24' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	24.75' BTOC	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	17.06' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	12:10
Actual Purge Volume	3600 ml	**Time Purging Ended**	13:05

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
12:10	Start							17.06	
12:20	0	6.78	19.05	417	3.85	285.0	17.7	17.07	
12:25	400	6.76	18.58	479	2.41	296.3	14.3	17.08	
12:30	800	6.79	18.26	500	1.98	296.9	11.2	17.08	
12:35	1200	6.80	18.00	510	1.86	299.8	8.95	17.09	
12:40	1600	6.79	18.23	508	1.72	302.4	8.35	17.09	
12:45	2000	6.80	19.51	519	1.74	306.0	6.79	17.10	
12:50	2400	6.85	19.52	544	1.46	307.2	5.85	17.10	
12:55	2800	6.88	19.11	563	1.50	306.8	5.71	17.10	
13:00	3200	6.90	19.04	579	1.41	306.5	5.22	17.10	
13:05	3600	6.89	18.93	568	1.40	308.3	5.51	17.10	
									Sample: ABPMW09F002 (13:10)
									Sample: ABPMW09D002 (13:30)

Well Sampling Log

Personnel	M.Worden, Environeering, Inc.		
Project	Alcoa Badin: Badin Works Facility	**Location**	Badin, NC
Well Identification	MW-10	**Date**	11/30/2011
Screened Interval	21-31' below land surface (BLS)	**Pump Type**	1.66" submersible bladder
Total Well Depth	31.12' BTOC	**Tubing Type**	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	17.18' BTOC	**Bailer Type**	N/A
Well Diameter	2"	**String Type**	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	**Time Purging Started**	14:45
Actual Purge Volume	3000 ml	**Time Purging Ended**	15:25

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
14:45	Start							17.18	
14:55	0	5.75	17.18	162	4.51	340.5	16.2	17.28	
15:00	600	5.68	17.55	168	2.72	331.0	11.00	17.21	
15:05	1000	5.67	17.12	169	2.71	321.0	7.50	17.25	
15:10	1500	5.65	17.50	169	2.56	311.2	5.12	17.28	
15:15	2000	5.65	17.44	169	2.53	307.4	5.15	17.28	
15:20	2500	5.66	17.51	168	2.58	305.9	5.11	17.28	
15:25	3000	5.66	17.52	168	2.40	302.0	5.23	17.28	
									Sample: ABPMW10F002 (15:30)

Well Sampling Log

Personnel	M Worden, Environeering, Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	MW-16	Date	11/30/2011
Screened Interval	7.5-17.5' below land surface (BLS)	Pump Type	1.66" submersible bladder
Total Well Depth	17.49' BTOC	Tubing Type	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	10.87' BTOC	Bailer Type	N/A
Well Diameter	2"	String Type	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	Time Purging Started	9:10
Actual Purge Volume	4900 ml	Time Purging Ended	10:25

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
9:10	Start							10.87	
9:25	0	7.08	16.82	770	1.89	269.1	7.81	10.91	
9:30	500	7.03	16.35	701	1.91	273.8	7.63	10.91	
9:35	900	7.00	16.28	642	2.01	274.3	6.91	10.91	
9:40	1300	6.98	16.50	606	2.06	273.6	5.12	10.91	
9:45	1700	6.98	17.04	577	2.15	274.6	4.11	10.91	
9:50	2100	6.98	17.11	582	2.11	274.3	7.14	10.91	
9:55	2500	6.96	17.24	568	2.13	276.1	5.63	10.92	
10:00	2900	6.64	17.18	599	2.19	278.0	6.12	10.92	
10:05	3300	6.94	17.28	554	2.21	279.6	4.70	10.92	
10:10	3700	6.94	17.37	550	2.25	281.9	4.11	10.92	
10:15	4100	6.94	17.40	546	2.28	282.7	4.85	10.93	
10:20	4500	6.94	17.41	541	2.31	284.3	5.12	10.93	
10:25	4900	6.94	17.43	538	2.30	285.4	5.01	10.93	
									Sample: ABPMW16F002 (10:30)

Well Sampling Log

Personnel	M.Worden, Environeering, Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	B016-MW2	Date	12/1/2011
Screened Interval	6.50-16.50' below land surface (BLS)	Pump Type	1.66" submersible bladder
Total Well Depth	20.09' BTOC	Tubing Type	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	12.80' BTOC	Bailer Type	N/A
Well Diameter	2"	String Type	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	Time Purging Started	11:25
Actual Purge Volume	4000ml	Time Purging Ended	12:15

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:25	Start							12.80	
11:35	0	6.44	19.59	303	5.20	274.2	58.3	12.90	
11:40	500	6.44	19.41	305	5.34	273.0	51.2	12.91	
11:45	1000	6.44	18.82	302	5.25	272.0	43.2	12.90	
11:50	1500	6.44	18.86	302	5.20	270.8	30.8	12.87	
11:55	2000	6.43	18.98	302	5.03	267.8	19.9	12.88	
12:00	2500	6.43	18.93	302	4.91	264.4	17.3	12.86	
12:05	3000	6.44	19.01	302	4.88	261.0	13.8	12.86	
12:10	3500	6.43	18.94	302	4.83	258.4	13.0	12.86	
12:15	4000	6.43	18.95	302	4.82	258.6	12.7	12.86	
									Sample: ABPB016MW2 (12:20)

Well Sampling Log

Personnel	M Worden, Environeering, Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	FO-2	Date	12/1/2011
Screened Interval	18.9-28.9' below land surface (BLS)	Pump Type	1.66" submersible bladder
Total Well Depth	30.50' BTOC	Tubing Type	0.17" polyethylene air; 0.25" polyethylene discharge
Depth to Water Prior to Sampling	15.93' BTOC	Bailer Type	N/A
Well Diameter	2"	String Type	N/A
Well Volume	N/A		
Calculated Purge Volume	N/A	Time Purging Started	8:45
Actual Purge Volume	4000 ml	Time Purging Ended	9:35

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
8:45	Start							15.93	
8:55	0	5.77	15.48	318	4.90	251.6	7.31	15.98	
9:00	500	5.67	14.79	326	3.47	267.6	2.20	15.98	
9:05	1000	5.64	15.07	320	3.42	273.8	3.11	15.99	
9:10	1500	5.64	16.30	323	3.19	276.3	4.92	15.99	
9:15	2000	5.63	16.31	323	3.19	287.3	4.81	15.99	
9:20	2500	5.63	16.28	323	3.15	288.6	4.74	16.00	
9:25	3000	5.62	16.51	323	3.05	297.0	1.47	16.01	
9:30	3500	5.62	16.59	323	2.99	299.7	1.52	16.01	
9:35	4000	5.61	16.51	323	3.00	301.6	1.55	16.01	
									Sample: ABPFO2F002 (9:40)

Well Sampling Log

Personnel	D. Parker Environeering Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	MW-4	Date	8/7/2012
Screened Interval	6-16' below land surface (BLS)	Pump Type	N/A
Total Well Depth	18.53' BTOC	Tubing Type	N/A
Depth to Water Prior to Sampling	9.17' BTOC	Bailer Type	1.5" polyethylene
Well Diameter	2"	String Type	Nylon
Well Volume	1.49 gallons		
Calculated Purge Volume	4.48 gallons	Time Purging Started	11:00
Actual Purge Volume	5 gallons	Time Purging Ended	11:10

Time	Purge Volume (gal)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:15	5	7.43	24.2	1128	NM	189.1	>1000	9.17	
									Sample: ABPMW04F003 (11:15)

Well Sampling Log

Personnel	D. Parker Environeering Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	MW-9	Date	8/7/2012
Screened Interval	14-24' below land surface (BLS)	Pump Type	N/A
Total Well Depth	21.75' BTOC	Tubing Type	N/A
Depth to Water Prior to Sampling	16.32' BTOC	Bailer Type	1.5" polyethylene
Well Diameter	2"	String Type	Nylon
Well Volume	0.88 gallons		
Calculated Purge Volume	2.63 gallons	Time Purging Started	13:35
Actual Purge Volume	3 gallons	Time Purging Ended	13:43

Time	Purge Volume (gal)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:45	3	6.67	24.8	463	NM	225.8	29.3	16.32	
									Sample: ABPMW09F003 (13:45)
									Sample: ABPMW09D003 (13:50)

Well Sampling Log

Personnel	D. Parker Environeering Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	MW-10	Date	8/7/2012
Screened Interval	21-31' below land surface (BLS)	Pump Type	N/A
Total Well Depth	31.12' BTOC	Tubing Type	N/A
Depth to Water Prior to Sampling	20.26' BTOC	Bailer Type	1.5" polyethylene
Well Diameter	2"	String Type	Nylon
Well Volume	1.73 gallons		
Calculated Purge Volume	5.20 gallons	Time Purging Started	12:55
Actual Purge Volume	5.5 gallons	Time Purging Ended	13:10

Time	Purge Volume (gal)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
13:15	5.5	5.71	21.6	270	NM	228.5	42.4	20.26	
									Sample: ABPMW10F003 (13:15)

Well Sampling Log

Personnel	D. Parker Environeering Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	MW-16	Date	8/7/2012
Screened Interval	7.5-17.5' below land surface (BLS)	Pump Type	N/A
Total Well Depth	17.49' BTOC	Tubing Type	N/A
Depth to Water Prior to Sampling	11.52' BTOC	Bailer Type	1.5" polyethylene
Well Diameter	2"	String Type	Nylon
Well Volume	0.96 gallons		
Calculated Purge Volume	2.87 gallons	Time Purging Started	14:00
Actual Purge Volume	3 gallons	Time Purging Ended	14:10

Time	Purge Volume (gal)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
14:15	3	6.72	26.6	711	NM	242.6	99.1	11.52	
									Sample: ABPMW16F003 (14:15)

Well Sampling Log

Personnel	D. Parker Environeering Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	B016MW02	Date	8/7/2012
Screened Interval	6.5-16.5' below land surface (BLS)	Pump Type	N/A
Total Well Depth	20.09' BTOC	Tubing Type	N/A
Depth to Water Prior to Sampling	N/A	Bailer Type	1.5" polyethylene
Well Diameter	2"	String Type	Nylon
Well Volume	N/A		
Calculated Purge Volume	N/A	Time Purging Started	N/A
Actual Purge Volume	N/A	Time Purging Ended	N/A

Time	Purge Volume (ml)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
11:35									Pinched off / blocked
									Well damaged

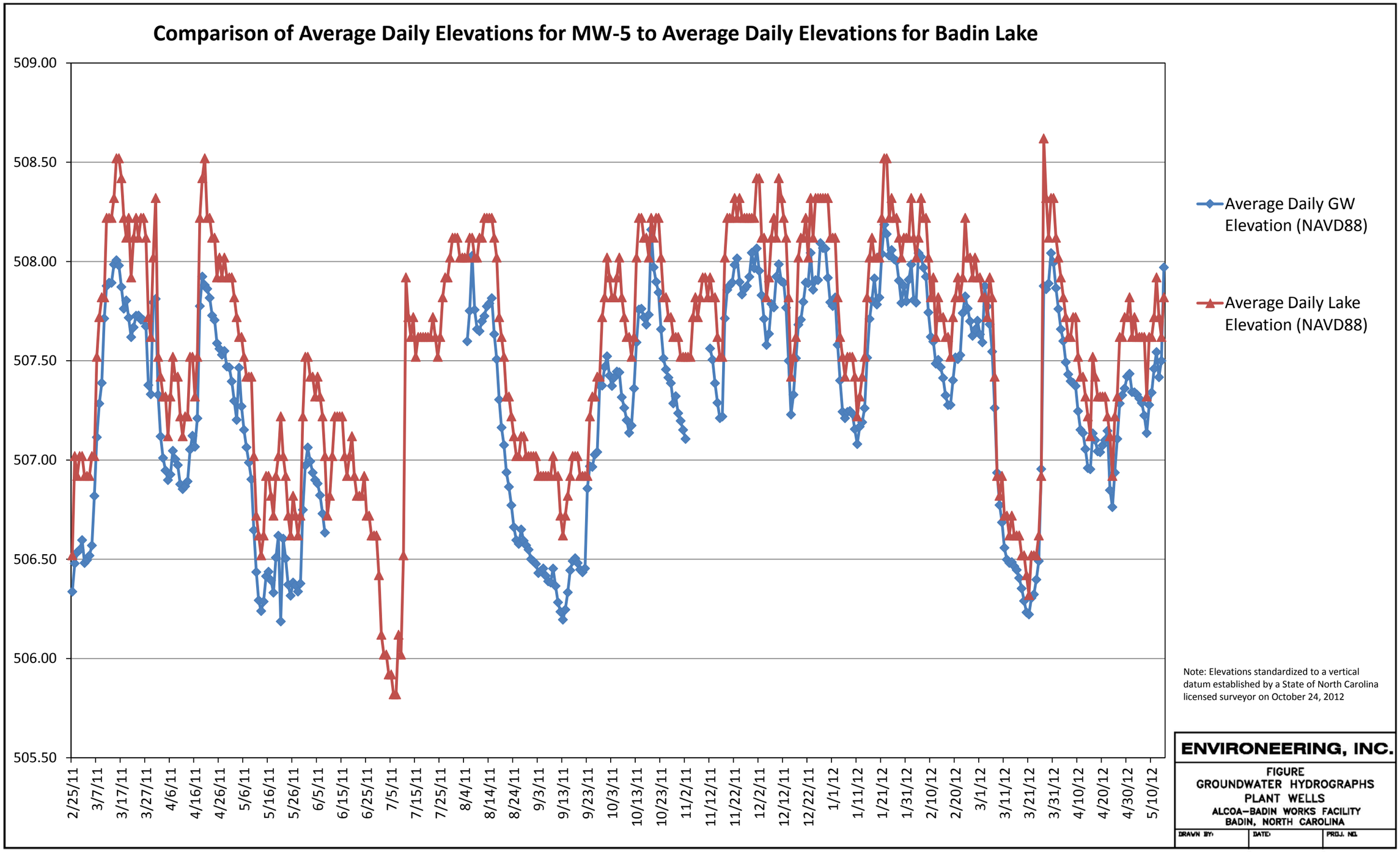
Well Sampling Log

Personnel	D. Parker Environeering Inc.		
Project	Alcoa Badin: Badin Works Facility	Location	Badin, NC
Well Identification	FO-2	Date	8/7/2012
Screened Interval	18.9-28.9' below land surface (BLS)	Pump Type	N/A
Total Well Depth	30.50' BTOC	Tubing Type	N/A
Depth to Water Prior to Sampling	16.59' BTOC	Bailer Type	1.5" polyethylene
Well Diameter	2"	String Type	Nylon
Well Volume	2.22 gallons		
Calculated Purge Volume	6.66 gallons	Time Purging Started	11:50
Actual Purge Volume	7 gallons	Time Purging Ended	12:15

Time	Purge Volume (gal)	pH	Temp (°C)	Conduct. (µS)	D.O. (mg/L)	ORP (mV)	Turb (NT)	Depth to water (ft)	Notes
12:00	7	5.32	22.2	724	NM	161.1	6.01	16.59	
									Sample: ABPFO2F003 (12:20)

APPENDIX N

BADIN LAKE GROUNDWATER HYDROGRAPHS

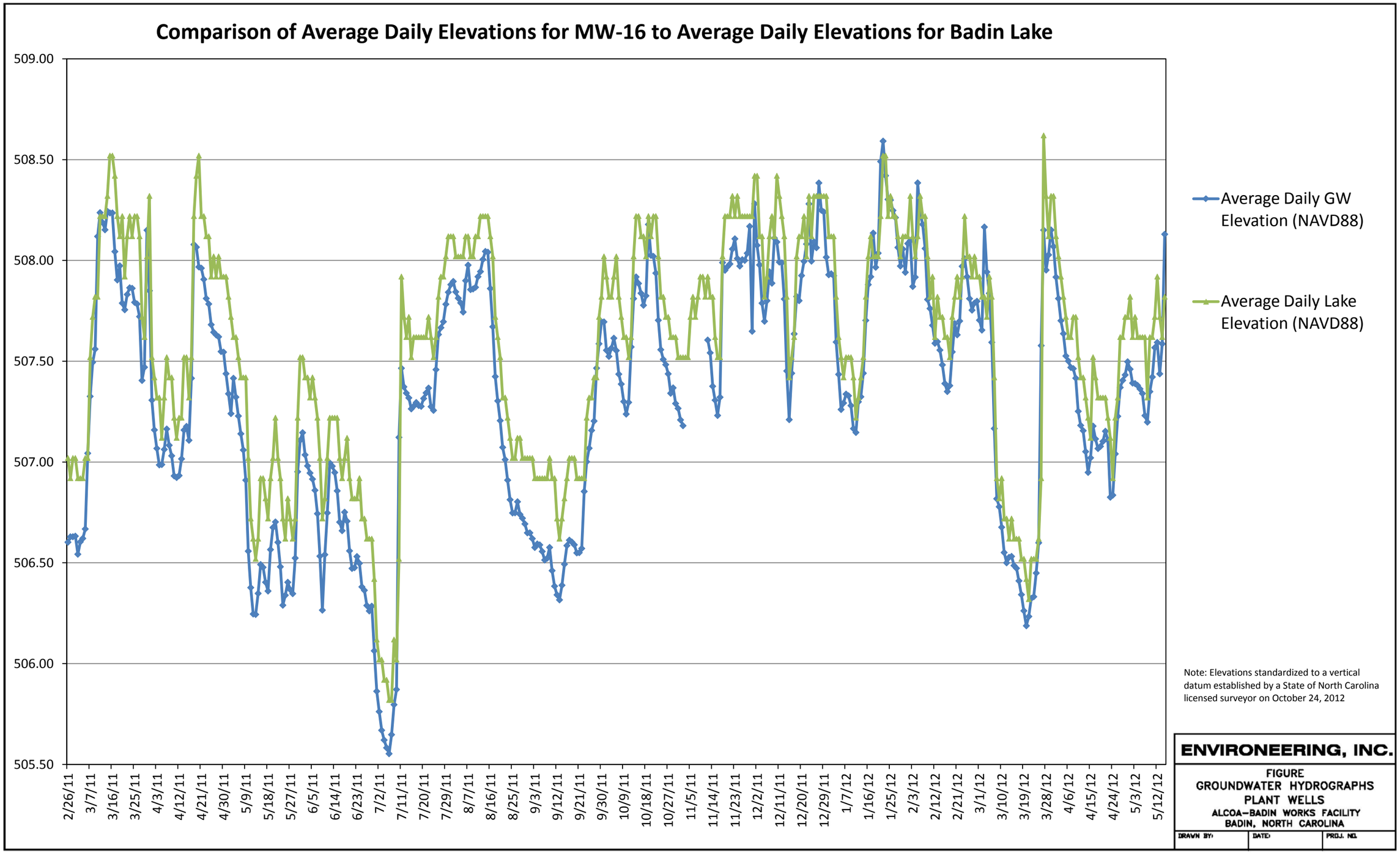


Note: Elevations standardized to a vertical datum established by a State of North Carolina licensed surveyor on October 24, 2012

ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
PLANT WELLS
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.

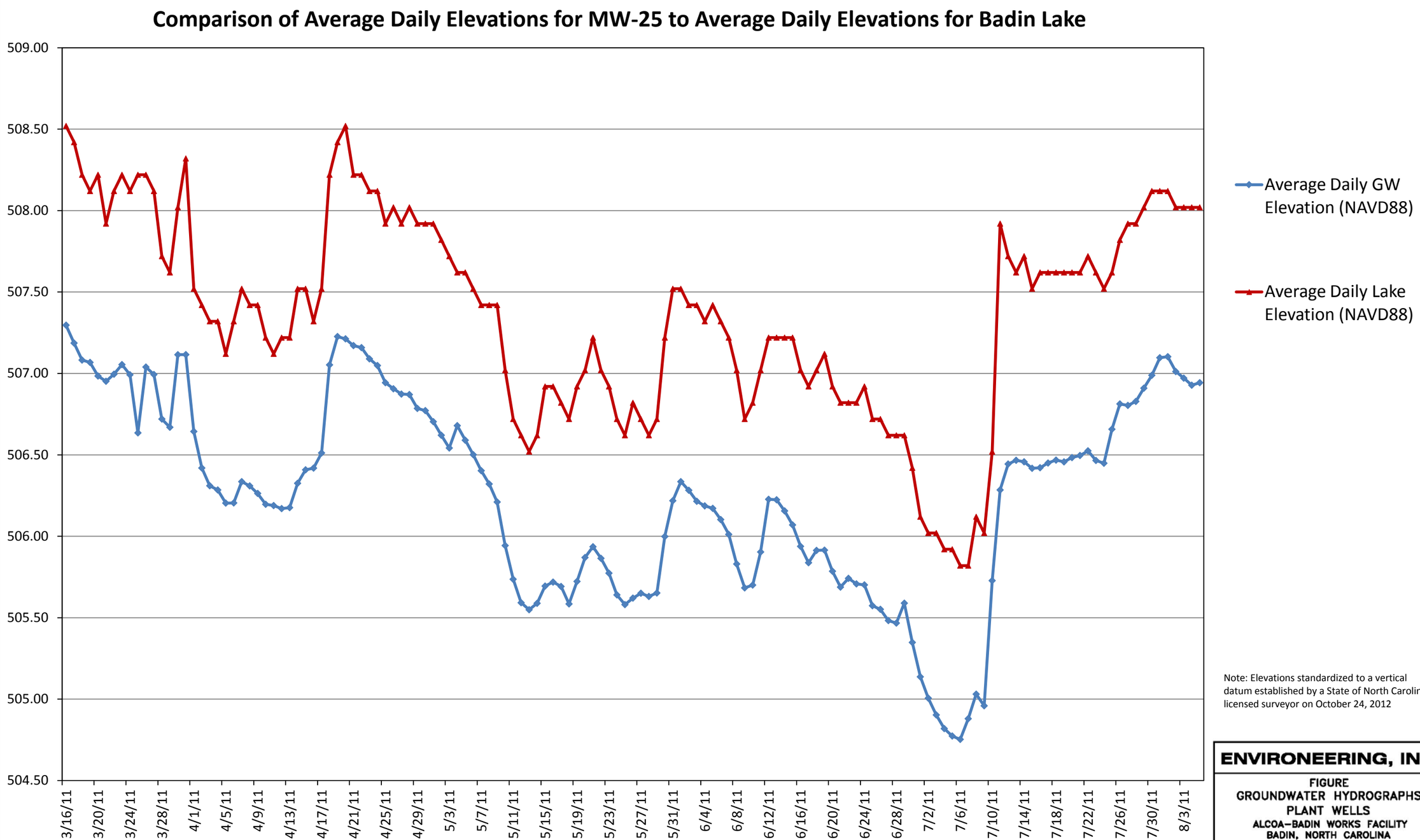


Note: Elevations standardized to a vertical datum established by a State of North Carolina licensed surveyor on October 24, 2012

ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
PLANT WELLS
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

DRAWN BY:	DATE:	PROJ. NO.



Note: Elevations standardized to a vertical datum established by a State of North Carolina licensed surveyor on October 24, 2012

ENVIRONEERING, INC.

FIGURE
GROUNDWATER HYDROGRAPHS
PLANT WELLS
ALCOA–BADIN WORKS FACILITY
BADIN, NORTH CAROLINA

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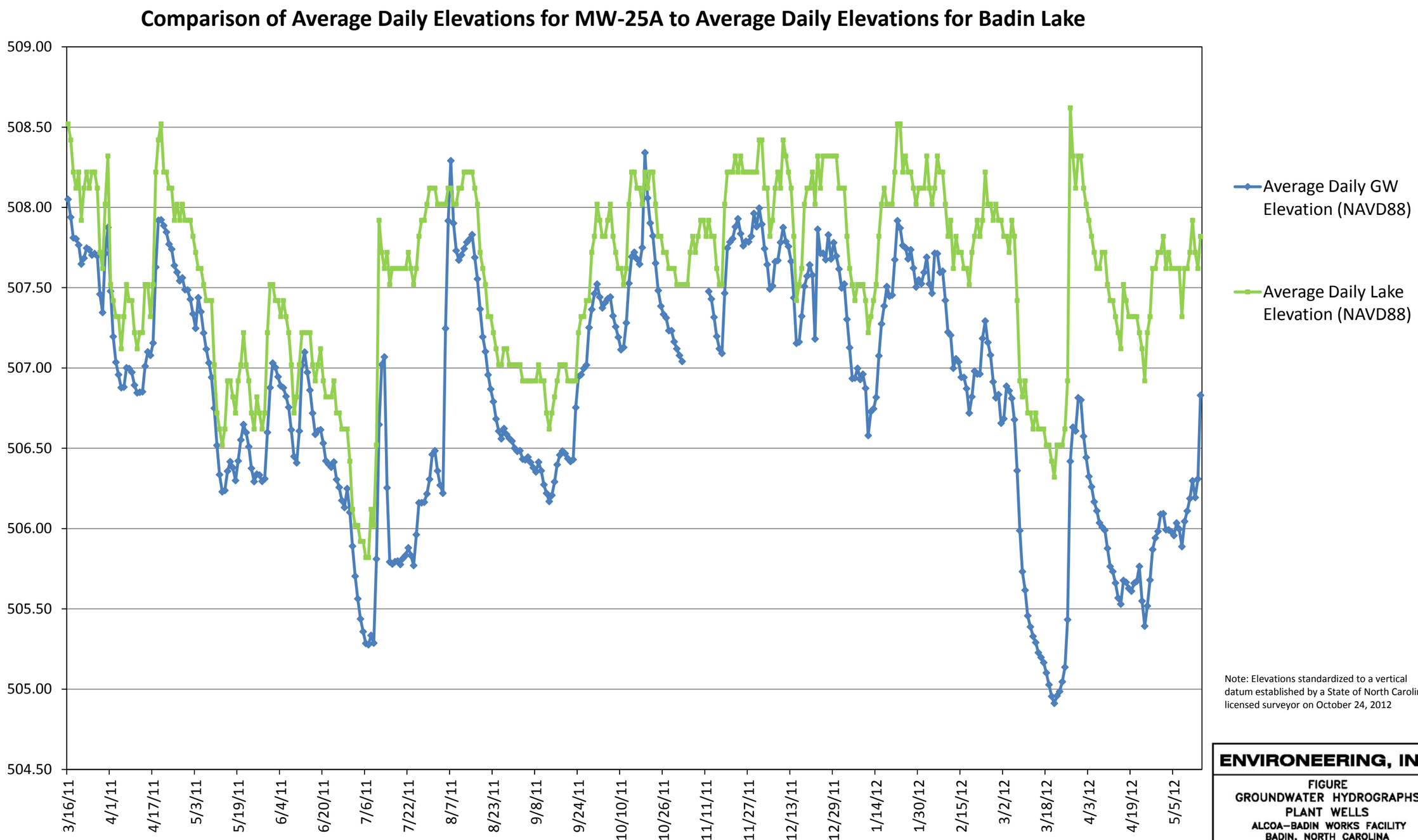

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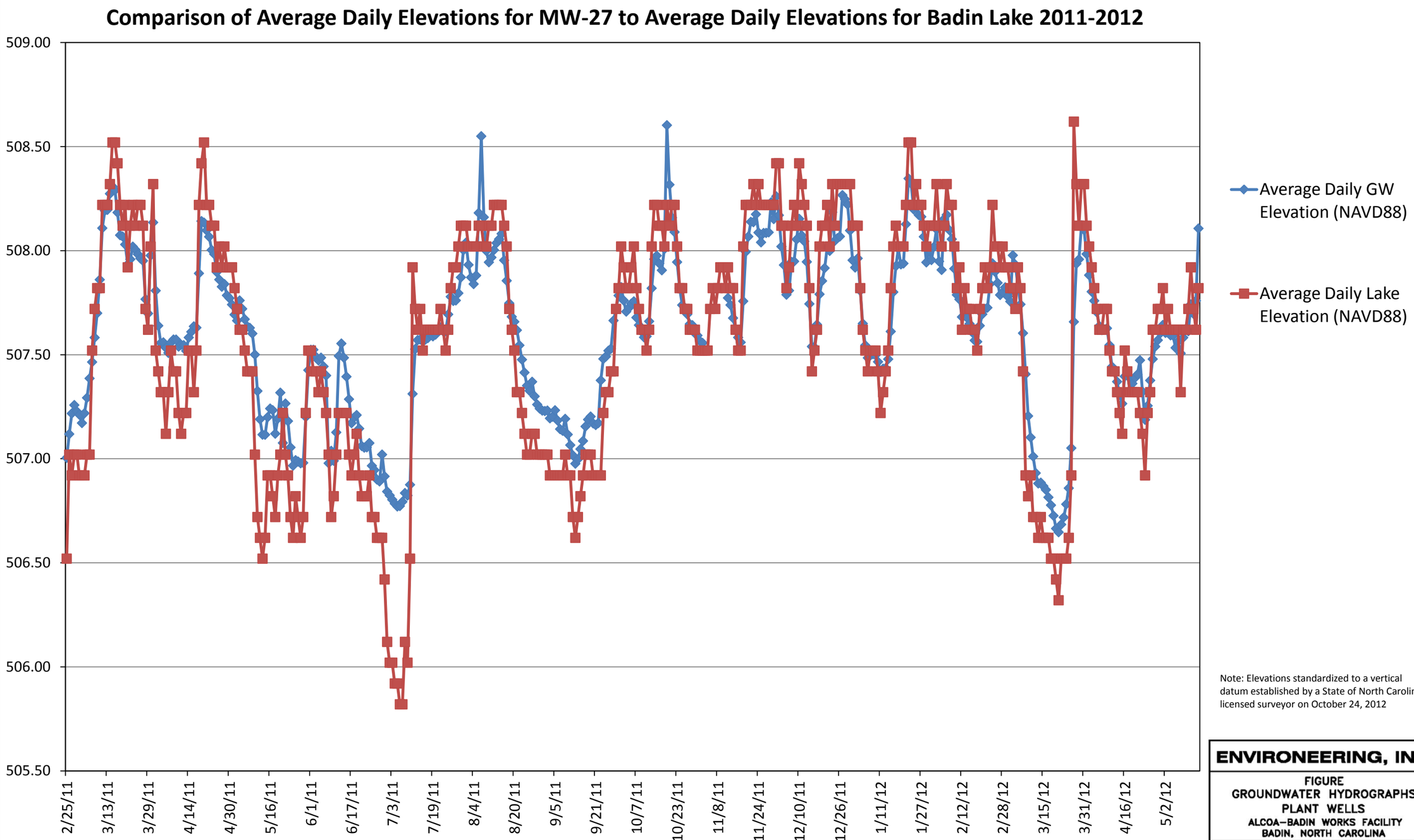

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BADIN, NORTH CAROLINA

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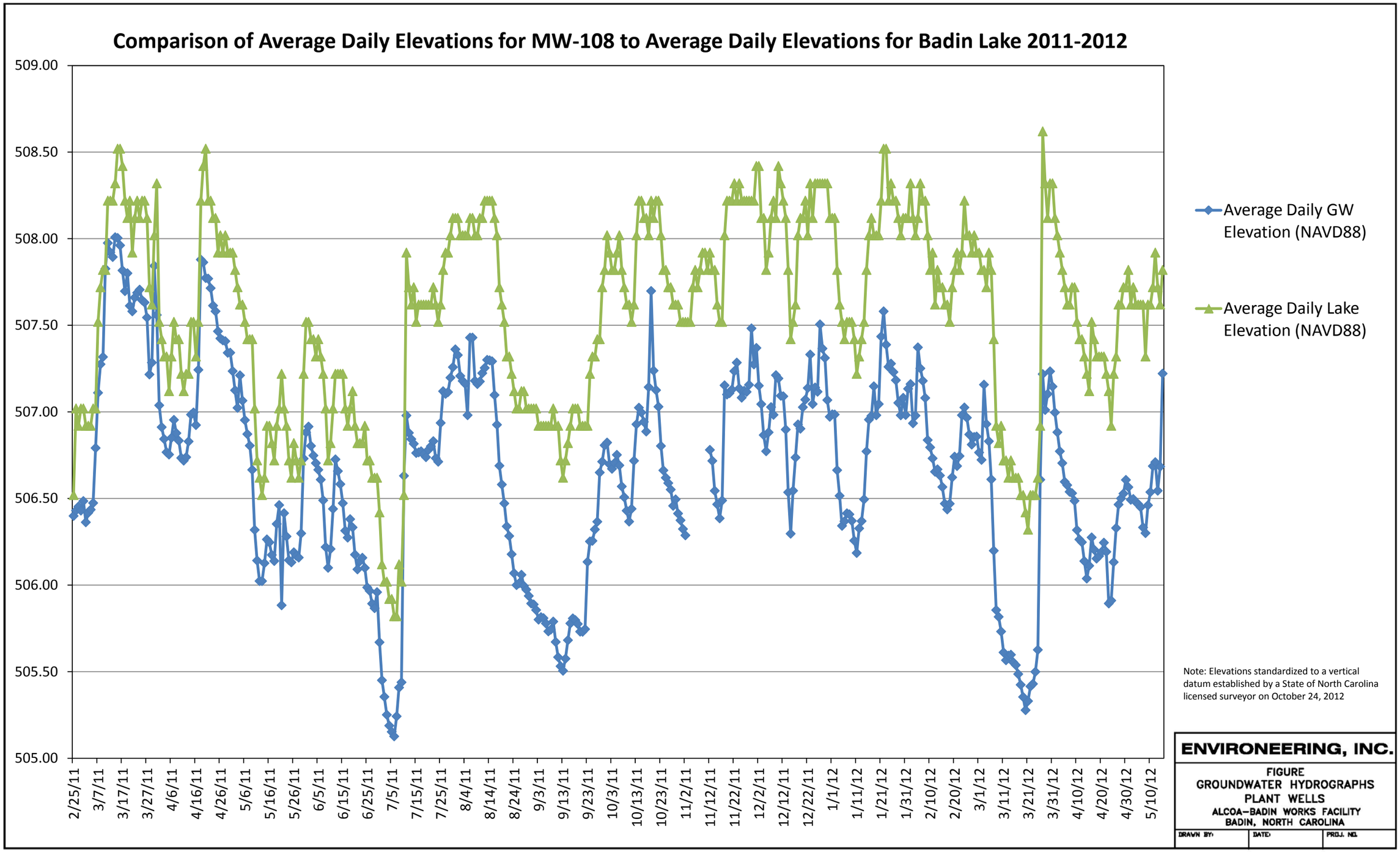
Comparison of Average Daily Elevations for MW-108 to Average Daily Elevations for Badin Lake 2011-2012
509.00
508.50
508.00
507.50
507.00
506.50
506.00
505.50
505.00
2/25/11
3/7/11
3/17/11
3/27/11
4/6/11
4/16/11
4/26/11
5/6/11
5/16/11
5/26/11
6/5/11
6/15/11
6/25/11
7/5/11
7/15/11
7/25/11
8/4/11
8/14/11
8/24/11
9/3/11
9/13/11
9/23/11
10/3/11
10/13/11
10/23/11
11/2/11
11/12/11
11/22/11
12/2/11
12/12/11
12/22/11
1/1/12
1/11/12
1/21/12
1/31/12
2/10/12
2/20/12
3/1/12
3/11/12
3/21/12
3/31/12
4/10/12
4/20/12
4/30/12
5/10/12
Average Daily GW Elevation (NAVD88)
Average Daily Lake Elevation (NAVD88)
Note: Elevations standardized to a vertical datum established by a State of North Carolina licensed surveyor on October 24, 2012
ENVIRONEERING, INC.
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