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SITE ASSESSMENT FIRST PHASE REPORT

Cliffside Mill Dump
NONCD0000544
S. Pea Ridge Road
Rutherford County

Pre-Regulatory Landfill Unit
State of North Carolina
State Contract N010002S
W&R Project No. 02100001.04

September 20, 2010

Prepared for:

North Carolina Department of Environmental and Natural Resources
Superfund Section
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1 Introduction

1.1 Disposal Area Description

The Cliffside Mill Dump is located approximately 1 mile east-northeast of the town of Henrietta, and approximately 1.5 miles southeast of the town of Caroleen in Rutherford County, North Carolina. The site may be found by following US Highway 221 eastward until its intersection with S. Pea Ridge Road; following S. Pea Ridge Road Northward approximately 500 feet and turning east into three driveways leading into the Bucky Parker property. The disposal area is bounded to the west by private properties adjacent to S. Pea Ridge Road, to the north by private properties adjacent to High Shoals Church Road, the east by the relict bed of a former railroad right of way, and to the south by private properties adjacent to US Highway 221. The North American Datum of 1983 (NAD83) coordinates grid coordinates for the entrance to the site are:
Northing: 562131.94, Easting: 1169852.51

The area was reportedly used for landfill operations by Rutherford County in the mid 1960s through early 1970s. The entirety of the known disposal area is currently undeveloped and forested; however, a limited portion of the interior of the disposal area is covered in bushes and grasses. The future use of the disposal area, if any, was not determined. According to a phone interview with the Rutherford County Planning Department conducted on September 13, 2010, the County has no system of zoning currently in place. A Site Layout Map has been produced and may be viewed as **Figure 1.**

1.2 Initial Disposal Area Visit

An initial disposal area visit was attended by Withers & Ravenel (W&R) and personnel from the North Carolina Department of Environment and Natural Resources (DENR) Pre-Regulatory Landfill Unit (Unit) on June 7, 2010. An open field was observed within the suspected limits of the disposal area. Interviews with neighboring residents suggested that the open area within the disposal area had never sustained tree growth. During the disposal area visit to this area, it was apparent that virtually no growth of woody shrub and tree species had occurred within this area.

Resident interviews also suggested that a limited area in the east-central extreme of the site had been used as a quarry or borrow source for geologic materials. This excavated area had then filled with water, and had on one subsequent occasion been pumped out using the limited capacity of a septic system vacuum truck. According to the interviews, the area was ultimately in-filled with uncharacterized waste. The exact location of the reported borrow area remains unclear; clearing and/or test pits may be necessary to identify this area. Comments by a property

owner, Bucky Parker, suggest that the borrow area was relatively small. Mr. Parker indicated that the area was big enough to hold 5 to 6 automobiles.

2 SENSITIVE ENVIRONMENT INVESTIGATION

The Inactive Hazardous Sites Program Guidelines for Assessment and Cleanup, promulgated by the DENR Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch (IHSB) and dated August 2010 stipulates within Section 2.0 Remedial Investigation Work Plans, that it should contain an evaluation of the disposal area and adjacent property for the existence of any of the environmentally sensitive areas. That document also outlines the suggested pathway for obtaining the environmental information necessary to satisfying the requirements of the IHSB. To this end W&R prepared a Request for Sensitive Environment Information Package and transmitted that package to the following entities by email and/or United States (US) Postal Service as deemed appropriate or as instructed in an initial phone conversation with a representative of those authorities. The following is a list of such authorities to include the department or office contacted, the individual or individuals believed to be responsible for environmental review, the sensitive environment(s) for which they may be responsible, and a brief summary of the results of our review:

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
NC Division of Parks and Recreation – Natural Heritage Program	Harry LeGrand (919) 715-8697 harry.legrand@ncdenr.gov	State Parks Areas Important to Maintenance of Unique Natural Communities Sensitive Areas Identified Under the National Estuary Program Designated State Natural Areas State Seashore, Lakeshore and River Recreational Areas Rare species(state and federal Threatened and Endangered) Sensitive Aquatic Habitat	No

Mr. Harry LeGrand replied via email on August 16, 2010. His response indicated that the Natural Heritage Program (NHP) has no record of rare species, significant natural communities, significant natural heritage areas, or conservation/managed areas within a mile of the project area. He further stated that although the NHP maps do not show records of such natural heritage elements in the project area, it does not necessarily mean that they are not present; it may simply mean that the area has not been surveyed. Mr. LeGrand suggested the NHP data not be substituted for actual field surveys, particularly if the project area contains suitable habitat for rare species, significant natural communities, or priority natural areas.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
NC Planning and Natural Resources	Bryan Strong (919) 715-8711 bryan.strong@ncdenr.gov Amin Davis, C.E. Environmental Review Coordinator NC DENR, Division of Parks & Recreation, Natural Resources Program MSC 1615 Raleigh, NC. 27699-1615 Office: 919-715-7584	State Wild & Scenic Rivers	No

Mr. Amin K. Davis, Environmental Review Coordinator, (NC DENR Planning and Natural Resources) responded in writing on August 27, 2010, stating the North Carolina Division of Parks and Recreation (DPR) did not find records of State Wild & Scenic Rivers, or other DPR managed lands or interests within the vicinity of the study area. Additionally, he stated that according to United States Geological Survey (USGS) stream mapping, Hills Creek appears to be located to the east and down-gradient of the study area. Hills Creek is classified as Water Supply Waters (WSW-IV) by the North Carolina Division of Water Quality (DWQ). Areas within water supply watersheds have special restrictions for building and development based on public water supply intakes. Mr. Davis recommends further consultation with DENR's Pre-Regulatory Landfill Unit or DWQ staff if project activities may adversely impact this environmentally-sensitive aquatic area.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
National Park Service - Public Affairs Office	Anita Barnett (404)562-3124, ext 705 Anita_Barnett@nps.gov http://www.nps.gov/rivers	National Seashore, Lakeshore and River Recreational Areas National Parks or Monuments Federal Designated Wild & Scenic Rivers	No

Ms. Anita Barnett, representing the US National Park Service (NPS), replied in writing on August 30, 2010 stating that the NPS conducted a review of the subject project on August 27, 2010 and concluded the proposed project will not have adverse impacts on NPS resources.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
US Forest Service	Ruth Berner (828) 257-4862 Ruth.Berner@usda.gov	Designated and Proposed Federal Wilderness and Natural Areas National Preserves and Forests Federal Land Designated for the Protection of Natural Ecosystems	No

Ms. Ruth Berner, representing the United States Department of Agriculture (USDA) responded in writing on August 10, 2010, by stating the USDA Forest Service has no concerns regarding any sensitive environments at or adjacent to the property under investigation.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
NC Division of Water Quality	Melanie Williams (919) 807-6300, ext 76447 melanie.williams@ncdenr.gov *(Ask for Clean Water Act 305b report)*	State-Designated Areas for Protection or Maintenance of Aquatic Life	No

Ms. Melanie Williams, representing the DENR-DWQ, Planning Section responded in writing on August 10, 2010 by stating that the property under investigation is in the Broad River Basin and drains to Cleghorn Creek. This information appears in conflict with the other DWQ information as the disposal area is located within the Second Broad River Water Shed containing Hills Creek which drains to the Second Broad River. Both are Water Supply IV (Highly Developed) surface waters.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
NC Division of Forest Resources	Chris Carlson (919) 857-4819	State Preserves and Forests	No

Mr. Chris Carlson, representing the NC Division of Forest Resources responded verbally on September 13, 2010 stating that there are no state preserves or forests in Rutherford County.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
US Fish & Wildlife Service	Allen Ratzlaff – Ashville Field Office USFWS 160 Zillicoa St. Asheville, NC 28801 828/258-3939 x229	Endangered Species	No

Mr. Allen Ratzlaff, representing the US Fish and Wildlife Service responded verbally by stating that according to his records and a review of the information W&R provided, no federally listed species or their habitats occur on the subject site.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
National Oceanic & Atmospheric Administration	Vicki A. Wedell NOAA Office of National Marine Sanctuaries 1305 East-West Highway (N/ORM6) SSMC4, 11th Floor Silver Spring, MD 20910 Ph: 301-713-7237 Fx: 301-713-0404 http://sanctuaries.noaa.gov	Marine Sanctuaries	No

Vicki Waddell representing the National Oceanic & Atmospheric Administration replied in writing on September 15, 2010 stating that no national marine sanctuaries adjacent to your study area.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
NC Department of Cultural Resources	Renee Gledhill-Early (919) 807-6579 environmental.review@ncdcr.gov (Peter Sandbeck)	National and State Historical Sites	No

Ms. Renee Gledhill-Early responded in writing on behalf of the NC Department of Cultural Resources on September 3, 2010, stating that there are no known recorded archaeological sites within the project boundaries. Ms. Gledhill-Early stated that there based on the topographic and hydrological situation at the site under review, there is a high probability for the presence of prehistoric or historic archaeological sites. She recommended a comprehensive survey be conducted by an experienced archaeologist to identify and evaluate the significance of archaeological remains that may be damaged or destroyed by the proposed project, and stated that potential effects on unknown resources must be assessed prior to the initiation of construction activities.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
NC Division of Coastal Management	Ted Tyndall (252) 808-2808 Ted.Tyndall@ncdenr.gov http://dcm2.enr.state.nc.us Stephen Rynas Federal Consistency Coordinator NC Division of Coastal Management 400 Commerce Ave Morehead City, NC 28557-3421 252-808-2808 Stephen.rynas@ncdenr.gov	Areas Identified Under Coastal Protection Legislation Coastal Barriers or Units of a Coastal Barrier Resources System.	No

Mr. Stephen Rynas, representing the NC Division of Coastal Management (DCM), responded in writing on August 12, 2010, stating that since the location of the proposed project is outside of the State's coastal area, and that the DCM would therefore not have direct regulatory involvement.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
NC Wildlife Resources Commission	David Cox (919) 528-9886 david.cox@ncwildlife.org	National or State Wildlife Refuges Migratory Pathways and Feeding Areas Critical for Maintenance of Anadromous Fish Species within River Reaches or Areas in Lakes or Coastal Tidal Waters in which such Fish Spend Extended Periods of Time Spawning Areas Critical for the Maintenance of Fish/Shellfish Species within River, Lake or Coastal Tidal Waters. State Lands Designated for Wildlife or Game Management	No

Mr. Cox, representing the NC Wildlife Resources Commission, replied via email on August 16, 2010 stating that he reviewed available Geographic Information System (GIS) data for the region and has no records for any refuges, anadromous fish habitats, or spawning areas on or near the property. There is a record for a rare fish, Santee Chub (*Cyprinella zanema*, NC SR), in the Second Broad River a considerable distance downstream of the property.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
US Army Corps of Engineers	Stephen Chapin 828-271-7980 x 224 stephen.chapin@usace.army.mil Liz Hair Project Manager Asheville Regulatory Field Office U.S Army Corps of Engineers-Wilmington District 151 Patton Ave, Room 208 Asheville, NC 28805 828-271-7980 x.225 sarah.e.hair@usace.army.mil	Wetlands	Inconclusive

Ms. Liz Hair responded in writing on behalf of the US Army Corps of Engineers on August 23, 2010. She stated that a preliminary review of the information provided by Withers & Ravenel, and available maps submitted is inconclusive as to whether the proposed project will impact jurisdictional wetlands and waters of the U. S. Ms. Hair recommended that all areas within the project boundaries be inspected for the presence of jurisdictional waters and wetlands in order to determine the need for Department of the Army (DA) authorization. She stated that identified wetlands or waters must be delineated and then verified the US Army Corps of Engineers. Additionally, Ms. Hair pointed out that the delineation of all jurisdictional areas will aid in the planning stage, resulting in avoidance of any unnecessary impacts to waters and wetlands. Issuance of Department of the Army authorization must precede any placement of excavated or fill material within any wetlands or other waters of the United States within the project boundary. Any unauthorized work in jurisdictional areas may be a violation of Federal law.

DEPARTMENT OR OFFICE	NAME & CONTACT INFO	SENSITIVE ENVIRONMENT (S.E.)	INDICATION
Responsibility Not Identified by NC DENR IHSB	NA	Terrestrial Areas Utilized for Breeding by Large or Dense Aggregations of Animals	No

Troy Beasley, environmental scientist with W&R, reviewed available Geographic Information System (GIS) and project information for the site. His cursory review did not identify any Terrestrial Areas for Breeding by Large or Dense Aggregations of Animals.

3 Geophysical Survey

3.1 Initial Site Clearing and Surveying Operations

Prior to initiating geophysical investigation activities by Geo Solutions, Ltd (Geo Solutions) of Raleigh, NC, it was necessary to clear the smaller trees and underbrush to allow passage of the geophysical survey apparatus. Based upon guidance provided by the Unit, a 100-foot Grid Map was established. The grid was transferred electronically to Tripod Land Surveying (Tripod), P.A., of Rutherfordton, NC for demarcation in the field. Following the initial grid survey, Circle T Bobcat (Circle T), Inc. was contracted to clear the (22) lines of traverse (approximately 22,000 linear feet) using Hydro-Axe technology. W&R met with Tripod and Circle T representatives at the site on August 2, 2010 to introduce both contractors to the project requirements.

Upon the reported completion of the geophysical survey and staking of the outer limits of waste disposal, the final survey was conducted by Tripod Land Surveying, P.A. of Rutherfordton, NC. Tripod received the necessary project information electronically, and completed a conventional survey of the site by collecting the coordinates of the outer limits of waste disposal as demarcated by the geophysical contractor. A limit of waste Survey Plat has been prepared which illustrates the limits of the waste disposal as determined by the above described assessment activities, and is included in **Appendix A**. The field staked limits indicate that the disposal area is approximately +/- 11.0 acres.

3.2 Waste Characterization Narrative

As outlined above, Geo Solutions Ltd. completed a geophysical investigation of the property. The investigation techniques included an electromagnetic survey intended to identify the horizontal limits of landfill waste disposal. On August 23 and 26, 2010, Geo Solutions completed a Low-Resolution Multifrequency Electromagnetic (EM) survey on the entire property in an effort to identify the limits of buried waste material on the property. A GEM-2 instrument was used to complete the survey on the property.

The GEM-2 is a digital, typically hand-held multi-frequency sensor. The GEM-2 operates in a frequency range of about 300 Hz to 24 kHz, and can transmit an arbitrary waveform containing multiple frequencies. The unit is capable of transmitting and receiving any digitally-synthesized waveform by means of the pulse-width modulation technique. Owing to the arbitrary nature of its broadcast waveform and high-speed digitization, the sensor can operate either in a frequency-domain mode or in a time-domain mode.

Depth of exploration for a given earth medium is determined by the operating frequency. Therefore, measuring the earth response at multiple frequencies is equivalent to measuring the earth response from multiple depths. The idea of using multiple frequencies stems from the so-called "skin-depth," also known as the depth of exploration, which is inversely proportional to frequency: a low-frequency signal travels far through a conductive earth and, thus, observes deep structures, while a high-frequency signal can travel only a short distance and thus, observes only shallow structures. Therefore, scanning through a frequency window is equivalent to depth sounding.

Depth sounding by changing the transmitter frequency is called "frequency sounding," which measures the target response at many frequencies in order to image the subsurface structure. In most shallow geophysical surveys, the ppm data generated by GEM-2, often plotted into a contour map for each frequency, are sufficient to locate buried objects without going through elaborate processing or interpretation. One can also estimate the target depth from the data obtained at multiple frequencies.

This EM survey was completed using an all terrain vehicle (ATV) whereupon the GEM-2 instrument was mounted for GPS data collection. The property was traversed with the ATV along the previously cleared, 100-foot grid, and along certain cleared paths within the wooded portions of the landfill perimeter. For a detailed description of the applied technique and survey methodology refer to Geo Solution's Geophysical Survey report dated August 31, 2010 located in **Appendix B.**

3.3 Survey Results and Surficial Waste Features

Geo Solutions reviewed the data and selected two frequencies to illustrate the distribution and characterization of fill material at the site (4070 Hz and 90030 Hz frequencies). These results are shown in **Figures 2** through **6** of the Geo Solutions report. Based upon the findings represented therein, Geo Solutions identified the presence of two disposal areas, a northern portion (Fill Areas A) and a southern portion (Fill Area B). Geo Solutions reported changes in topography that appeared to correspond to changes of in-phase and conductivity values. Of particular interest were depressions, and mounds that were associated with exposed garbage (usually metal/plastic debris). Geo Solutions interpreted changes as an indication of differences in the distribution and composition of fill material. The southern ½ of the

site appeared to contain more metal debris, whereas the northern ½ appears to contain less metal and more conductive material.

Some elevated in-phase and conductivity values were observed in the EM data for the surrounding properties. These anomalies may be accounted for by the presence of cars, septic tanks, basketball courts, and pools. Geo Solutions did observe what appeared to be random piles of garbage ranging from abandoned cars, abandoned steel tanks, and a pile of glass bottles within the property. None of these items were identified in the EM survey because they were situated near the center of the survey grid and far away from the actual EM profile lines were measurements were recorded. A power line running across the southwest corner of the site along US-221A is represented in a minimum of one of the report figures. Other elevated background signals were recorded around the houses and facilities located on the surrounding properties as illustrated in several of the figures.

The EM contour data appears that the waste was deposited in trench style cells that were excavated with the overburden used as cover soils following the placement of waste. The results of the survey suggest that limits of buried debris are relatively apparent and appear to be contained within the property limits. After reviewing the data, Geo Solutions returned to the site and marked those apparent waste boundaries identified through EM survey with wooden stakes. As outlined in Section 3.1, a conformational survey was conducted to record the staked waste disposal boundaries.

According to the recently completed geophysical survey conducted by Geo Solutions, the area of known waste is significantly less that the area of suspected waste disposal presented in the December 2006 Schnabel report (introduced in Section 1.1). The center of the known refuse area(s), NAD83 coordinate grid system, is located at approximately:

Northing: 561987.67, Easting: 1170764.41

It may be significant to note that the borrow area introduced in Section 1.1 may not be readily apparent in the geophysical survey results. If it becomes necessary to identify the exact location of the former borrow area identified through adjacent resident interviews, a limited test pit evaluation in the area of the suspected borrow area location may be required.

4 POTABLE WELL SAMPLING

4.1 Water Supply Well Summary

A water supply well (WSW) is located at the following location:

Well #	Owner	Property Address	Northing	Easting
#1	Bucky Parker	565 S. Pea Ridge Road	562381.78	1170117.14

Coordinates in NAD83 grid system.

The specific depth and construction details of the well are unknown. However, Mr. Parker, when interviewed during the sampling event, indicated that the well was approximately 245-feet in depth and that the well is installed within bedrock which was encountered within several feet of surface at the site. Mr. Parker indicated that this well is only used to fill his small pond and to wash cars, irrigate plants, etc. He indicated that his residence is now connected to the municipal water system.

Mr. Parker indicated that mica from the bedrock clogs the filter installed on the water line from his well. He says this has been an issue since the well was installed.

4.2 Potable Water Sampling Protocol

The WSW sample for the Parker residence was collected at a spigot installed near the well house. The sample was removed in general accordance with the W&R Standard Operating Procedures, using laboratory prepared containers. The well was allowed to purge for a full 20 minutes, during which time five sets of water quality parameters were measured and documented, and may be viewed in the **Appendix C**. A field blank was prepared at the time of the sampling event by filling laboratory supplied containers with purchased bottled water. The samples were placed in a cooler containing ice, and transported to Environmental Conservation Laboratories, Inc (ENCO) located in Cary, North Carolina under proper chain of custody. A trip blank accompanied the samples during transport. According to the Weather Underground website, *http://www.wunderground.com/* barometric pressure was stable throughout the sampling process at approximately 30.1 inches of mercury.

4.3 Analytical Method Summary

The sample from the potable well, Well 1, was analyzed using the following methods:

- Volatile Organic Compounds (VOCs) by EPA 8260B & Tentatively Identified Compounds (TICs)
- SemiVolatile Organic Compounds (SVOCs) by EPA 8270D & TICs
- Metals by 6010C, 6020A, and 7470A
- Nitrate by 353.2
- Sulfate by 300

The field blank, RF, and the trip blank were analyzed for VOCs by EPA 8260B only.

4.4 Sample Analytical Results Summary

Two tables have been prepared to summarize the potable well sample analytical data. **Table 1** presents the full list of constituents for each analytical method used to analyze the samples collected from the site. **Table 2** presents only those constituents that were reported above the minimum detection limit and also illustrates the concentrations of constituents that exceeds their respective groundwater quality standard established by Title 15A of the North Carolina Administrative Code, Subchapter 2L (2L Standard).

The analyses of the potable well sample, Well-1, suggests that only three constituents were identified with concentrations that exceeded their respective 2L Standards. Those compounds included:

Bis(2-ethylhexyl)phthalate	7 ug/L
Manganese	82.9 ug/L
Lead	29.8 ug/L

The presence of bis(2-ethylhexyl)phthalate is possibly associated with plasticizers used in the sample collection and analyses. The presence of manganese is possibly associated with the presence of mica in the water from the well boring. According to the geologic description presented in Section 6.2, the Subject site is located within largely micaceous rocks of the Inner Piedmont Belt; and, manganese is an element often associated with micaceous mineralization. Concentrations of lead are often found in supply well samples across the State and Region. The source of the lead may be associated with well and water distribution construction materials such as lead based solder from copper pipe, etc. Turbidity of the sample is not expected to contribute significantly to the presence of lead as

the turbidity levels during sample collection and the well purging process were less than 6 Nephelometric Turbidity Units (NTU). The location and concentrations (of the sole WSW sample) in excess of 2L Standards are shown in the attached **Figure 1**. The analytical report may be viewed in its entirety in **Appendix D.**

Two tentatively identified compounds (TICs) were reported in the analyses of the potable well sample, Well-1, by the laboratory. Carbon dioxide was identified by EPA Method 8260B at a concentration of 61 ug/L and an unknown semi-volatile organic constituent was identified by EPA Method 8270D at a concentration of 8 ug/L.

Analyses of the field blank identified several volatile organics above minimum reporting levels. Those constituents are trihalomethanes associated with use of chlorinated water to prepare the field blank and are not sources of cross contamination during the potable well sampling event.

5 LOCAL CONDITIONS DESCRIPTION

5.1 Regional Geology and Hydrogeology of the Piedmont

The Piedmont is comprised of a system of crystalline-rock aquifers, overlain in areas by younger siliciclastic rock aquifers and locally intruded by diabase units of varying ages. Typically the lithofied components of the crystalline-rock aquifers are extensively folded, faulted, and fractured, commonly showing preferential joint orientation along fault zones and stress-relief fractures. Structure within the rocks, including bedding, foliation, and folding, vary with rock origin and composition and is a factor in the susceptibility of the individual rocks to weathering. The rocks are mantled by a cover of regolith, comprised of that unconsolidated material situated above competent bedrock to include materials such as saprolite, colluvium, and alluvium. Generally, a transition zone of weathered rock, boulders, and saprolite are at the base of the regolith.

The regolith and underlying fractured bedrock combine to make up a complex, multi-component ground-water-flow system within the aquifers of the Piedmont. The components of the system may be described as: the unsaturated zone within the regolith (commonly referred to as the vadose zone); the saturated zone within the regolith (commonly referred to simply as the saturated zone); the transition zone (generally comprised to a significant extent of somewhat to highly weathered rock units and boulders); and, the fractured-bedrock system underlying the foregoing components. Recharge to the ground-water system is by infiltration of precipitation through the unsaturated zone. The regolith serves as a reservoir supplying water to interconnected fractures within the bedrock. The transition zone has high permeability relative to other zones, and it may potentially represent a high-flow zone within the ground-water-flow system. Because of the separation

of large sheets of somewhat weathered rock through fracturing processes and the existence of boulders of varying degrees of weathering, the boundary of the transition zone with the fractured bedrock is irregular. The fractured-bedrock flow system has low storage capacity, yet where inter-connected fractures occur, water can move rapidly.

5.2 Local Geology

According to the Geologic Map of North Carolina, (USGS et al, 1985) the disposal area is situated within an exposure of mica schist of the Inner Piedmont Belt, and within the greater Carolina Piedmont. This Late Proterozoic to Cambrian-aged highly metamorphosed unit is further characterized as containing garnet, staurolite, kyanite or sillimanite (occurring locally), with lens and layers of quartz schist, micaceous quartzite, calc-sillicate rock, biotite gneiss, amphibolite, and phylite. This unit is adjacent to a (northern) exposure of similarly metamorphosed biotite gneiss and schist. The unit is intruded to the west and south by a younger, massive granitic rock.

5.3 Local Hydrological and Surface Water Features

The United States Geological Survey (USGS), Forest City, NC 7.5 Minute Quadrangle dated 1993, illustrates that the topography of the property surrounding the disposal area is generally radial, with the greatest areal extent of the former disposal area footprint situated in the center and across the western flank of a topographic dome. As such, the majority of the surficial flow would appear to flow in an arc from the northwest to the south east. As shown in the USGS map, the elevation varies in elevation from approximately 800-feet mean sea level (MSL) in the southeastern extreme of the landfill footprint to approximately to 870-feet MSL at the apex of the dome. With the surficial flow regime described above, the majority of the flow would be directed eastward into an unnamed tributary to Hills Creek, directly into Hills Creek, or a small amount of surficial flow that may flow westward into the Broad River. Both the unnamed tributary to Hills Creek and Hills Creek proper appear to wrap around the disposal area to the east at a distance of approximately 900-feet from the known boundary of the former disposal area. Broad River lies to the southwest of the disposal area at a distance that ranges from approximately 1700 to 1800-feet from the disposal area limits.

A small farm pond is located approximately 3400-feet east-southeast from the known disposal area boundary, and a second and larger pond is located to the north-northeast and within the town of Caroleen at an approximate distance of 1.2-miles from the disposal area. No other surface water bodies are present on the USGS map. Mr. Bucky Parker, a resident at 565 S. Pea Ridge Road, has constructed a small pond, adjacent to his residence. The pond is filled with water from his supply well and is used for cultivating goldfish.

Tables

Table 1
Summary of Water Supply Well Analyses - Full List of Analytes
Cliffside Mill Dump - NONCD0000544
Pea Ridge Road
Mooresboro, Rutherford County, North Carolina

Sample Name		Well 1		RF (Field Blank)		Trip Blank		Regulatory	Regulatory
Sample Collection Date		8/2/2010		8/2/2010		8/2/2010		Standard	Reference
Parameter	METHOD	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	(ug/l)	
Volatile Organics									
1,1,1,2-Tetrachloroethane	EPA 8260B	0.40	U	0.40	U	0.40	U	1	IMAC
1,1,1-Trichloroethane	EPA 8260B	0.27	U	0.27	U	0.27	U	200	15A NCAC 2L
1,1,2,2-Tetrachloroethane	EPA 8260B	0.33	U	0.33	U	0.33	U	200	15A NCAC 2L
1,1,2-Trichloroethane	EPA 8260B	0.37	U	0.37	U	0.37	U	0.6	IMAC
1,1-Dichloroethane	EPA 8260B	0.33	U	0.33	U	0.33	U	6	15A NCAC 2L
1,1-Dichloroethene	EPA 8260B	0.24	U	0.24	U	0.24	U	7	15A NCAC 2L
1,1-Dichloropropene	EPA 8260B	0.32	U	0.32	U	0.32	U	NL	
1,2,3-Trichlorobenzene	EPA 8260B	0.25	U	0.25	U	0.25	U	NL	
1,2,3-Trichloropropane	EPA 8260B	0.55	U	0.55	U	0.55	U	0.005	15A NCAC 2L
1,2,4-Trichlorobenzene	EPA 8260B	0.36	U	0.36	U	0.36	U	70	15A NCAC 2L
1,2,4-Trimethylbenzene	EPA 8260B	0.20	U	0.20	U	0.20	U	400	15A NCAC 2L
1,2-Dibromo-3-chloropropane	EPA 8260B	0.48	U	0.48	U	0.48	U	0.04	15A NCAC 2L
1,2-Dibromoethane	EPA 8260B	0.42	U	0.42	U	0.42	U	0.02	15A NCAC 2L
1,2-Dichlorobenzene	EPA 8260B	0.27	U	0.27	U	0.27	U	20	15A NCAC 2L
1,2-Dichloroethane	EPA 8260B	0.65	U	0.65	U	0.65	U	0.4	15A NCAC 2L
1,2-Dichloropropane	EPA 8260B	0.20	U	0.20	U	0.20	U	0.6	15A NCAC 2L
1,3,5-Trimethylbenzene	EPA 8260B	0.25	U	0.25	U	0.25	U	400	15A NCAC 2L
1,3-Dichlorobenzene	EPA 8260B	0.30	U	0.30	U	0.30	U	200	15A NCAC 2L
1,3-Dichloropropane	EPA 8260B	0.32	U	0.32	U	0.32	U	NL	
1,4-Dichlorobenzene	EPA 8260B	0.38	U	0.38	U	0.38	U	6	15A NCAC 2L
2,2-Dichloropropane	EPA 8260B	0.55	U	0.55	U	0.55	U	NL	
2-Butanone	EPA 8260B	**4.3**	J	1.0	U	1.0	U	4000	15A NCAC 2L
2-Chloroethyl Vinyl Ether	EPA 8260B	0.94	U	0.94	U	0.94	U	NL	15A NCAC 2L
2-Chlorotoluene	EPA 8260B	0.20	U	0.20	U	0.20	U	100	15A NCAC 2L
2-Hexanone	EPA 8260B	0.69	U	0.69	U	0.69	U	280	IMAC
4-Chlorotoluene	EPA 8260B	0.25	U	0.25	U	0.25	U	NL	
4-Isopropyltoluene	EPA 8260B	0.26	U	0.26	U	0.26	U	NL	
4-Methyl-2-pentanone	EPA 8260B	1.1	U	1.1	U	1.1	U	NL	
Acetone	EPA 8260B	1.5	U	1.5	U	1.5	U	6000	15A NCAC 2L
Benzene	EPA 8260B	0.20	U	0.20	U	0.20	U	1	15A NCAC 2L
Bromobenzene	EPA 8260B	0.28	U	0.28	U	0.28	U	NL	
Bromochloromethane	EPA 8260B	0.42	U	0.42	U	0.42	U	NL	
Bromodichloromethane	EPA 8260B	0.37	U	**9.9**		0.37	U	0.6	15A NCAC 2L
Bromoform	EPA 8260B	0.71	U	0.71	U	0.71	U	4	15A NCAC 2L
Bromomethane	EPA 8260B	0.49	U	0.49	U	0.49	U	10	IMAC

Table 1
Summary of Water Supply Well Analyses - Full List of Analytes
Cliffside Mill Dump - NONCD0000544
Pea Ridge Road
Mooresboro, Rutherford County, North Carolina

Sample Name		Well 1		RF (Field Blank)		Trip Blank		Regulatory	Regulatory
Sample Collection Date		8/2/2010		8/2/2010		8/2/2010		Standard	Reference
Parameter	METHOD	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	(ug/l)	
Carbon disulfide	EPA 8260B	0.54	U	0.54	U	0.54	U	700	15A NCAC 2L
Carbon tetrachloride	EPA 8260B	0.38	U	0.38	U	0.38	U	0.3	15A NCAC 2L
Chlorobenzene	EPA 8260B	0.27	U	0.27	U	0.27	U	50	15A NCAC 2L
Chloroethane	EPA 8260B	0.30	U	0.30	U	0.30	U	3000	15A NCAC 2L
Chloroform	EPA 8260B	0.20	U	**32**		0.20	U	70	15A NCAC 2L
Chloromethane	EPA 8260B	0.34	U	0.34	U	0.34	U	3	15A NCAC 2L
cis-1,2-Dichloroethene	EPA 8260B	0.36	U	0.36	U	0.36	U	70	15A NCAC 2L
cis-1,3-Dichloropropene	EPA 8260B	0.28	U	0.28	U	0.28	U	0.4	15A NCAC 2L
Dibromochloromethane	EPA 8260B	0.32	U	1.5		0.32	U	0.4	15A NCAC 2L
Dibromomethane	EPA 8260B	0.37	U	0.37	U	0.37	U	NL	
Dichlorodifluoromethane	EPA 8260B	0.38	U	0.38	U	0.38	U	1000	15A NCAC 2L
Ethylbenzene	EPA 8260B	0.20	U	0.20	U	0.20	U	600	15A NCAC 2L
Hexachlorobutadiene	EPA 8260B	0.35	U	0.35	U	0.35	U	0.4	15A NCAC 2L
Isopropylbenzene	EPA 8260B	0.24	U	0.24	U	0.24	U	70	15A NCAC 2L
m,p-Xylenes	EPA 8260B	0.48	U	0.48	U	0.48	U	500	15A NCAC 2L
Methylene chloride	EPA 8260B	0.53	U	0.53	U	0.53	U	5	15A NCAC 2L
Methyl-tert-Butyl Ether	EPA 8260B	0.38	U	0.38	U	0.38	U	20	15A NCAC 2L
Naphthalene	EPA 8260B	0.39	U	0.39	U	0.39	U	6	15A NCAC 2L
n-Butyl Benzene	EPA 8260B	0.20	U	0.20	U	0.20	U	70	15A NCAC 2L
n-Propyl Benzene	EPA 8260B	0.30	U	0.30	U	0.30	U	70	15A NCAC 2L
o-Xylene	EPA 8260B	0.27	U	0.27	U	0.27	U	500	15A NCAC 2L
sec-Butylbenzene	EPA 8260B	0.24	U	0.24	U	0.24	U	70	15A NCAC 2L
Styrene	EPA 8260B	0.26	U	0.26	U	0.26	U	70	15A NCAC 2L
tert-Butylbenzene	EPA 8260B	0.28	U	0.28	U	0.28	U	70	15A NCAC 2L
Tetrachloroethene	EPA 8260B	0.36	U	0.36	U	0.36	U	0.7	15A NCAC 2L
Toluene	EPA 8260B	0.27	U	0.27	U	0.27	U	600	15A NCAC 2L
trans-1,2-Dichloroethene	EPA 8260B	0.34	U	0.34	U	0.34	U	100	15A NCAC 2L
trans-1,3-Dichloropropene	EPA 8260B	0.38	U	0.38	U	0.38	U	0.4	15A NCAC 2L
Trichloroethene	EPA 8260B	0.38	U	0.38	U	0.38	U	3	15A NCAC 2L
Trichlorofluoromethane	EPA 8260B	0.28	U	0.28	U	0.28	U	2000	15A NCAC 2L
Vinyl chloride	EPA 8260B	0.30	U	0.30	U	0.30	U	0.03	15A NCAC 2L
Xylenes (Total)	EPA 8260B	0.40	U	0.40	U	0.40	U	500	15A NCAC 2L
Carbon Dioxide	EPA 8260B	**61**	J	**13**	J	**13**	J	NL	

Table 1
Summary of Water Supply Well Analyses - Full List of Analytes
Cliffside Mill Dump - NONCD0000544
Pea Ridge Road
Mooresboro, Rutherford County, North Carolina

Sample Name		Well 1		RF (Field Blank)		Trip Blank		Regulatory	Regulatory
Sample Collection Date		8/2/2010		8/2/2010		8/2/2010		Standard	Reference
Parameter	METHOD	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	(ug/l)	
Semi-Volatile Organics									
1,2,4-Trichlorobenzene	EPA 8270D	1.3	U	NA		NA		70	15A NCAC 2L
1,2-Dichlorobenzene	EPA 8270D	1.1	U	NA		NA		20	15A NCAC 2L
1,3-Dichlorobenzene	EPA 8270D	1.1	U	NA		NA		200	15A NCAC 2L
1,4-Dichlorobenzene	EPA 8270D	1.2	U	NA		NA		6	15A NCAC 2L
1-Methylnaphthalene	EPA 8270D	1.4	U	NA		NA		NL	
2,4,5-Trichlorophenol	EPA 8270D	1.1	U	NA		NA		NL	
2,4,6-Trichlorophenol	EPA 8270D	1.5	U	NA		NA		NL	
2,4-Dichlorophenol	EPA 8270D	2.0	U	NA		NA		0.98	IMAC
2,4-Dimethylphenol	EPA 8270D	2.6	U	NA		NA		100	15A NCAC 2L
2,4-Dinitrophenol	EPA 8270D	2.6	U	NA		NA		30	15A NCAC 2L
2,4-Dinitrotoluene	EPA 8270D	1.1	U	NA		NA		NL	
2,6-Dinitrotoluene	EPA 8270D	1.0	U	NA		NA		NL	
2-Chloronaphthalene	EPA 8270D	1.1	U	NA		NA		NL	
2-Chlorophenol	EPA 8270D	1.9	U	NA		NA		0.4	15A NCAC 2L
2-Methyl-4,6-dinitrophenol	EPA 8270D	1.9	U	NA		NA		NL	
2-Methylnaphthalene	EPA 8270D	1.3	U	NA		NA		5	15A NCAC 2L
2-Methylphenol	EPA 8270D	2.0	U	NA		NA		NL	
2-Nitroaniline	EPA 8270D	1.2	U	NA		NA		NL	
2-Nitrophenol	EPA 8270D	2.3	U	NA		NA		NL	
3 & 4-Methylphenol	EPA 8270D	1.8	U	NA		NA		400/40	15A NCAC 2L
3,3'-Dichlorobenzidine	EPA 8270D	1.7	U	NA		NA		NL	
3-Nitroaniline	EPA 8270D	1.6	U	NA		NA		NL	
4-Bromophenyl-phenylether	EPA 8270D	1.0	U	NA		NA		NL	
4-Chloro-3-methylphenol	EPA 8270D	1.6	U	NA		NA		NL	
4-Chloroaniline	EPA 8270D	1.6	U	NA		NA		NL	
4-Chlorophenyl-phenylether	EPA 8270D	1.1	U	NA		NA		NL	
4-Nitroaniline	EPA 8270D	1.3	U	NA		NA		NL	
4-Nitrophenol	EPA 8270D	1.2	U	NA		NA		NL	
Acenaphthene	EPA 8270D	1.1	U	NA		NA		80	15A NCAC 2L
Acenaphthylene	EPA 8270D	1.1	U	NA		NA		200	15A NCAC 2L
Anthracene	EPA 8270D	0.64	U	NA		NA		2000	15A NCAC 2L
Benzidine	EPA 8270D	1.2	U	NA		NA		NL	
Benzo(a)anthracene	EPA 8270D	0.76	U	NA		NA		0.05	15A NCAC 2L
Benzo(a)pyrene	EPA 8270D	1.0	U	NA		NA		0.005	15A NCAC 2L

Table 1
Summary of Water Supply Well Analyses - Full List of Analytes
Cliffside Mill Dump - NONCD0000544
Pea Ridge Road
Mooresboro, Rutherford County, North Carolina

Sample Name		Well 1		RF (Field Blank)		Trip Blank		Regulatory	Regulatory
Sample Collection Date		8/2/2010		8/2/2010		8/2/2010		Standard	Reference
Parameter	METHOD	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	(ug/l)	
Benzo(b)fluoranthene	EPA 8270D	0.78	U	NA		NA		0.05	15A NCAC 2L
Benzo(g,h,i)perylene	EPA 8270D	1.9	U	NA		NA		200	15A NCAC 2L
Benzo(k)fluoranthene	EPA 8270D	0.77	U	NA		NA		0.5	15A NCAC 2L
Benzoic acid	EPA 8270D	3.6	U	NA		NA		30000	15A NCAC 2L
Benzyl alcohol	EPA 8270D	2.0	U	NA		NA		NL	
Bis(2-chloroethoxy)methane	EPA 8270D	1.9	U	NA		NA		NL	
Bis(2-chloroethyl)ether	EPA 8270D	1.9	U	NA		NA		0.03	15A NCAC 2L
Bis(2-chloroisopropyl)ether	EPA 8270D	1.8	U	NA		NA		NL	
Bis(2-ethylhexyl)phthalate	**EPA 8270D**	**7.0**		NA		NA		3	15A NCAC 2L
Butylbenzylphthalate	EPA 8270D	1.4	U	NA		NA		1000	15A NCAC 2L
Chrysene	EPA 8270D	0.92	U	NA		NA		5	15A NCAC 2L
Dibenzo(a,h)anthracene	EPA 8270D	1.8	U	NA		NA		0.005	15A NCAC 2L
Dibenzofuran	EPA 8270D	1.3	U	NA		NA		28	IMAC
Diethylphthalate	EPA 8270D	0.61	U	NA		NA		6000	15A NCAC 2L
Dimethylphthalate	EPA 8270D	0.79	U	NA		NA		NL	
Di-n-butylphthalate	EPA 8270D	1.4	U	NA		NA		700	15A NCAC 2L
Di-n-octylphthalate	EPA 8270D	1.4	U	NA		NA		100	15A NCAC 2L
Fluoranthene	EPA 8270D	1.2	U	NA		NA		300	15A NCAC 2L
Fluorene	EPA 8270D	1.1	U	NA		NA		300	15A NCAC 2L
Hexachlorobenzene	EPA 8270D	1.2	U	NA		NA		0.02	15A NCAC 2L
Hexachlorobutadiene	EPA 8270D	1.2	U	NA		NA		0.4	15A NCAC 2L
Hexachlorocyclopentadiene	EPA 8270D	1.0	U	NA		NA		NL	
Hexachloroethane	EPA 8270D	0.97	U	NA		NA		NL	
Indeno(1,2,3-cd)pyrene	EPA 8270D	1.7	U	NA		NA		0.05	15A NCAC 2L
Isophorone	EPA 8270D	1.6	U	NA		NA		40	15A NCAC 2L
Naphthalene	EPA 8270D	1.4	U	NA		NA		6	15A NCAC 2L
Nitrobenzene	EPA 8270D	1.9	U	NA		NA		NL	
N-Nitrosodimethylamine	EPA 8270D	1.4	U	NA		NA		0.0007	15A NCAC 2L
N-Nitroso-di-n-propylamine	EPA 8270D	1.8	U	NA		NA		NL	
N-nitrosodiphenylamine/Diphenylamine	EPA 8270D	1.1	U	NA		NA		NL	
Pentachlorophenol	EPA 8270D	1.0	U	NA		NA		0.3	15A NCAC 2L
Phenanthrene	EPA 8270D	0.74	U	NA		NA		200	15A NCAC 2L
Phenol	EPA 8270D	1.2	U	NA		NA		30	15A NCAC 2L
Pyrene	EPA 8270D	1.3	U	NA		NA		200	15A NCAC 2L
Pyridine	EPA 8270D	1.5	U	NA		NA		NL	
Unknown	EPA 8270D	**8.0**	**JB**	NA		NA			

Table 1
Summary of Water Supply Well Analyses - Full List of Analytes
Cliffside Mill Dump - NONCD0000544
Pea Ridge Road
Mooresboro, Rutherford County, North Carolina

Sample Name		Well 1		RF (Field Blank)		Trip Blank		Regulatory	Regulatory
Sample Collection Date		8/2/2010		8/2/2010		8/2/2010		Standard	Reference
Parameter	METHOD	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	(ug/l)	
Metals									
Mercury	EPA 7470A	0.170	U	NA		NA		1	15A NCAC 2L
Antimony	**EPA 6020A**	**0.540**	J	NA		NA		1	IMAC
Arsenic	**EPA 6010C**	**9.18**	J	NA		NA		10	15A NCAC 2L
Beryllium	EPA 6010C	0.100	U	NA		NA		NL	
Cadmium	EPA 6010C	0.360	U	NA		NA		2	15A NCAC 2L
Chromium	**EPA 6010C**	**3.14**	**J**	NA		NA		10	15A NCAC 2L
Copper	**EPA 6010C**	**69.9**		NA		NA		1000	15A NCAC 2L
Manganese	**EPA 6010C**	**82.9**		NA		NA		50	15A NCAC 2L
Nickel	**EPA 6010C**	**32.7**		NA		NA		100	15A NCAC 2L
Selenium	EPA 6010C	2.70	U	NA		NA		20	15A NCAC 2L
Silver	EPA 6010C	1.90	U	NA		NA		20	15A NCAC 2L
Thallium	EPA 6020A	0.110	U	NA		NA		NL	
Zinc	**EPA 6010C**	**123**		NA		NA		1000	15A NCAC 2L
Lead	**EPA 7470A**	**29.8**		NA		NA		15	15A NCAC 2L
Inorganics									
Ammonia as N	EPA 350.1	9.6	U	NA		NA		1,500	IMAC
Nitrate as N	EPA 353.2	25	U	NA		NA		10,000	15A NCAC 2L
Nitrate/Nitrite as N	EPA 353.2	25	U	NA		NA		NL	
Nitrite as N	**EPA 353.2**	**19**	**J**	NA		NA		1,000	15A NCAC 2L
Sulfate as SO4	**EPA 300.0**	**9600**		NA		NA		250,000	15A NCAC 2L

Notes:

15A NCAC 2L = Groundwater Quality Standard

IMAC = Interim Maximum Allowable Concentration (NCDENR)

U = Not Detected Above Detection Limit

B = The Analyte Was Detected in the Associated Method Blank

J = Reported Value Between Laboratory Method Detection Limit & Laboratory Reporting Limit

+ = The VOCs in field blank sample are from chlorinated -bottled water used for blank preparation.

Samples with hatch pattern exceed regulatory standard

Table 2
Summary of Water Supply Well Analyses - Detections Only
Cliffside Mill Dump - NONCD0000544
Pea Ridge Road
Mooresboro, Rutherford County, North Carolina

Sample Name		Well 1		RF (Field Blank)+		Trip Blank		Regulatory	Regulatory
Sample Collection Date		8/2/2010		8/2/2010		8/2/2010		Standard	Reference
Parameter	METHOD	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	RESULT (ug/l)	FLAG	(ug/l)	
Volatile Organics									
2-Butanone	EPA 8260B	**4.3**	J	1.0	U	1.0	U	4000	15A NCAC 2L
Bromodichloromethane	EPA 8260B	0.37	U	**9.9**		0.37	U	0.6	15A NCAC 2L
Chloroform	EPA 8260B	0.20	U	**32**		0.20	U	70	15A NCAC 2L
Dibromochloromethane	EPA 8260B	0.32	U	**1.5**		0.32	U	0.4	15A NCAC 2L
TIC - Carbon Dioxide	EPA 8260B	**61**	J	**13**	J	**13**	J	NL	
Semi-Volatile Organics									
Bis(2-ethylhexyl)phthalate	EPA 8270D	**7.0**		NA		NA		3	15A NCAC 2L
TIC - Unknown	EPA 8270D	**8.0**	JB	NA		NA			
Metals									
Antimony	EPA 6020A	**0.540**	J	NA		NA		1	IMAC
Arsenic	EPA 6010C	**9.18**	J	NA		NA		10	15A NCAC 2L
Chromium	EPA 6010C	**3.14**	J	NA		NA		10	15A NCAC 2L
Copper	EPA 6010C	**69.9**		NA		NA		1000	15A NCAC 2L
Lead	EPA 7470A	**29.8**		NA		NA		15	15A NCAC 2L
Manganese	EPA 6010C	**82.9**		NA		NA		50	15A NCAC 2L
Nickel	EPA 6010C	**32.7**		NA		NA		100	15A NCAC 2L
Zinc	EPA 6010C	**123**		NA		NA		1000	15A NCAC 2L
Inorganics									
Nitrite as N	EPA 353.2	**19**	J	NA		NA		1,000	15A NCAC 2L
Sulfate as SO4	EPA 300.0	**9600**		NA		NA		250,000	15A NCAC 2L

Notes:

15A NCAC 2L = Groundwater Quality Standard

IMAC = Interim Maximum Allowable Concentration (NCDENR)

U = Not Detected Above Detection Limit

B = The Analyte Was Detected in the Associated Method Blank

J = Reported Value Between Laboratory Method Detection Limit & Laboratory Reporting Limit

+ = The VOCs in field blank sample are from chlorinated -bottled water used for blank preparation.

Samples with hatch pattern exceed Regulatory Standard

Table 3
Summary of Sensitive Environment Data
Cliffside Mill Dump - NONCD0000544
Pea Ridge Road
Mooresboro, Rutherford County, North Carolina

Department or Office	Contact Name	Sensitive Environment Identified (yes/no)
NC Division of Parks and Recreation – Natural Heritage Program	Harry LeGrand (919) 715-8697 harry.legrand@ncdenr.gov	No
NC Planning and Natural Resources	Amin Davis (919) 715-7584	No
National Park Service - Public Affairs Office	Anita Barnett (404)562-3124, ext 705 Anita_Barnett@nps.gov	No
US Forest Service	Ruth Berner (828) 257-4862 Ruth.Berner@usda.gov	No
NC Division of Water Quality	Melanie Williams (919) 807-6300, ext 76447 melanie.williams@ncdenr.gov	No
NC Division of Forest Resources	Chris Carlson (919) 857-4819	No
US Fish & Wildlife Service	Allen Ratzlaff (Ashville) (828) 258-3939 x 229 (Lee Mann x10)	No
National Oceanic & Atmospheric Administration	Vickie A. Wedell (301) 713-7237 http://sanctuaries.noaa.gov	No
NC Department of Cultural Resources	Renee Gledhill-Early (919) 807-6579 environmental.review@ncdcr.gov	No
NC Division of Coastal Management	Steven Rynas (252) 808-2808 stephen.rynas@ncdenr.gov	No
NC Wildlife Resources Commission	David Cox (919) 528-9886 david.cox@ncwildlife.org	No
US Army Corps of Engineers	Liz Hair (919) 554-4884, x 28 or sarah.e.hair@usace.army.mil	No
Note: See Report text for a more complete description of communications.		

Figures

NOTES:
1. NO FORMAL ZONING POLICY EXISTS FOR RUTHERFORD COUNTY.

2. NO SUBSURFACE UTILITIES IDENTIFIED WITHIN 500' OF THE DISPOSAL AREA.

3. PARCEL INFORMATION OBTAINED FROM RUTHERFORD COUNTY GIS DEPARTMENT.

WOODED UNDEVELOPED
HIGH SHOAL BAPTIST CHURCH
WOODED UNDEVELOPED
OLD MOOREBORO ROAD
WOODED UNDEVELOPED
WALL RESIDENCE
HIGH SHOAL CEMETARY
HIGH SHOALS CHURCH ROAD
WOODED UNDEVELOPED
WOODED UNDEVELOPED
RESIDENCE
PHILLIPS RESIDENCE
WOODED UNDEVELOPED
WOODED UNDEVELOPED
MCKINNEY RESIDENCE
GRAGG RESIDENCE
FOURNIER RESIDENCE
S. Pea Ridge Road
LAWN
WOODED UNDEVELOPED
US 221A
MATURE FOREST
LAWN
UNNAMED TRIBUTARY TO HILLS CREEK
WELL #1
PARKER RESIDENCES
FILL AREA A
LAWN
OPEN FIELD
EXCAVATED POOL
STRUCTURE WITH FULL BASEMENT
EXCAVATED POND
AREA OF POSSIBLE STRESSED VEGETATION
WOODED UNDEVELOPED
LAWN
DISPOSAL AREA LIMITS
HILLS CREEK
SHANE/BLANTON RESIDENCE
FILL AREA B
WOODED UNDEVELOPED
REMNANT RAILROAD BED
MATURE FOREST
500' LINE FOR SENSITIVE ENVIRONMENTS SURVEY
WOODED UNDEVELOPED
WOODED UNDEVELOPED
WOODED UNDEVELOPED
HILLS CREEK CLASSIFICATION: WATER SUPPLY IV
WOODED UNDEVELOPED
WOODED UNDEVELOPED
WLR CONE DENIM, LLC (INDUSTRIAL)
WOODED UNDEVELOPED
HILLS CREEK
CENTEXPIC, LLC (INDUSTRIAL)

ANALYTICAL RESULTS: WELL #1 (8/2/10)
BIS(2-ETHYLHEXL)PHTHALATE 7.0 UG/L
LEAD 29.8 UG/L
MANGANESE 82.9 UG/L

LEGEND
- WELL #1 (SAMPLED 8/2/10)
- DISPOSAL AREA BOUNDARY PER GEOPHYSICAL SURVEY
- PARCEL BOUNDARY
- BUFFER RADIUS LINE

GRAPHIC SCALE
300 0 150 300 600
1 inch = 300 ft.

WITHERS & RAVENEL
ENGINEERS | PLANNERS | SURVEYORS
111 Macken Drive Cary, North Carolina 27511 tel 919469-1140 www.withersravenel.com License No C0832

CLIFFSIDE MILLS DUMP
NONCD0000544
S. PEA RIDGE ROAD
MOORESBORO, NORTH CAROLINA

SITE LAYOUT MAP

Drawn By	Scale
JLF/JP	1"=300'
Checked By	Date
CCB	9/16/10

Job No.
02100001.04
Sheet No.
1

K:\10\10-0000\100001.04-CLIFFSIDE LANDFILL\CAD\FIGURE 1 - LAND USE MAP.DWG 9/26/2006 10:58 AM BRYANT, CHAN 1:1

Appendix A

Survey Plat
(Limits of Waste)

Legend

DB - Deed Book
EIP - Existing Iron Pipe
EIR - Existing Iron Rod/Rebar
○ - Unmarked Point

1/2"EIP
N - 562,887.673'
E - 1,170,302.218'

LINE	BEARING	DISTANCE
L1	S 10°31'32" W	77.15'
L2	S 08°21'38" W	47.04'
L3	S 05°49'50" W	54.94'
L4	S 02°33'43" W	41.03'
L5	S 00°47'31" E	34.93'
L6	S 02°18'58" E	38.30'
L7	N 00°14'57" E	421.85'
L8	N 00°15'23" E	203.46'
L9	N 00°12'54" E	150.19'
L10	N 00°17'15" E	451.16'
L11	S 00°04'50" W	238.67'
L12	N 54°27'54" W	109.47'
L13	S 54°25'59" E	99.33'

L13
3/4"EIP
S 54°29'49" E 749.81'
Bertha Wall
04E/52
L11
3/4"EIP
716
717
718
739
720
719
1"EIP
740
3/4"EIP
N - 562,330.817'
E - 1,171,082.516'
L10
Rutherford County
DB 587 Pg 66
738
L12
Note 6
735
Fill Area A
736
737
3/4"EIP
L9
733
Fill Area A
Fill Area B
3/4"EIP
731
732
L8
729
S 11°32'34" W 893.19'
1/2"EIP
728
Fill Area B
L7
Carver Living Trust
DB 745 Pg 121
726
727
722
721
724
L1
725
L2
741
Note 6
1"EIP
L3
L4
L5 L6
Steve Matheny
DB 909 Pg 38
N 71°38'25" W 433.33'
1"EIP
Steve Matheny
DB 909 Pg 38

NC Grid North - NAD 83/2007
All Distances Are Ground

Iron Stakes Around the Border of Fill Areas

Pt #	Northing' (Y)	Easting' (X)	Elevation
716	562552.780	1170676.189	854.356
717	562551.412	1170771.952	843.211
718	562551.839	1170849.491	836.871
719	562405.246	1170989.419	822.105
720	562443.643	1170950.101	826.129
721	561446.925	1170577.351	818.116
722	561479.174	1170477.387	824.136
724	561439.968	1170678.229	814.170
725	561413.927	1170787.603	808.337
726	561623.608	1170387.652	833.100
727	561533.025	1170367.162	826.459
728	561717.528	1170420.309	837.769
729	561833.460	1170419.041	844.655
731	561971.592	1170475.354	848.660
732	561979.081	1170569.311	841.193
733	562047.258	1170572.111	846.343
735	562248.972	1170603.551	850.371
736	562206.550	1170576.783	851.471
737	562139.911	1170499.365	853.727
738	562348.454	1170680.170	849.569
739	562453.522	1170613.817	853.892
740	562358.634	1171037.149	
741	561400.308	1170844.804	

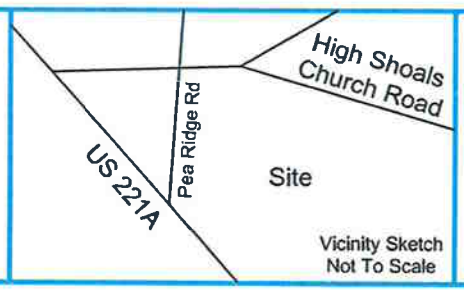
0' 150' 300' 450'

NORTH CAROLINA PROFESSIONAL SEAL L-4299 LAND SURVEYOR JOHN W. TERRY II

"I, John W Terry II, certify that this map was drawn under my supervision from an actual survey made under my supervision, using GPS and conventional ground surveying methods and the following information was used to perform the survey;(1) Class of survey: AA (2) Positional accuracy: 0.015 M (0.05') (3) Type of GPS field procedure: NCVRS Network RTK(4) Dates of survey: 8/02-9/02/2010 (5) Datum/Epoch: NAD 83/2007 (6) Published/Fixed-control use: NCVRS System (7) Geiod model: Geoid03(ConUS) (8) Combined grid factor(s): 0.99983554 (9) Units: US Survey Foot;Deed description recorded in Deed Book 862 Page 401 ; that the ration of precision as calculated is 1:10,000 +; that the boundaries not surveyed are clearly indicated as drawn from information in Deed/Plat Bk __ Page__; that this plat was prepared in accordance with N.C.G.S. 47-30 as amended, Witness my original signature, registration number and seal this 9th day of September 2010

John W. Terry II - PLS # 4299

Notes:
1 - Boundary shown for reference only.
2 - Survey does not certify to title or ownership
3 - This plat was prepared without the benefit of a title search which may reveal additional conveyances, easements, rights of way, building restrictions, etc.
4 - Ownerships shown from tax records.
5 - The purpose of this survey is to show the results of an evaluation of landfill data only.
6 - Point at center of old railroad bed
7 - NA



TRIPOD LAND SURVEYING, P.A.
C-2183
134 Central Street
Rutherfordton, NC 28139
828 288 0008

Survey Of:
Cliffside Mill Dump
NONCD0000544

Survey For: Withers and Ravenel		
State: North Carolina	County: Rutherford	Township: High Shoals
DB 587 Pg 66	Tax Map# 435-1-125 E	Scale: 1" = 150'
DB 909 Pg 38	Tax Map# 435-1-125 N	Date: 09/09/2010
DB 745 Pg 121	Tax Map# 435-2-20	Drawing # 780

Appendix B

Geophysical Survey Report

Geo Solutions Ltd.

P.O. Box 37698
Raleigh, North Carolina 27627
(919) 233-5858 (Phone)
(919) 233-9454 (Fax)

August 31, 2010

Chan Bryant
Withers & Ravenel
111 MacKenan Drive
Cary, NC 27511

Dear Mr. Bryant:

Geo Solutions Limited, Inc. (Geo Solutions) is pleased to submit this report for a geophysical survey at the Cliffside Mill Dump (Cliffside Landfill), located along South Pea Ridge Rd and Highway 221A in Rutherford County, North Carolina. This report is prepared in support of Withers & Ravenel ongoing evaluation of this Pre-Regulatory Landfill (RCPRL) where the extent (horizontal) of the fill had not been previously fully characterized. The site and the location of the geophysical survey area (profile lines) are presented in Figure 1.

Background

According to Withers & Ravenel, the State of North Carolina has asked W&R to conduct a site evaluation of the Cliffside Landfill. According to our information the landfill foot print is estimated to be approximately 18.7 acres and is located within a larger tract of approximately 35 acres. Most of the anticipated landfill area is currently heavily forested. The area includes the suspected landfill area and adjacent landowner's back yards. The purpose of this geophysical evaluation is to verify the horizontal extent of buried waste.

Field Activities

Geo Solutions completed a low-resolution (100-ft profile spacing) multifrequency electromagnetic (EM) survey over the entire site to evaluate the distribution of buried waste material. The field work was completed during the week of August 23, 2010. The final site assessment fieldwork was completed on August 26th of the same week.

Field Method - Multifrequency Electromagnetic Survey (In-phase and Soil Conductivity)

The Electromagnetic Method (EM) is a non-contact (uncoupled) geophysical method that utilizes a multiple frequency electromagnetic detector (Geophex Model GEM-2). The GEM-2 instrument collects electromagnetic responses in the in-phase (metal detection or magnetic susceptibility mode) and quadrature (conductivity) mode.

The EM in-phase and conductivity data was collected simultaneously at seven varying frequencies (1470 Hz, 5130 Hz, 9090Hz, 19950 Hz, 39510 Hz, 60030 Hz, and 90030 Hz). By varying the collection frequencies, Geo Solutions was able to better identify the extent of the buried waste and also provide some perspective of the variation of waste composition over the site.

The GEM-2 was operated in remote control configuration. In this mode the GEM-2 unit was mounted on a plastic sled positioned approximately 3-feet above the ground surface.

Typical setup of GEM-2 mounted on plastic sled.

The receiving coil (detector coil) is situated directly above the exposed ground surface. Data was collected at the rate of 10 samples per second. The position of each sample point is measured utilizing a CSI Wireless SERES GPS with a data update rate of 6 Hz. These data were transferred from the GEM-2 unit to a portable laptop computer that was carried onboard a 4WD vehicle (Polaris Ranger with covered cab). The sample spacing is thus a function of rate of travel of the sled and rate of data sampling. Geo Solutions collected data along cleared lines that created a grid layout with 100 ft. centers aligned north-south and east-west. Given the low resolution of the survey profile grid, a more detailed survey was conducted along the landfill contact to more accurately locate the horizontal extent of the landfill. The survey area was extended to the east to include the roadway associated with the former railroad. The location of the cleared EM profile lines and former railroad roadway are presented in Figure 1.

Results

Based on the results of the EM field data, Geo Solutions prepared maps showing the outcome of the in-phase and apparent conductivity data by frequency. Geo Solutions reviewed these data

and selected two frequencies to illustrate the distribution and characterization of fill material at the site (4070 Hz and 90030 Hz frequencies). These results are shown in Figures 2 through 6. Here, orange and red hues indicate increased values in the soils in-phase and conductivity values. A summary Figure showing the maximum extent of the fill material is shown in Figure 7. Also, Geo Solutions observed changes in topography that appeared to correspond to changes of in-phase and conductivity values. Of particular interest are depressions, and mounds that were associated with exposed garbage (usually metal/plastic debris).

Figure 2 illustrates the low-frequency EM response of in-phase data at the 4070 Hz level. Here, Geo Solutions observed two distinct patterns:

- A low and more uniform (out of phase) response from material buried in the northern ½ of the fill area; and
- A high and less continuous in-phase response from material buried in the southern ½ of the fill area.

We have interpreted this as an indication of differences in the distribution and composition of fill material. The southern ½ of the site appears to contain more metal debris, whereas the northern ½ contains less metal and more conductive material.

Figure 4 illustrates the in-phase response at 90030 Hz. Here, the distinction between the north and south fill areas is not as apparent. This is a function of depth of penetration of the EM signal (low frequency EM penetrates to a greater depth than high frequency) and frequency response (varying EM responses is also a function of frequency).

Figures 3 and 5 illustrate the conductivity values at the 4070 Hz and 90030 Hz frequency. The extent of the conductivity response is greater than the in-phase mode. As such, we have used the results of the conductivity mode to estimate the overall extent of fill material at the site.

Some elevated in-phase and conductivity values were observed in the EM data for the surrounding properties. The anomalies that are present can be accounted for by the presence of cars, septic tanks, basketball courts, and pools. Geo Solutions did observe what appeared to be random piles of garbage ranging from abandoned cars, abandoned steel tanks, and a large cash of glass bottles. None of these items were identified in the EM survey because they were situated near the center of the survey grid and far away from the actual EM profile lines were measurements were recorded.

Additionally, Geo Solutions prepared a figure showing the location of energy levels from 60-cycle alternating current (AC) "Hum" (Figure 6). This survey was completed to evaluate the potential presence of buried underground electrical utilities that may have an impact on future site evaluation work plans. The results show a power line running across the southwest corner of the site along US-221A. This is outlined in Figure 6. Other elevated background signals were recorded around the houses and facilities located on the surrounding properties.

Field-Plotting of Extent of Fill

Based on all of the EM data collected, Geo Solutions compiled a map showing the distribution of the land area underlain by fill material. This area is outlined in Figure 7 and shows two basic fill areas identified as Fill Area A and Fill Area B. Based on these data, Geo Solutions established the extent of the fill using wooden and metal stakes. The use of metal markers and wooded stake combinations was limited to the edges of the existing fill. The following coordinates identify the extent of fill area A ***(coordinates in USGS UTM coordinates (metric)):***

Fill Area A

X	Y
429177.58	3902588.10
429173.20	3902577.86
429160.76	3902558.13
429156.38	3902538.39
429158.57	3902520.12
429152.72	3902507.69
429151.99	3902496.73
429145.41	3902485.03
429128.58	3902475.53
429111.03	3902449.95
429112.49	3902430.95
429139.55	3902423.64
429162.96	3902419.25
429183.44	3902418.52
429202.45	3902412.67
429225.12	3902411.21
429242.68	3902408.29
429258.76	3902403.17
429264.62	3902419.98
429266.08	3902436.79
429263.15	3902454.34
429271.93	3902478.46
429265.35	3902500.38
429274.12	3902515.73
429267.54	3902534.74
429249.99	3902543.51
429235.36	3902577.13
429217.81	3902576.40
429199.53	3902582.25
429184.90	3902588.83

The following coordinates identify the extent of fill area B ***(coordinates in USGS UTM coordinates (metric)):***

Fill Area B

X	Y
429127.85	3902418.52
429113.96	3902410.48
429103.72	3902405.36
429101.52	3902395.13
429104.45	3902387.09
429097.14	3902378.32
429097.14	3902365.16
429105.18	3902347.62
429111.03	3902336.66
429100.06	3902324.23
429098.60	3902301.57
429087.63	3902291.34
429079.58	3902264.30
429084.70	3902249.68
429098.60	3902238.71
429127.85	3902239.44
429149.06	3902234.33
429220.73	3902246.02
429237.56	3902256.99
429247.79	3902338.85
429241.94	3902343.24
429215.62	3902349.08
429216.35	3902362.24
429229.51	3902366.63
429241.94	3902364.43
429254.38	3902390.01
429213.42	3902408.29
429195.14	3902415.60
429184.90	3902417.79
429147.60	3902414.87

Geo Solutions identified a small anomalous area on the extreme southern end of the site that corresponded to a narrow raised-berm. We suspect that this may be the remnant of an access road (we were not able to confirm this in the field).

Summary of Results

An EM evaluation was completed at the Cliffside Landfill site, located along S. Pea Ridge Rd and Highway 221 in Rutherford County, North Carolina. The area of the investigation identified approximately 7 acres of land impacted by fill material.. EM profiles were completed over the entire area of interest and illustrated the presence of high in-phase and quadrature (soil conductivity) over the east and southeast regions of the reported fill site. These areas are demarked as red and orange hues in each figure.

Additionally, the multifrequency EM data indicates distinct differences in signal responses between fill areas A and B. Here, we have interpreted these differences to be a result of differences in composition in buried material at each fill area.

Geo Solutions also identified some areas of random surface disposal of debris that includes automobiles, tanks, glass bottles, and building materials.

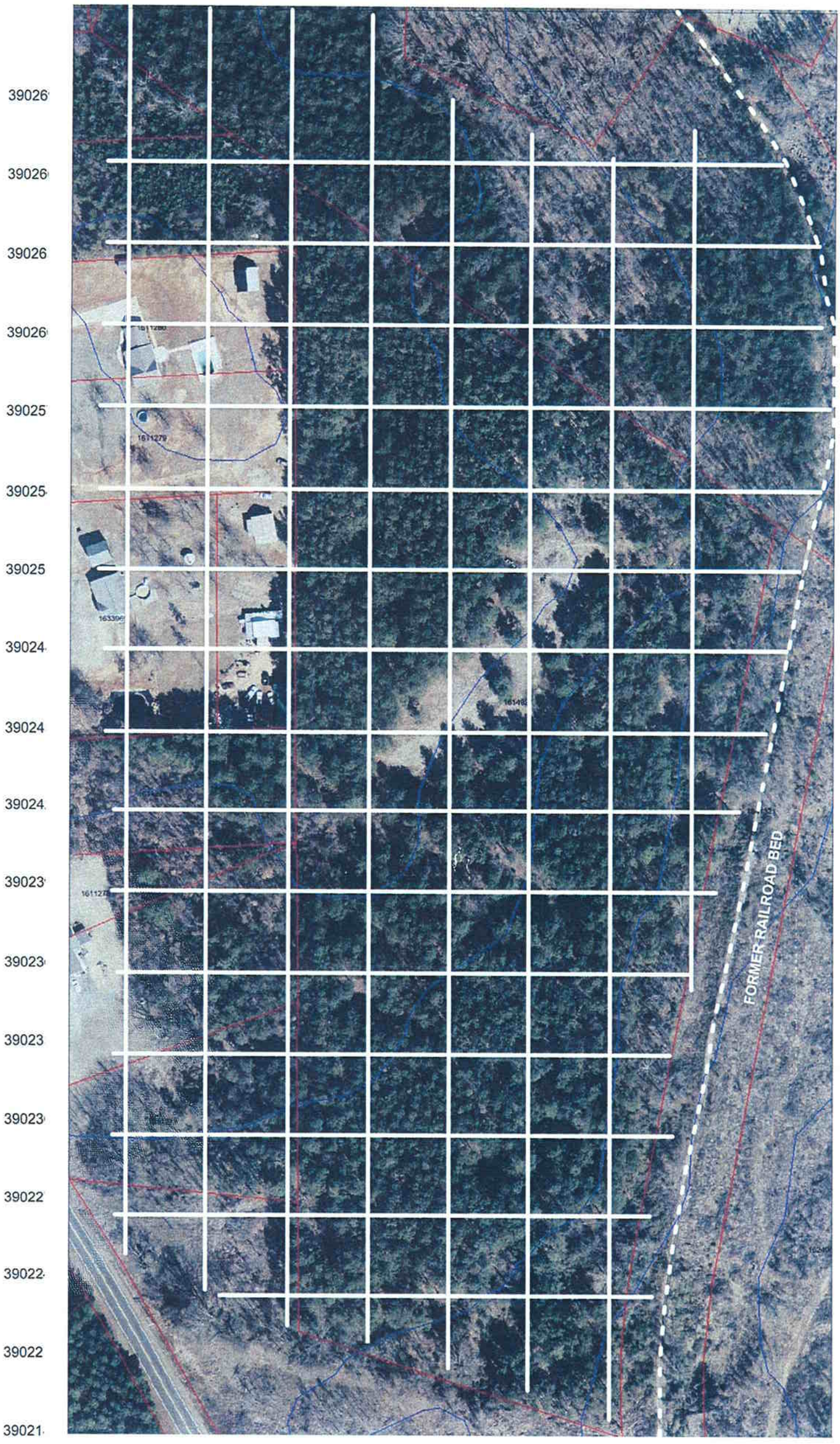
Please give us a call should you have any questions concerning the above information

Very truly yours,

GEO SOLUTIONS LIMITED, INC.

Ronald A. Crowson
President

FIGURES 1 THROUGH 7



N

USGS UTM COORDINATES (METRIC)

MULTIFREQUENCY EM GEOPHYSICAL SURVEY
CLIFFSIDE, NORTH CAROLINA

LOCATION OF CLIFFSIDE LANDFILL SITE
WITH LAYOUT OF SURVEY GRID

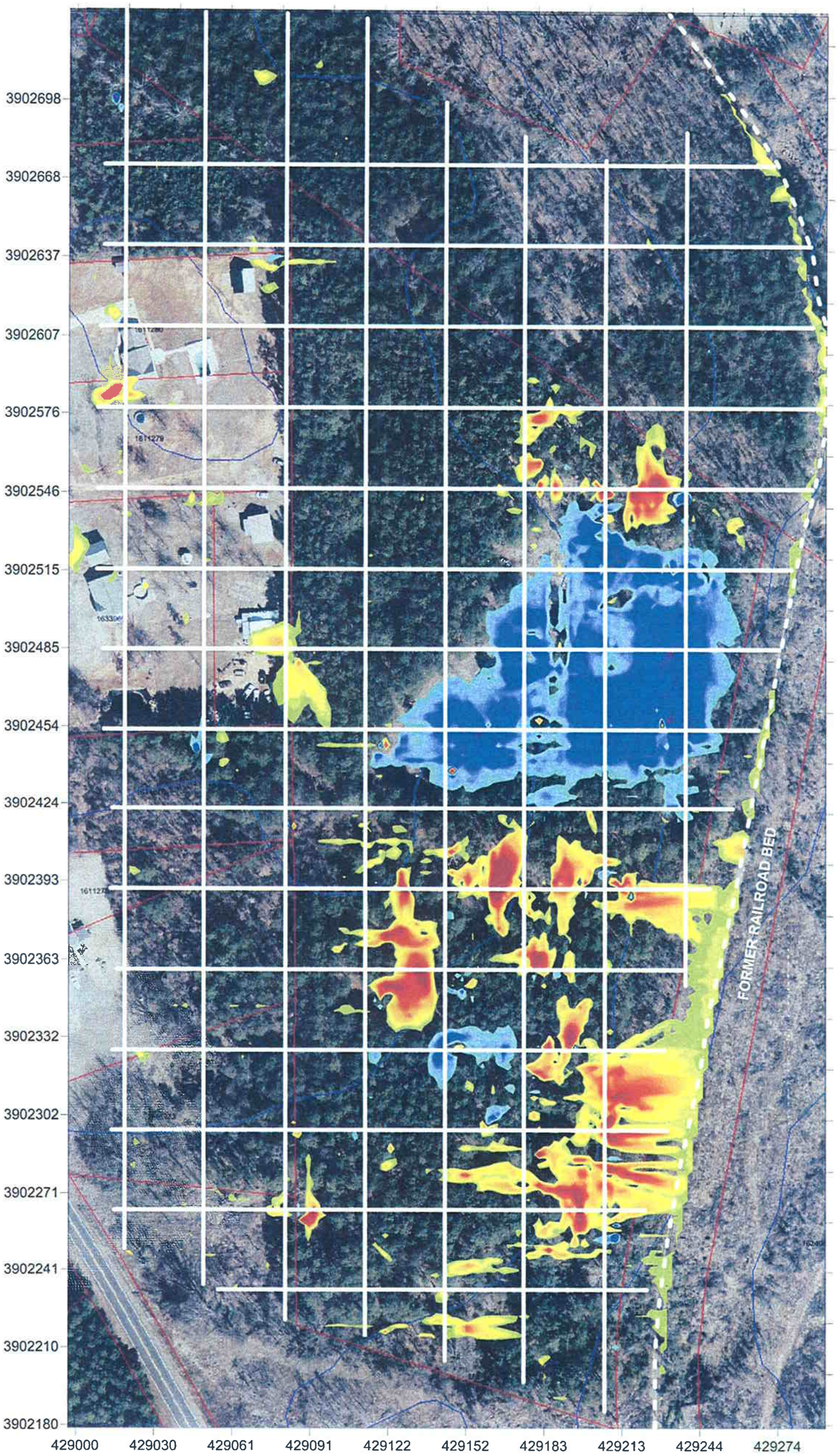
0 300

SCALE IN FEET

FIGURE 1

AUGUST 2010

Geo Solutions Ltd.



MULTIFREQUENCY EM GEOPHYSICAL SURVEY
CLIFFSIDE, NORTH CAROLINA

LOCATION OF CLIFFSIDE LANDFILL SITE
WITH 1470 HZ IN-PHASE DATA

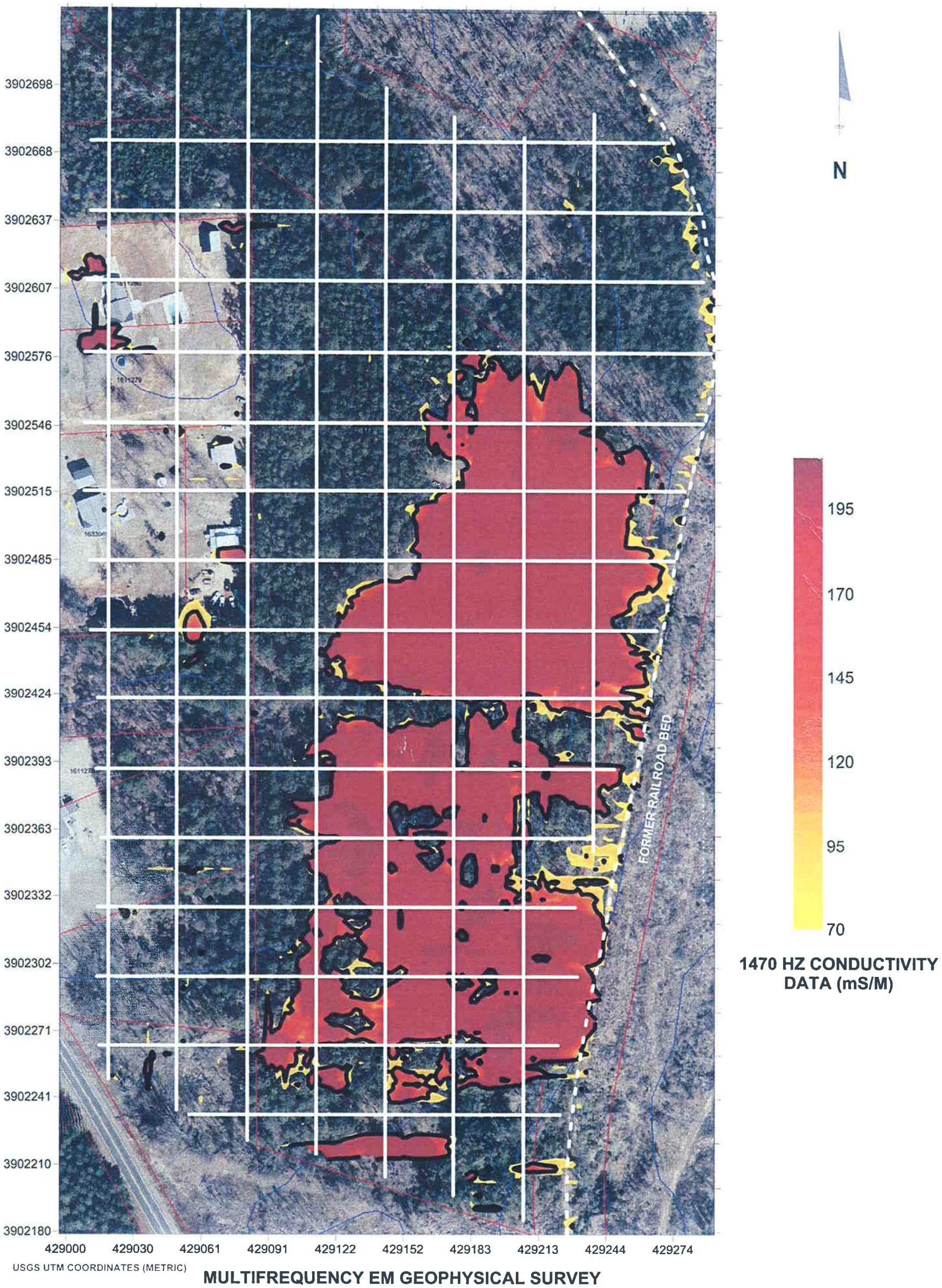
0 300

SCALE IN FEET

FIGURE 2

AUGUST 2010

Geo Solutions Ltd.



MULTIFREQUENCY EM GEOPHYSICAL SURVEY
CLIFFSIDE, NORTH CAROLINA

LOCATION OF CLIFFSIDE LANDFILL SITE
WITH 1470 HZ ELECTRICAL CONDUCTIVITY

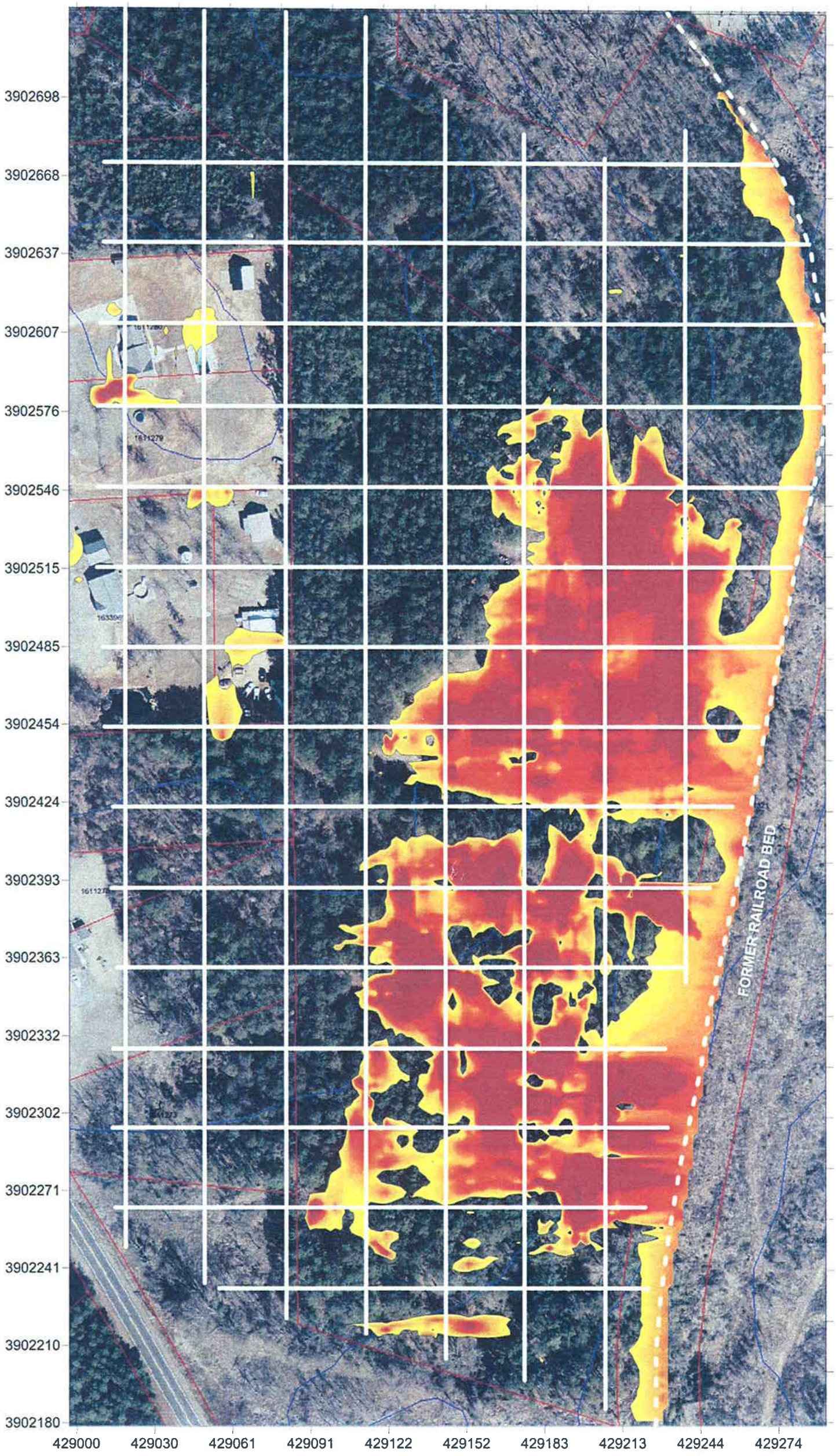
0 300

SCALE IN FEET

FIGURE 3

AUGUST 2010

Geo Solutions Ltd.



MULTIFREQUENCY EM GEOPHYSICAL SURVEY
CLIFFSIDE, NORTH CAROLINA

LOCATION OF CLIFFSIDE LANDFILL SITE WITH 90030 HZ IN-PHASE DATA

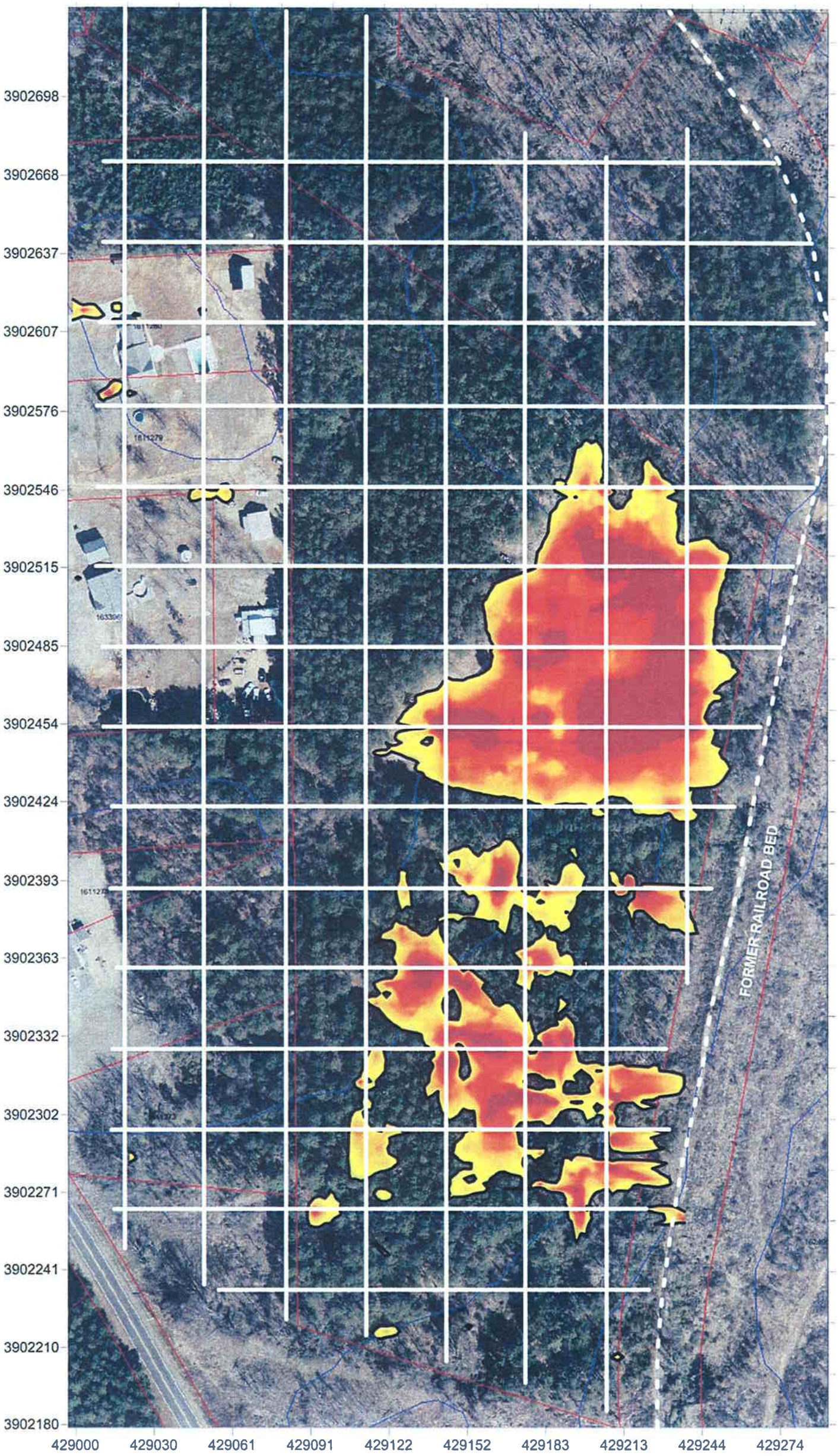
0 300

SCALE IN FEET

FIGURE 4

AUGUST 2010

Geo Solutions Ltd.



MULTIFREQUENCY EM GEOPHYSICAL SURVEY
CLIFFSIDE, NORTH CAROLINA

LOCATION OF CLIFFSIDE LANDFILL SITE WITH 90030 HZ ELECTRICAL CONDUCTIVITY

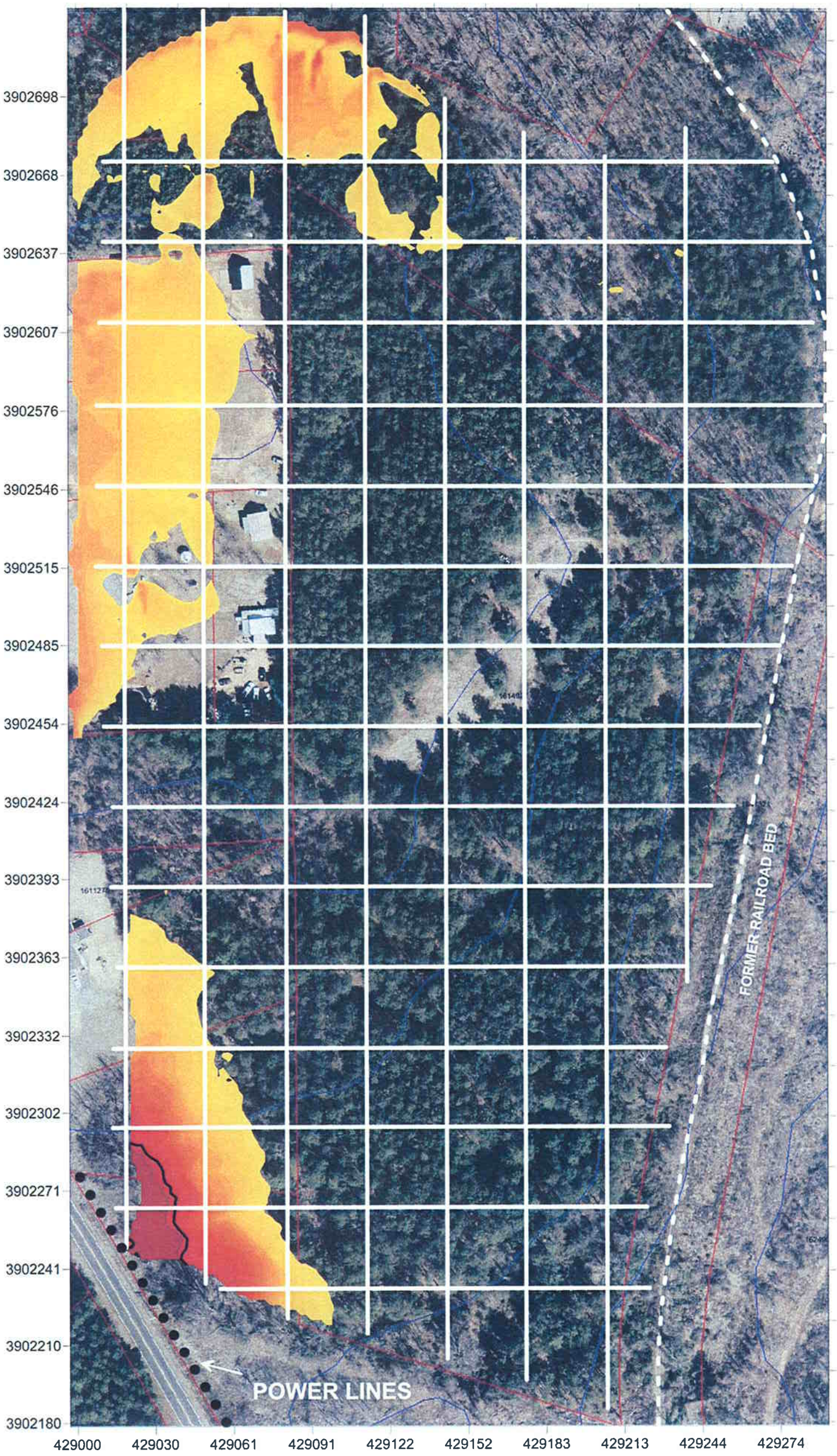
0 300

SCALE IN FEET

FIGURE 5

AUGUST 2010

Geo Solutions Ltd.



MULTIFREQUENCY EM GEOPHYSICAL SURVEY
CLIFFSIDE, NORTH CAROLINA

LOCATION OF CLIFFSIDE LANDFILL SITE
WITH 60 HZ BACKGROUND SIGNAL
(LOCATION OF POWER LINES)

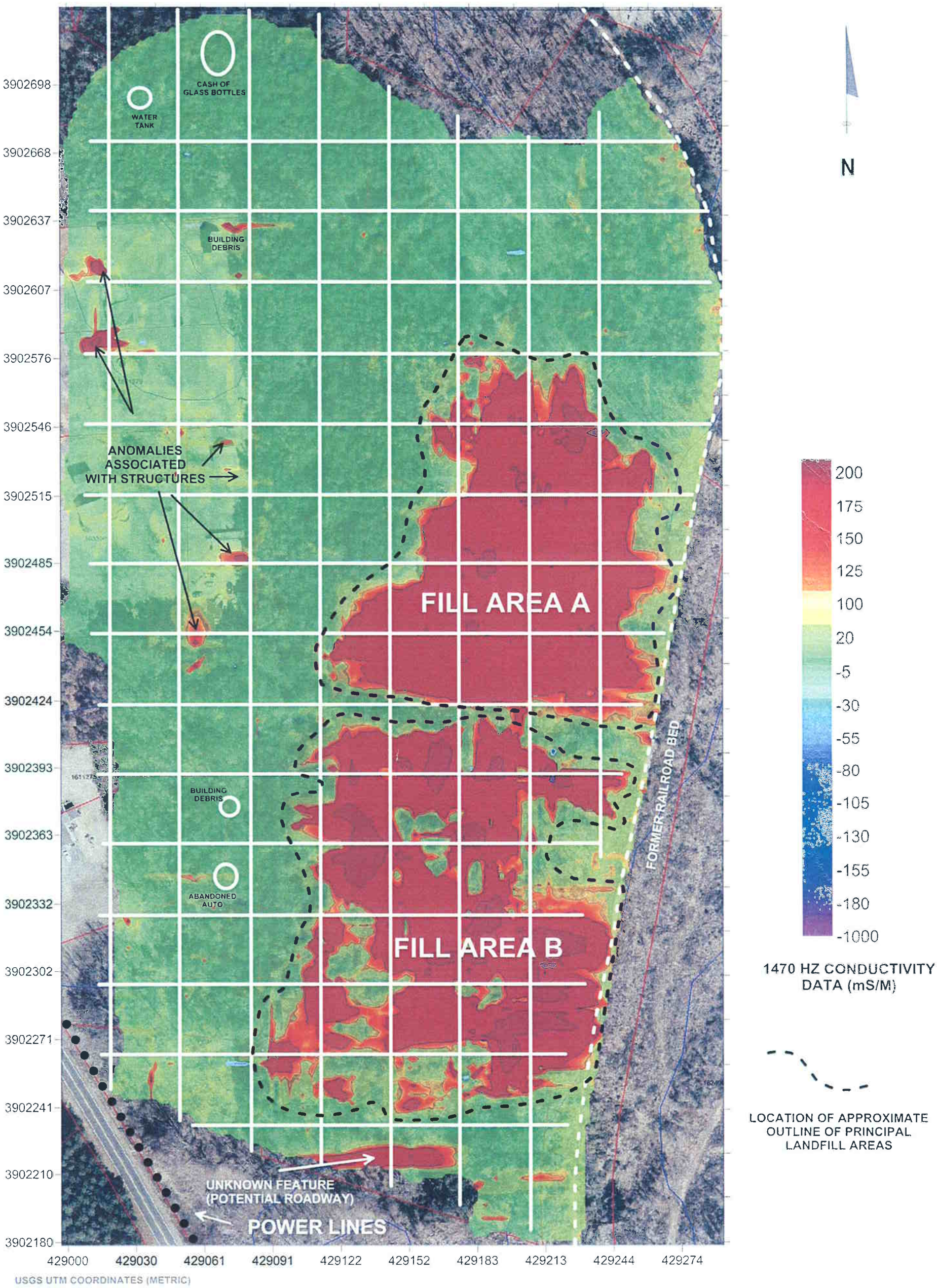
0 300

SCALE IN FEET

FIGURE 6

AUGUST 2010

Geo Solutions Ltd.



MULTIFREQUENCY EM GEOPHYSICAL SURVEY
CLIFFSIDE, NORTH CAROLINA

SUMMARY OF EM FINDINGS
OUTLINE OF CLIFFSIDE LANDFILL SITE

0 300

SCALE IN FEET

FIGURE 7

AUGUST 2010

Geo Solutions Ltd.

Appendix C

Pre-Sampling Well Purging Logs

WITHERS & RAVENEL

ENGINEERS | PLANNERS | SURVEYORS

PRE-SAMPLING WELL PURGING

PROJECT CLIFFSIDE

WELL NUMBER Well 1

WELL INSIDE DIAMETER _____ INCHES

DEPTH OF BOTTOM _____ FEET

LENGTH OF GRAVEL PACK _____ FEET

DIAMETER OF GRAVEL PACK _____ INCHES

PROJECT NUMBER 0210000104

DATE 8/2/10 PAGE 1 OF 1

AIR TEMPERATURE (FAHRENHEIT) MID 70's

WEATHER CONDITIONS MOSTLY CLR, LT. BRZ

HNU/OVA READING _____

METHOD OF EXCAVATION AND TYPE OF EQUIPMENT USED

MULTI 340i MM HACH 2100P

WITHDRAWAL OF WELL VOLUMES

	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
FLUSHING					
WATER LEVEL BEFORE					
WATER LEVEL AFTER					
TIME BEGIN FLUSHING	1022				
TIME END FLUSHING					1047
ESTIMATED VOLUME FLUSHING (gal)	1027	1032	1037	1042	1047
WELL VOLUMES REMOVED	—	—	—	—	—
FIELD ANALYSIS					
WATER TEMPERATURE (°C)	17.6	17.5	18.5	18.5	18.3
SAMPLE (ph)	6.23	6.96	6.92	6.93	6.90
SAMPLE CONDUCTIVITY (umhos/cm)	115	114	117	117	116
BUFFER BEFORE					
BUFFER AFTER					
ODOR					
COLOR					
Eh					
OTHER / TURBIDITY	—	3.25	—	4.71	5.64

COMMENTS * SAMPLED @ 1052

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)

$\pi r^2 \times h$ = WELL VOLUME IN FT^3

$\pi = 3.14$

R = RADIUS IN INCHES/12 = RADIUS IN FEET

H = HEIGHT OF WATER COLUMN IN WELL IN FEET

CONVERSION FROM FT^3 TO GALLONS = 7.48 gal/ft^3

Well radius = _____ IN/12= _____ FT

h= _____ (WELL DEPTH) - _____ (DEPTH TO WATER) = _____ FT = h

3.14 x _____ (r^2) x h = _____ FT^3 x 7.48 gal/ft^3 = 1 WELL VOLUME IN GAL = _____

Appendix D

Laboratory Results

Environmental Conservation Laboratories, Inc.
102-A Woodwinds Industrial Court
Cary NC, 27511
Phone: 919.467.3090 FAX: 919.467.3515

www.encolabs.com

Friday, August 13, 2010

Withers & Ravenel Environmental (WI009)

Attn: Chan Bryant

111 MacKenan Drive

Cary, NC 27511

RE: Laboratory Results for
Project Number: 02100001.04, Project Name/Desc: Cliffside Task 544-1
ENCO Workorder: C009065

Dear Chan Bryant,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Tuesday, August 3, 2010.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Cary. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Chuck Smith

Project Manager

Enclosure(s)

The total number of pages in this report, including this page is 33.

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: Well 1 **Lab ID: C009065-01** **Sampled: 08/02/10 10:52** **Received: 08/03/10 11:45**

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)
EPA 300.0	08/30/10		08/09/10	11:05	8/10/2010 05:50
EPA 350.1	08/30/10		08/05/10	06:42	8/5/2010 09:20
EPA 353.2	08/04/10	10:52	08/03/10	13:44	8/3/2010 14:12
EPA 353.2	08/30/10		08/09/10	06:49	8/9/2010 11:53
EPA 353.2	08/30/10		08/10/10	08:38	8/10/2010 10:02
EPA 6010C	01/29/11		08/05/10	09:48	8/10/2010 14:41
EPA 6010C	01/29/11		08/05/10	10:17	8/11/2010 13:40
EPA 6020A	01/29/11		08/05/10	14:22	8/10/2010 12:11
EPA 7470A	08/30/10		08/06/10	09:52	8/6/2010 15:18
EPA 8260B	08/16/10		08/09/10	15:02	8/10/2010 07:20
EPA 8270D	08/09/10	09/13/10	08/04/10	13:52	8/5/2010 21:32

Client ID: RF **Lab ID: C009065-02** **Sampled: 08/02/10 11:07** **Received: 08/03/10 11:45**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8260B	08/16/10	08/09/10	15:02	8/10/2010 07:50

Client ID: Trip Blank **Lab ID: C009065-03** **Sampled: 08/02/10 10:52** **Received: 08/03/10 11:45**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)		Analysis Date/Time(s)
EPA 8260B	08/16/10	08/09/10	15:02	8/10/2010 08:19

SAMPLE DETECTION SUMMARY

Client ID: Well 1 **Lab ID:** C009065-01

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
2-Butanone	4.3	J	1.0	5.0	ug/L	EPA 8260B	
Antimony - Total	0.540	J	0.220	2.00	ug/L	EPA 6020A	
Arsenic - Total	9.18	J	2.80	10.0	ug/L	EPA 6010C	
Bis(2-ethylhexyl)phthalate	7.0		2.6	5.0	ug/L	EPA 8270D	
Carbon Dioxide	61	J			ug/L	EPA 8260B	
Chromium - Total	3.14	J	1.00	10.0	ug/L	EPA 6010C	
Copper - Total	69.9		1.60	10.0	ug/L	EPA 6010C	
Lead - Total	29.8		1.90	10.0	ug/L	EPA 6010C	
Manganese - Total	82.9		1.10	10.0	ug/L	EPA 6010C	
Nickel - Total	32.7		1.80	10.0	ug/L	EPA 6010C	
Nitrite as N	0.019	J	0.0056	0.10	mg/L	EPA 353.2	
Sulfate as SO4	9.6		0.12	5.0	mg/L	EPA 300.0	
Unknown	8.0	JB			ug/L	EPA 8270D	B
Zinc - Total	123		3.80	10.0	ug/L	EPA 6010C	

Client ID: RF **Lab ID:** C009065-02

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Bromodichloromethane	9.9		0.37	1.0	ug/L	EPA 8260B	
Carbon Dioxide	13	J			ug/L	EPA 8260B	
Chloroform	32		0.20	1.0	ug/L	EPA 8260B	
Dibromochloromethane	1.5		0.32	1.0	ug/L	EPA 8260B	

Client ID: Trip Blank **Lab ID:** C009065-03

Analyte	Results	Flag	MDL	PQL	Units	Method	Notes
Carbon Dioxide	13	J			ug/L	EPA 8260B	

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ANALYTICAL RESULTS

Description: Well 1 | **Lab Sample ID:** C009065-01 | **Received:** 08/03/10 11:45

Matrix: Ground Water | **Sampled:** 08/02/10 10:52 | **Work Order:** C009065

Project: Cliffside Task 544-1 | **Sampled By:** Chan Bryant

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.40	U	ug/L	1	0.40	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.33	U	ug/L	1	0.33	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.37	U	ug/L	1	0.37	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,1-Dichloroethane [75-34-3] ^	0.33	U	ug/L	1	0.33	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,1-Dichloroethene [75-35-4] ^	0.24	U	ug/L	1	0.24	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,1-Dichloropropene [563-58-6] ^	0.32	U	ug/L	1	0.32	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,2,3-Trichlorobenzene [87-61-6] ^	0.25	U	ug/L	1	0.25	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.55	U	ug/L	1	0.55	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,2,4-Trichlorobenzene [120-82-1] ^	0.36	U	ug/L	1	0.36	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,2,4-Trimethylbenzene [95-63-6] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,2-Dibromoethane [106-93-4] ^	0.42	U	ug/L	1	0.42	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,2-Dichloroethane [107-06-2] ^	0.65	U	ug/L	1	0.65	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,2-Dichloropropane [78-87-5] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,3,5-Trimethylbenzene [108-67-8] ^	0.25	U	ug/L	1	0.25	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,3-Dichlorobenzene [541-73-1] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,3-Dichloropropane [142-28-9] ^	0.32	U	ug/L	1	0.32	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
2,2-Dichloropropane [594-20-7] ^	0.55	U	ug/L	1	0.55	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
2-Butanone [78-93-3] ^	**4.3**	J	ug/L	1	1.0	5.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
2-Chloroethyl Vinyl Ether [110-75-8] ^	0.94	U	ug/L	1	0.94	5.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
2-Chlorotoluene [95-49-8] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
2-Hexanone [591-78-6] ^	0.69	U	ug/L	1	0.69	5.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
4-Chlorotoluene [106-43-4] ^	0.25	U	ug/L	1	0.25	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
4-Isopropyltoluene [99-87-6] ^	0.26	U	ug/L	1	0.26	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Acetone [67-64-1] ^	1.5	U	ug/L	1	1.5	5.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Benzene [71-43-2] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Bromobenzene [108-86-1] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Bromochloromethane [74-97-5] ^	0.42	U	ug/L	1	0.42	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Bromodichloromethane [75-27-4] ^	0.37	U	ug/L	1	0.37	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Bromoform [75-25-2] ^	0.71	U	ug/L	1	0.71	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Bromomethane [74-83-9] ^	0.49	U	ug/L	1	0.49	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Carbon disulfide [75-15-0] ^	0.54	U	ug/L	1	0.54	5.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Carbon tetrachloride [56-23-5] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Chlorobenzene [108-90-7] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Chloroethane [75-00-3] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Chloroform [67-66-3] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Chloromethane [74-87-3] ^	0.34	U	ug/L	1	0.34	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.36	U	ug/L	1	0.36	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Dibromochloromethane [124-48-1] ^	0.32	U	ug/L	1	0.32	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Dibromomethane [74-95-3] ^	0.37	U	ug/L	1	0.37	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Dichlorodifluoromethane [75-71-8] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Ethylbenzene [100-41-4] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Hexachlorobutadiene [87-68-3] ^	0.35	U	ug/L	1	0.35	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	

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Description: Well 1
Matrix: Ground Water
Project: Cliffside Task 544-1

Lab Sample ID: C009065-01
Sampled: 08/02/10 10:52
Sampled By: Chan Bryant

Received: 08/03/10 11:45
Work Order: C009065

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Isopropylbenzene [98-82-8] ^	0.24	U	ug/L	1	0.24	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
m,p-Xylenes [108-38-3/106-42-3] ^	0.48	U	ug/L	1	0.48	2.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Methylene chloride [75-09-2] ^	0.53	U	ug/L	1	0.53	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Methyl-tert-Butyl Ether [1634-04-4] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Naphthalene [91-20-3] ^	0.39	U	ug/L	1	0.39	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
n-Butyl Benzene [104-51-8] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
n-Propyl Benzene [103-65-1] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
o-Xylene [95-47-6] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
sec-Butylbenzene [135-98-8] ^	0.24	U	ug/L	1	0.24	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Styrene [100-42-5] ^	0.26	U	ug/L	1	0.26	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
tert-Butylbenzene [98-06-6] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Tetrachloroethene [127-18-4] ^	0.36	U	ug/L	1	0.36	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Toluene [108-88-3] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.34	U	ug/L	1	0.34	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Trichloroethene [79-01-6] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Trichlorofluoromethane [75-69-4] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Vinyl chloride [75-01-4] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	
Xylenes (Total) [1330-20-7] ^	0.40	U	ug/L	1	0.40	1.0	0H09030	EPA 8260B	08/10/10 07:20	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*40*	*1*	*50.0*	*80 %*	*51-122*	*0H09030*	*EPA 8260B*	*08/10/10 07:20*	*JKG*	
Dibromofluoromethane	*44*	*1*	*50.0*	*87 %*	*68-117*	*0H09030*	*EPA 8260B*	*08/10/10 07:20*	*JKG*	
Toluene-d8	*43*	*1*	*50.0*	*86 %*	*69-110*	*0H09030*	*EPA 8260B*	*08/10/10 07:20*	*JKG*	

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Description: Well 1
Matrix: Ground Water
Project: Cliffside Task 544-1

Lab Sample ID: C009065-01
Sampled: 08/02/10 10:52
Sampled By: Chan Bryant

Received: 08/03/10 11:45
Work Order: C009065

Tentatively Identified Compounds by Volatile GCMS

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Carbon Dioxide [124-38-9]	**61**	J	ug/L	1			0H09030	EPA 8260B	08/10/10 07:20	JKG	

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Description: Well 1 | **Lab Sample ID:** C009065-01 | **Received:** 08/03/10 11:45

Matrix: Ground Water | **Sampled:** 08/02/10 10:52 | **Work Order:** C009065

Project: Cliffside Task 544-1 | **Sampled By:** Chan Bryant

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,2,4-Trichlorobenzene [120-82-1] ^	1.3	U	ug/L	1	1.3	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
1,2-Dichlorobenzene [95-50-1] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
1,3-Dichlorobenzene [541-73-1] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
1,4-Dichlorobenzene [106-46-7] ^	1.2	U	ug/L	1	1.2	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
1-Methylnaphthalene [90-12-0] ^	1.4	U	ug/L	1	1.4	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2,4,5-Trichlorophenol [95-95-4] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2,4,6-Trichlorophenol [88-06-2] ^	1.5	U	ug/L	1	1.5	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2,4-Dichlorophenol [120-83-2] ^	2.0	U	ug/L	1	2.0	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2,4-Dimethylphenol [105-67-9] ^	2.6	U	ug/L	1	2.6	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2,4-Dinitrophenol [51-28-5] ^	2.6	U	ug/L	1	2.6	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2,4-Dinitrotoluene [121-14-2] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2,6-Dinitrotoluene [606-20-2] ^	1.0	U	ug/L	1	1.0	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2-Chloronaphthalene [91-58-7] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2-Chlorophenol [95-57-8] ^	1.9	U	ug/L	1	1.9	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2-Methyl-4,6-dinitrophenol [534-52-1] ^	1.9	U	ug/L	1	1.9	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2-Methylnaphthalene [91-57-6] ^	1.3	U	ug/L	1	1.3	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2-Methylphenol [95-48-7] ^	2.0	U	ug/L	1	2.0	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2-Nitroaniline [88-74-4] ^	1.2	U	ug/L	1	1.2	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
2-Nitrophenol [88-75-5] ^	2.3	U	ug/L	1	2.3	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
3 & 4-Methylphenol [108-39-4/106-44-5] ^	1.8	U	ug/L	1	1.8	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
3,3'-Dichlorobenzidine [91-94-1] ^	1.7	U	ug/L	1	1.7	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
3-Nitroaniline [99-09-2] ^	1.6	U	ug/L	1	1.6	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
4-Bromophenyl-phenylether [101-55-3] ^	1.0	U	ug/L	1	1.0	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
4-Chloro-3-methylphenol [59-50-7] ^	1.6	U	ug/L	1	1.6	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
4-Chloroaniline [106-47-8] ^	1.6	U	ug/L	1	1.6	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
4-Chlorophenyl-phenylether [7005-72-3] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
4-Nitroaniline [100-01-6] ^	1.3	U	ug/L	1	1.3	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
4-Nitrophenol [100-02-7] ^	1.2	U	ug/L	1	1.2	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Acenaphthene [83-32-9] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Acenaphthylene [208-96-8] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Anthracene [120-12-7] ^	0.64	U	ug/L	1	0.64	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Benzidine [92-87-5] ^	1.2	U	ug/L	1	1.2	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Benzo(a)anthracene [56-55-3] ^	0.76	U	ug/L	1	0.76	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Benzo(a)pyrene [50-32-8] ^	1.0	U	ug/L	1	1.0	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Benzo(b)fluoranthene [205-99-2] ^	0.78	U	ug/L	1	0.78	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Benzo(g,h,i)perylene [191-24-2] ^	1.9	U	ug/L	1	1.9	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Benzo(k)fluoranthene [207-08-9] ^	0.77	U	ug/L	1	0.77	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Benzoic acid [65-85-0] ^	3.6	U	ug/L	1	3.6	50	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Benzyl alcohol [100-51-6] ^	2.0	U	ug/L	1	2.0	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Bis(2-chloroethoxy)methane [111-91-1] ^	1.9	U	ug/L	1	1.9	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Bis(2-chloroethyl)ether [111-44-4] ^	1.9	U	ug/L	1	1.9	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Bis(2-chloroisopropyl)ether [108-60-1] ^	1.8	U	ug/L	1	1.8	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Bis(2-ethylhexyl)phthalate [117-81-7] ^	**7.0**		ug/L	1	2.6	5.0	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Butylbenzylphthalate [85-68-7] ^	1.4	U	ug/L	1	1.4	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Chrysene [218-01-9] ^	0.92	U	ug/L	1	0.92	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Dibenzo(a,h)anthracene [53-70-3] ^	1.8	U	ug/L	1	1.8	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Dibenzofuran [132-64-9] ^	1.3	U	ug/L	1	1.3	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Diethylphthalate [84-66-2] ^	0.61	U	ug/L	1	0.61	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Dimethylphthalate [131-11-3] ^	0.79	U	ug/L	1	0.79	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Di-n-butylphthalate [84-74-2] ^	1.4	U	ug/L	1	1.4	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Di-n-octylphthalate [117-84-0] ^	1.4	U	ug/L	1	1.4	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	

Description: Well 1 | **Lab Sample ID:** C009065-01 | **Received:** 08/03/10 11:45

Matrix: Ground Water | **Sampled:** 08/02/10 10:52 | **Work Order:** C009065

Project: Cliffside Task 544-1 | **Sampled By:** Chan Bryant

Semivolatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Fluoranthene [206-44-0] ^	1.2	U	ug/L	1	1.2	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Fluorene [86-73-7] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Hexachlorobenzene [118-74-1] ^	1.2	U	ug/L	1	1.2	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Hexachlorobutadiene [87-68-3] ^	1.2	U	ug/L	1	1.2	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Hexachlorocyclopentadiene [77-47-4] ^	1.0	U	ug/L	1	1.0	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Hexachloroethane [67-72-1] ^	0.97	U	ug/L	1	0.97	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Indeno(1,2,3-cd)pyrene [193-39-5] ^	1.7	U	ug/L	1	1.7	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Isophorone [78-59-1] ^	1.6	U	ug/L	1	1.6	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Naphthalene [91-20-3] ^	1.4	U	ug/L	1	1.4	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Nitrobenzene [98-95-3] ^	1.9	U	ug/L	1	1.9	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
N-Nitrosodimethylamine [62-75-9] ^	1.4	U	ug/L	1	1.4	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
N-Nitroso-di-n-propylamine [621-64-7] ^	1.8	U	ug/L	1	1.8	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
N-nitrosodiphenylamine/Diphenylamine [86-30-6/122-39-4] ^	1.1	U	ug/L	1	1.1	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Pentachlorophenol [87-86-5] ^	1.0	U	ug/L	1	1.0	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Phenanthrene [85-01-8] ^	0.74	U	ug/L	1	0.74	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Phenol [108-95-2] ^	1.2	U	ug/L	1	1.2	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Pyrene [129-00-0] ^	1.3	U	ug/L	1	1.3	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	
Pyridine [110-86-1] ^	1.5	U	ug/L	1	1.5	10	0H04029	EPA 8270D	08/05/10 21:32	DFM	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
2,4,6-Tribromophenol	*100*	*1*	*100*	*101 %*	*10-179*	*0H04029*	*EPA 8270D*	*08/05/10 21:32*	*DFM*	
2-Fluorobiphenyl	*47*	*1*	*50.0*	*94 %*	*10-149*	*0H04029*	*EPA 8270D*	*08/05/10 21:32*	*DFM*	
2-Fluorophenol	*60*	*1*	*100*	*60 %*	*10-110*	*0H04029*	*EPA 8270D*	*08/05/10 21:32*	*DFM*	
Nitrobenzene-d5	*46*	*1*	*50.0*	*92 %*	*10-149*	*0H04029*	*EPA 8270D*	*08/05/10 21:32*	*DFM*	
Phenol-d5	*48*	*1*	*100*	*48 %*	*10-88*	*0H04029*	*EPA 8270D*	*08/05/10 21:32*	*DFM*	
Terphenyl-d14	*54*	*1*	*50.0*	*107 %*	*10-188*	*0H04029*	*EPA 8270D*	*08/05/10 21:32*	*DFM*	

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Description: Well 1
Matrix: Ground Water
Project: Cliffside Task 544-1

Lab Sample ID: C009065-01
Sampled: 08/02/10 10:52
Sampled By: Chan Bryant

Received: 08/03/10 11:45
Work Order: C009065

Tentatively Identified Compounds by Semivolatile GCMS

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Unknown [NA]	**8.0**	JB	ug/L	1			0H04029	EPA 8270D	08/05/10 21:32	DFM	B

www.encolabs.com

Description: Well 1 | **Lab Sample ID:** C009065-01 | **Received:** 08/03/10 11:45

Matrix: Ground Water | **Sampled:** 08/02/10 10:52 | **Work Order:** C009065

Project: Cliffside Task 544-1 | **Sampled By:** Chan Bryant

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0H06014	EPA 7470A	08/06/10 15:18	NLH	

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Description: Well 1 | **Lab Sample ID:** C009065-01 | **Received:** 08/03/10 11:45

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Project: Cliffside Task 544-1 | **Sampled By:** Chan Bryant

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	**0.540**	J	ug/L	1	0.220	2.00	0H05032	EPA 6020A	08/10/10 12:11	VLO	
Arsenic [7440-38-2] ^	**9.18**	J	ug/L	1	2.80	10.0	0H05016	EPA 6010C	08/10/10 14:41	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	0H05016	EPA 6010C	08/10/10 14:41	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	0H05016	EPA 6010C	08/10/10 14:41	JDH	
Chromium [7440-47-3] ^	**3.14**	J	ug/L	1	1.00	10.0	0H05016	EPA 6010C	08/10/10 14:41	JDH	
Copper [7440-50-8] ^	**69.9**		ug/L	1	1.60	10.0	0H05016	EPA 6010C	08/10/10 14:41	JDH	
Manganese [7439-96-5] ^	**82.9**		ug/L	1	1.10	10.0	0H05016	EPA 6010C	08/10/10 14:41	JDH	
Nickel [7440-02-0] ^	**32.7**		ug/L	1	1.80	10.0	0H05016	EPA 6010C	08/10/10 14:41	JDH	
Selenium [7782-49-2] ^	2.70	U	ug/L	1	2.70	10.0	0H05016	EPA 6010C	08/10/10 14:41	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	0H05016	EPA 6010C	08/10/10 14:41	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	0H05032	EPA 6020A	08/10/10 12:11	VLO	
Zinc [7440-66-6] ^	**123**		ug/L	1	3.80	10.0	0H05016	EPA 6010C	08/10/10 14:41	JDH	

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Description: Well 1 | **Lab Sample ID:** C009065-01 | **Received:** 08/03/10 11:45
Matrix: Ground Water | **Sampled:** 08/02/10 10:52 | **Work Order:** C009065
Project: Cliffside Task 544-1 | **Sampled By:** Chan Bryant

Metals (acid extractable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Lead [7439-92-1] ^	**29.8**		ug/L	1	1.90	10.0	0H05010	EPA 6010C	08/11/10 13:40	JDH	

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Description: Well 1
Matrix: Ground Water
Project: Cliffside Task 544-1

Lab Sample ID: C009065-01
Sampled: 08/02/10 10:52
Sampled By: Chan Bryant

Received: 08/03/10 11:45
Work Order: C009065

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Ammonia as N [7664-41-7] ^	0.0096	U	mg/L	1	0.0096	0.10	0H05003	EPA 350.1	08/05/10 09:20	PEV	
Nitrate as N [14797-55-8] ^	0.025	U	mg/L	1	0.025	0.10	0H10004	EPA 353.2	08/10/10 10:02	PEV	
Nitrate/Nitrite as N [ECL-0010] ^	0.025	U	mg/L	1	0.025	0.10	0H09002	EPA 353.2	08/09/10 11:53	PEV	
Nitrite as N [14797-65-0] ^	**0.019**	J	mg/L	1	0.0056	0.10	0H03030	EPA 353.2	08/03/10 14:12	PEV	
Sulfate as SO4 [14808-79-8] ^	**9.6**		mg/L	1	0.12	5.0	0H09017	EPA 300.0	08/10/10 05:50	PEV	

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Description: RF | **Lab Sample ID:** C009065-02 | **Received:** 08/03/10 11:45

Matrix: Ground Water | **Sampled:** 08/02/10 11:07 | **Work Order:** C009065

Project: Cliffside Task 544-1 | **Sampled By:** Chan Bryant

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.40	U	ug/L	1	0.40	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.33	U	ug/L	1	0.33	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.37	U	ug/L	1	0.37	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,1-Dichloroethane [75-34-3] ^	0.33	U	ug/L	1	0.33	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,1-Dichloroethene [75-35-4] ^	0.24	U	ug/L	1	0.24	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,1-Dichloropropene [563-58-6] ^	0.32	U	ug/L	1	0.32	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,2,3-Trichlorobenzene [87-61-6] ^	0.25	U	ug/L	1	0.25	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.55	U	ug/L	1	0.55	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,2,4-Trichlorobenzene [120-82-1] ^	0.36	U	ug/L	1	0.36	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,2,4-Trimethylbenzene [95-63-6] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,2-Dibromoethane [106-93-4] ^	0.42	U	ug/L	1	0.42	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,2-Dichloroethane [107-06-2] ^	0.65	U	ug/L	1	0.65	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,2-Dichloropropane [78-87-5] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,3,5-Trimethylbenzene [108-67-8] ^	0.25	U	ug/L	1	0.25	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,3-Dichlorobenzene [541-73-1] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,3-Dichloropropane [142-28-9] ^	0.32	U	ug/L	1	0.32	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
2,2-Dichloropropane [594-20-7] ^	0.55	U	ug/L	1	0.55	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
2-Butanone [78-93-3] ^	1.0	U	ug/L	1	1.0	5.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
2-Chloroethyl Vinyl Ether [110-75-8] ^	0.94	U	ug/L	1	0.94	5.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
2-Chlorotoluene [95-49-8] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
2-Hexanone [591-78-6] ^	0.69	U	ug/L	1	0.69	5.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
4-Chlorotoluene [106-43-4] ^	0.25	U	ug/L	1	0.25	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
4-Isopropyltoluene [99-87-6] ^	0.26	U	ug/L	1	0.26	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Acetone [67-64-1] ^	1.5	U	ug/L	1	1.5	5.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Benzene [71-43-2] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Bromobenzene [108-86-1] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Bromochloromethane [74-97-5] ^	0.42	U	ug/L	1	0.42	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Bromodichloromethane [75-27-4] ^	**9.9**		ug/L	1	0.37	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Bromoform [75-25-2] ^	0.71	U	ug/L	1	0.71	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Bromomethane [74-83-9] ^	0.49	U	ug/L	1	0.49	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Carbon disulfide [75-15-0] ^	0.54	U	ug/L	1	0.54	5.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Carbon tetrachloride [56-23-5] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Chlorobenzene [108-90-7] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Chloroethane [75-00-3] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Chloroform [67-66-3] ^	**32**		ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Chloromethane [74-87-3] ^	0.34	U	ug/L	1	0.34	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.36	U	ug/L	1	0.36	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Dibromochloromethane [124-48-1] ^	**1.5**		ug/L	1	0.32	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Dibromomethane [74-95-3] ^	0.37	U	ug/L	1	0.37	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Dichlorodifluoromethane [75-71-8] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Ethylbenzene [100-41-4] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Hexachlorobutadiene [87-68-3] ^	0.35	U	ug/L	1	0.35	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Isopropylbenzene [98-82-8] ^	0.24	U	ug/L	1	0.24	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
m,p-Xylenes [108-38-3/106-42-3] ^	0.48	U	ug/L	1	0.48	2.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Methylene chloride [75-09-2] ^	0.53	U	ug/L	1	0.53	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	

Description: RF
Matrix: Ground Water
Project: Cliffside Task 544-1

Lab Sample ID: C009065-02
Sampled: 08/02/10 11:07
Sampled By: Chan Bryant

Received: 08/03/10 11:45
Work Order: C009065

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Methyl-tert-Butyl Ether [1634-04-4] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Naphthalene [91-20-3] ^	0.39	U	ug/L	1	0.39	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
n-Butyl Benzene [104-51-8] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
n-Propyl Benzene [103-65-1] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
o-Xylene [95-47-6] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
sec-Butylbenzene [135-98-8] ^	0.24	U	ug/L	1	0.24	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Styrene [100-42-5] ^	0.26	U	ug/L	1	0.26	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
tert-Butylbenzene [98-06-6] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Tetrachloroethene [127-18-4] ^	0.36	U	ug/L	1	0.36	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Toluene [108-88-3] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.34	U	ug/L	1	0.34	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Trichloroethene [79-01-6] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Trichlorofluoromethane [75-69-4] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Vinyl chloride [75-01-4] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	
Xylenes (Total) [1330-20-7] ^	0.40	U	ug/L	1	0.40	1.0	0H09030	EPA 8260B	08/10/10 07:50	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*41*	*1*	*50.0*	*81 %*	*51-122*	*0H09030*	*EPA 8260B*	*08/10/10 07:50*	*JKG*	
Dibromofluoromethane	*45*	*1*	*50.0*	*89 %*	*68-117*	*0H09030*	*EPA 8260B*	*08/10/10 07:50*	*JKG*	
Toluene-d8	*43*	*1*	*50.0*	*87 %*	*69-110*	*0H09030*	*EPA 8260B*	*08/10/10 07:50*	*JKG*	

Description: RF
Matrix: Ground Water
Project: Cliffside Task 544-1

Lab Sample ID: C009065-02
Sampled: 08/02/10 11:07
Sampled By: Chan Bryant

Received: 08/03/10 11:45
Work Order: C009065

Tentatively Identified Compounds by Volatile GCMS

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Carbon Dioxide [124-38-9]	13	J	ug/L	1			0H09030	EPA 8260B	08/10/10 07:50	JKG	

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Description: Trip Blank | **Lab Sample ID:** C009065-03 | **Received:** 08/03/10 11:45

Matrix: Water | **Sampled:** 08/02/10 10:52 | **Work Order:** C009065

Project: Cliffside Task 544-1 | **Sampled By:** ENCO

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.40	U	ug/L	1	0.40	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.33	U	ug/L	1	0.33	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.37	U	ug/L	1	0.37	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,1-Dichloroethane [75-34-3] ^	0.33	U	ug/L	1	0.33	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,1-Dichloroethene [75-35-4] ^	0.24	U	ug/L	1	0.24	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,1-Dichloropropene [563-58-6] ^	0.32	U	ug/L	1	0.32	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,2,3-Trichlorobenzene [87-61-6] ^	0.25	U	ug/L	1	0.25	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.55	U	ug/L	1	0.55	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,2,4-Trichlorobenzene [120-82-1] ^	0.36	U	ug/L	1	0.36	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,2,4-Trimethylbenzene [95-63-6] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,2-Dibromoethane [106-93-4] ^	0.42	U	ug/L	1	0.42	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,2-Dichloroethane [107-06-2] ^	0.65	U	ug/L	1	0.65	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,2-Dichloropropane [78-87-5] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,3,5-Trimethylbenzene [108-67-8] ^	0.25	U	ug/L	1	0.25	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,3-Dichlorobenzene [541-73-1] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,3-Dichloropropane [142-28-9] ^	0.32	U	ug/L	1	0.32	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
2,2-Dichloropropane [594-20-7] ^	0.55	U	ug/L	1	0.55	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
2-Butanone [78-93-3] ^	1.0	U	ug/L	1	1.0	5.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
2-Chloroethyl Vinyl Ether [110-75-8] ^	0.94	U	ug/L	1	0.94	5.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
2-Chlorotoluene [95-49-8] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
2-Hexanone [591-78-6] ^	0.69	U	ug/L	1	0.69	5.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
4-Chlorotoluene [106-43-4] ^	0.25	U	ug/L	1	0.25	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
4-Isopropyltoluene [99-87-6] ^	0.26	U	ug/L	1	0.26	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Acetone [67-64-1] ^	1.5	U	ug/L	1	1.5	5.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Benzene [71-43-2] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Bromobenzene [108-86-1] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Bromochloromethane [74-97-5] ^	0.42	U	ug/L	1	0.42	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Bromodichloromethane [75-27-4] ^	0.37	U	ug/L	1	0.37	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Bromoform [75-25-2] ^	0.71	U	ug/L	1	0.71	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Bromomethane [74-83-9] ^	0.49	U	ug/L	1	0.49	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Carbon disulfide [75-15-0] ^	0.54	U	ug/L	1	0.54	5.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Carbon tetrachloride [56-23-5] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Chlorobenzene [108-90-7] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Chloroethane [75-00-3] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Chloroform [67-66-3] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Chloromethane [74-87-3] ^	0.34	U	ug/L	1	0.34	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.36	U	ug/L	1	0.36	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Dibromochloromethane [124-48-1] ^	0.32	U	ug/L	1	0.32	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Dibromomethane [74-95-3] ^	0.37	U	ug/L	1	0.37	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Dichlorodifluoromethane [75-71-8] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Ethylbenzene [100-41-4] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Hexachlorobutadiene [87-68-3] ^	0.35	U	ug/L	1	0.35	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Isopropylbenzene [98-82-8] ^	0.24	U	ug/L	1	0.24	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
m,p-Xylenes [108-38-3/106-42-3] ^	0.48	U	ug/L	1	0.48	2.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Methylene chloride [75-09-2] ^	0.53	U	ug/L	1	0.53	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	

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Description: Trip Blank
Matrix: Water
Project: Cliffside Task 544-1

Lab Sample ID: C009065-03
Sampled: 08/02/10 10:52
Sampled By: ENCO

Received: 08/03/10 11:45
Work Order: C009065

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Methyl-tert-Butyl Ether [1634-04-4] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Naphthalene [91-20-3] ^	0.39	U	ug/L	1	0.39	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
n-Butyl Benzene [104-51-8] ^	0.20	U	ug/L	1	0.20	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
n-Propyl Benzene [103-65-1] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
o-Xylene [95-47-6] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
sec-Butylbenzene [135-98-8] ^	0.24	U	ug/L	1	0.24	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Styrene [100-42-5] ^	0.26	U	ug/L	1	0.26	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
tert-Butylbenzene [98-06-6] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Tetrachloroethene [127-18-4] ^	0.36	U	ug/L	1	0.36	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Toluene [108-88-3] ^	0.27	U	ug/L	1	0.27	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.34	U	ug/L	1	0.34	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Trichloroethene [79-01-6] ^	0.38	U	ug/L	1	0.38	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Trichlorofluoromethane [75-69-4] ^	0.28	U	ug/L	1	0.28	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Vinyl chloride [75-01-4] ^	0.30	U	ug/L	1	0.30	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	
Xylenes (Total) [1330-20-7] ^	0.40	U	ug/L	1	0.40	1.0	0H09030	EPA 8260B	08/10/10 08:19	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*40*	*1*	*50.0*	*81 %*	*51-122*	*0H09030*	*EPA 8260B*	*08/10/10 08:19*	*JKG*	
Dibromofluoromethane	*45*	*1*	*50.0*	*91 %*	*68-117*	*0H09030*	*EPA 8260B*	*08/10/10 08:19*	*JKG*	
Toluene-d8	*43*	*1*	*50.0*	*86 %*	*69-110*	*0H09030*	*EPA 8260B*	*08/10/10 08:19*	*JKG*	

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Description: Trip Blank
Matrix: Water
Project: Cliffside Task 544-1

Lab Sample ID: C009065-03
Sampled: 08/02/10 10:52
Sampled By: ENCO

Received: 08/03/10 11:45
Work Order: C009065

Tentatively Identified Compounds by Volatile GCMS

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
Carbon Dioxide [124-38-9]	13	J	ug/L	1			0H09030	EPA 8260B	08/10/10 08:19	JKG	

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 0H09030 - EPA 5030B_MS

Blank (0H09030-BLK1) Prepared: 08/09/2010 15:02 Analyzed: 08/10/2010 04:51

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	0.40	U	1.0	ug/L							
1,1,1-Trichloroethane	0.27	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.33	U	1.0	ug/L							
1,1,2-Trichloroethane	0.37	U	1.0	ug/L							
1,1-Dichloroethane	0.33	U	1.0	ug/L							
1,1-Dichloroethene	0.24	U	1.0	ug/L							
1,1-Dichloropropene	0.32	U	1.0	ug/L							
1,2,3-Trichlorobenzene	0.25	U	1.0	ug/L							
1,2,3-Trichloropropane	0.55	U	1.0	ug/L							
1,2,4-Trichlorobenzene	0.36	U	1.0	ug/L							
1,2,4-Trimethylbenzene	0.20	U	1.0	ug/L							
1,2-Dibromo-3-chloropropane	0.48	U	1.0	ug/L							
1,2-Dibromoethane	0.42	U	1.0	ug/L							
1,2-Dichlorobenzene	0.27	U	1.0	ug/L							
1,2-Dichloroethane	0.65	U	1.0	ug/L							
1,2-Dichloropropane	0.20	U	1.0	ug/L							
1,3,5-Trimethylbenzene	0.25	U	1.0	ug/L							
1,3-Dichlorobenzene	0.30	U	1.0	ug/L							
1,3-Dichloropropane	0.32	U	1.0	ug/L							
1,4-Dichlorobenzene	0.38	U	1.0	ug/L							
2,2-Dichloropropane	0.55	U	1.0	ug/L							
2-Butanone	1.0	U	5.0	ug/L							
2-Chloroethyl Vinyl Ether	0.94	U	5.0	ug/L							
2-Chlorotoluene	0.20	U	1.0	ug/L							
2-Hexanone	0.69	U	5.0	ug/L							
4-Chlorotoluene	0.25	U	1.0	ug/L							
4-Isopropyltoluene	0.26	U	1.0	ug/L							
4-Methyl-2-pentanone	1.1	U	5.0	ug/L							
Acetone	1.5	U	5.0	ug/L							
Benzene	0.20	U	1.0	ug/L							
Bromobenzene	0.28	U	1.0	ug/L							
Bromochloromethane	0.42	U	1.0	ug/L							
Bromodichloromethane	0.37	U	1.0	ug/L							
Bromoform	0.71	U	1.0	ug/L							
Bromomethane	0.49	U	1.0	ug/L							
Carbon disulfide	0.54	U	5.0	ug/L							
Carbon tetrachloride	0.38	U	1.0	ug/L							
Chlorobenzene	0.27	U	1.0	ug/L							
Chloroethane	0.30	U	1.0	ug/L							
Chloroform	0.20	U	1.0	ug/L							
Chloromethane	0.34	U	1.0	ug/L							
cis-1,2-Dichloroethene	0.36	U	1.0	ug/L							
cis-1,3-Dichloropropene	0.28	U	1.0	ug/L							
Dibromochloromethane	0.32	U	1.0	ug/L							
Dibromomethane	0.37	U	1.0	ug/L							
Dichlorodifluoromethane	0.38	U	1.0	ug/L							
Ethylbenzene	0.20	U	1.0	ug/L							
Hexachlorobutadiene	0.35	U	1.0	ug/L							
Isopropylbenzene	0.24	U	1.0	ug/L							

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 0H09030 - EPA 5030B_MS

Blank (0H09030-BLK1) Continued Prepared: 08/09/2010 15:02 Analyzed: 08/10/2010 04:51

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
m,p-Xylenes	0.48	U	2.0	ug/L							
Methylene chloride	0.53	U	1.0	ug/L							
Methyl-tert-Butyl Ether	0.38	U	1.0	ug/L							
Naphthalene	0.39	U	1.0	ug/L							
n-Butyl Benzene	0.20	U	1.0	ug/L							
n-Propyl Benzene	0.30	U	1.0	ug/L							
o-Xylene	0.27	U	1.0	ug/L							
sec-Butylbenzene	0.24	U	1.0	ug/L							
Styrene	0.26	U	1.0	ug/L							
tert-Butylbenzene	0.28	U	1.0	ug/L							
Tetrachloroethene	0.36	U	1.0	ug/L							
Toluene	0.27	U	1.0	ug/L							
trans-1,2-Dichloroethene	0.34	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.38	U	1.0	ug/L							
Trichloroethene	0.38	U	1.0	ug/L							
Trichlorofluoromethane	0.28	U	1.0	ug/L							
Vinyl chloride	0.30	U	1.0	ug/L							
Xylenes (Total)	0.40	U	1.0	ug/L							
Surrogate: 4-Bromofluorobenzene	*39*			*ug/L*	*50.0*		*79*	*51-122*			
Surrogate: Dibromofluoromethane	*45*			*ug/L*	*50.0*		*89*	*68-117*			
Surrogate: Toluene-d8	*43*			*ug/L*	*50.0*		*85*	*69-110*			

LCS (0H09030-BS1) Prepared: 08/09/2010 15:02 Analyzed: 08/10/2010 05:21

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	21		1.0	ug/L	20.0		106	75-133			
Benzene	21		1.0	ug/L	20.0		104	81-134			
Chlorobenzene	20		1.0	ug/L	20.0		99	83-117			
Toluene	20		1.0	ug/L	20.0		100	71-118			
Trichloroethene	20		1.0	ug/L	20.0		98	75-115			
Surrogate: 4-Bromofluorobenzene	*43*			*ug/L*	*50.0*		*85*	*51-122*			
Surrogate: Dibromofluoromethane	*45*			*ug/L*	*50.0*		*91*	*68-117*			
Surrogate: Toluene-d8	*43*			*ug/L*	*50.0*		*87*	*69-110*			

Matrix Spike (0H09030-MS1) Prepared: 08/09/2010 15:02 Analyzed: 08/10/2010 05:51

Source: C009177-10

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	22		1.0	ug/L	20.0	0.24 U	109	75-133			
Benzene	21		1.0	ug/L	20.0	0.20 U	107	81-134			
Chlorobenzene	20		1.0	ug/L	20.0	0.27 U	99	83-117			
Toluene	19		1.0	ug/L	20.0	0.27 U	97	71-118			
Trichloroethene	20		1.0	ug/L	20.0	0.38 U	99	75-115			
Surrogate: 4-Bromofluorobenzene	*40*			*ug/L*	*50.0*		*81*	*51-122*			
Surrogate: Dibromofluoromethane	*44*			*ug/L*	*50.0*		*88*	*68-117*			
Surrogate: Toluene-d8	*43*			*ug/L*	*50.0*		*86*	*69-110*			

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 0H09030 - EPA 5030B_MS

Matrix Spike Dup (0H09030-MSD1) Prepared: 08/09/2010 15:02 Analyzed: 08/10/2010 06:21

Source: C009177-10

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	22		1.0	ug/L	20.0	0.24 U	109	75-133	0.5	20	
Benzene	21		1.0	ug/L	20.0	0.20 U	107	81-134	0.2	17	
Chlorobenzene	20		1.0	ug/L	20.0	0.27 U	98	83-117	0.5	16	
Toluene	20		1.0	ug/L	20.0	0.27 U	98	71-118	2	17	
Trichloroethene	19		1.0	ug/L	20.0	0.38 U	97	75-115	2	18	
Surrogate: 4-Bromofluorobenzene	*42*			*ug/L*	*50.0*		*83*	*51-122*			
Surrogate: Dibromofluoromethane	*45*			*ug/L*	*50.0*		*90*	*68-117*			
Surrogate: Toluene-d8	*44*			*ug/L*	*50.0*		*87*	*69-110*			

Tentatively Identified Compounds by Volatile GCMS - Quality Control

Batch 0H09030 - EPA 5030B_MS

Blank (0H09030-BLK1) Prepared: 08/09/2010 15:02 Analyzed: 08/10/2010 04:51

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Carbon dioxide (01)	**6.6**	J		ug/L							
Carbon dioxide (02)	**5.7**	J		ug/L							

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 0H04029 - EPA 3510C_MS

Blank (0H04029-BLK1) Prepared: 08/04/2010 13:52 Analyzed: 08/05/2010 17:35

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	1.3	U	10	ug/L							
1,2-Dichlorobenzene	1.1	U	10	ug/L							
1,3-Dichlorobenzene	1.1	U	10	ug/L							
1,4-Dichlorobenzene	1.2	U	10	ug/L							
1-Methylnaphthalene	1.4	U	10	ug/L							
2,4,5-Trichlorophenol	1.1	U	10	ug/L							
2,4,6-Trichlorophenol	1.5	U	10	ug/L							
2,4-Dichlorophenol	2.0	U	10	ug/L							
2,4-Dimethylphenol	2.6	U	10	ug/L							
2,4-Dinitrophenol	2.6	U	10	ug/L							
2,4-Dinitrotoluene	1.1	U	10	ug/L							
2,6-Dinitrotoluene	1.0	U	10	ug/L							
2-Chloronaphthalene	1.1	U	10	ug/L							
2-Chlorophenol	1.9	U	10	ug/L							
2-Methyl-4,6-dinitrophenol	1.9	U	10	ug/L							
2-Methylnaphthalene	1.3	U	10	ug/L							
2-Methylphenol	2.0	U	10	ug/L							
2-Nitroaniline	1.2	U	10	ug/L							
2-Nitrophenol	2.3	U	10	ug/L							
3 & 4-Methylphenol	1.8	U	10	ug/L							
3,3'-Dichlorobenzidine	1.7	U	10	ug/L							
3-Nitroaniline	1.6	U	10	ug/L							

QUALITY CONTROL

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 0H04029 - EPA 3510C_MS

Blank (0H04029-BLK1) Continued Prepared: 08/04/2010 13:52 Analyzed: 08/05/2010 17:35

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
4-Bromophenyl-phenylether	1.0	U	10	ug/L							
4-Chloro-3-methylphenol	1.6	U	10	ug/L							
4-Chloroaniline	1.6	U	10	ug/L							
4-Chlorophenyl-phenylether	1.1	U	10	ug/L							
4-Nitroaniline	1.3	U	10	ug/L							
4-Nitrophenol	1.2	U	10	ug/L							
Acenaphthene	1.1	U	10	ug/L							
Acenaphthylene	1.1	U	10	ug/L							
Anthracene	0.64	U	10	ug/L							
Benzidine	1.2	U	10	ug/L							
Benzo(a)anthracene	0.76	U	10	ug/L							
Benzo(a)pyrene	1.0	U	10	ug/L							
Benzo(b)fluoranthene	0.78	U	10	ug/L							
Benzo(g,h,i)perylene	1.9	U	10	ug/L							
Benzo(k)fluoranthene	0.77	U	10	ug/L							
Benzoic acid	3.6	U	50	ug/L							
Benzyl alcohol	2.0	U	10	ug/L							
Bis(2-chloroethoxy)methane	1.9	U	10	ug/L							
Bis(2-chloroethyl)ether	1.9	U	10	ug/L							
Bis(2-chloroisopropyl)ether	1.8	U	10	ug/L							
Bis(2-ethylhexyl)phthalate	2.6	U	5.0	ug/L							
Butylbenzylphthalate	1.4	U	10	ug/L							
Chrysene	0.92	U	10	ug/L							
Dibenzo(a,h)anthracene	1.8	U	10	ug/L							
Dibenzofuran	1.3	U	10	ug/L							
Diethylphthalate	0.61	U	10	ug/L							
Dimethylphthalate	0.79	U	10	ug/L							
Di-n-butylphthalate	1.4	U	10	ug/L							
Di-n-octylphthalate	1.4	U	10	ug/L							
Fluoranthene	1.2	U	10	ug/L							
Fluorene	1.1	U	10	ug/L							
Hexachlorobenzene	1.2	U	10	ug/L							
Hexachlorobutadiene	1.2	U	10	ug/L							
Hexachlorocyclopentadiene	1.0	U	10	ug/L							
Hexachloroethane	0.97	U	10	ug/L							
Indeno(1,2,3-cd)pyrene	1.7	U	10	ug/L							
Isophorone	1.6	U	10	ug/L							
Naphthalene	1.4	U	10	ug/L							
Nitrobenzene	1.9	U	10	ug/L							
N-Nitrosodimethylamine	1.4	U	10	ug/L							
N-Nitroso-di-n-propylamine	1.8	U	10	ug/L							
N-nitrosodiphenylamine/Diphenylamine	1.1	U	10	ug/L							
Pentachlorophenol	1.0	U	10	ug/L							
Phenanthrene	0.74	U	10	ug/L							
Phenol	1.2	U	10	ug/L							
Pyrene	1.3	U	10	ug/L							
Pyridine	1.5	U	10	ug/L							
Surrogate: 2,4,6-Tribromophenol	*90*			*ug/L*	*100*		*90*	*10-179*			

QUALITY CONTROL

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 0H04029 - EPA 3510C_MS

Blank (0H04029-BLK1) Continued Prepared: 08/04/2010 13:52 Analyzed: 08/05/2010 17:35

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Surrogate: 2-Fluorobiphenyl	*44*			*ug/L*	*50.0*		*89*	*10-149*			
Surrogate: 2-Fluorophenol	*61*			*ug/L*	*100*		*61*	*10-110*			
Surrogate: Nitrobenzene-d5	*43*			*ug/L*	*50.0*		*86*	*10-149*			
Surrogate: Phenol-d5	*50*			*ug/L*	*100*		*50*	*10-88*			
Surrogate: Terphenyl-d14	*46*			*ug/L*	*50.0*		*92*	*10-188*			

LCS (0H04029-BS1) Prepared: 08/04/2010 13:52 Analyzed: 08/05/2010 18:07

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	36		10	ug/L	50.0		72	27-90			
1,4-Dichlorobenzene	33		10	ug/L	50.0		66	23-84			
2,4-Dinitrotoluene	51		10	ug/L	50.0		103	67-132			
2-Chlorophenol	38		10	ug/L	50.0		77	40-109			
4-Chloro-3-methylphenol	48		10	ug/L	50.0		96	58-121			
4-Nitrophenol	36		10	ug/L	50.0		73	33-105			
Acenaphthene	46		10	ug/L	50.0		92	39-125			
N-Nitroso-di-n-propylamine	43		10	ug/L	50.0		86	48-126			
Pentachlorophenol	52		10	ug/L	50.0		105	51-135			
Phenol	23		10	ug/L	50.0		46	19-78			
Pyrene	53		10	ug/L	50.0		106	44-137			
Surrogate: 2,4,6-Tribromophenol	*100*			*ug/L*	*100*		*103*	*10-179*			
Surrogate: 2-Fluorobiphenyl	*43*			*ug/L*	*50.0*		*86*	*10-149*			
Surrogate: 2-Fluorophenol	*56*			*ug/L*	*100*		*56*	*10-110*			
Surrogate: Nitrobenzene-d5	*41*			*ug/L*	*50.0*		*83*	*10-149*			
Surrogate: Phenol-d5	*44*			*ug/L*	*100*		*44*	*10-88*			
Surrogate: Terphenyl-d14	*55*			*ug/L*	*50.0*		*110*	*10-188*			

Matrix Spike (0H04029-MS1) Prepared: 08/04/2010 13:52 Analyzed: 08/05/2010 19:59

Source: C009177-06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	36		10	ug/L	50.0	1.3 U	73	27-90			
1,4-Dichlorobenzene	35		10	ug/L	50.0	1.2 U	70	23-84			
2,4-Dinitrotoluene	54		10	ug/L	50.0	1.1 U	108	67-132			
2-Chlorophenol	39		10	ug/L	50.0	1.9 U	78	40-109			
4-Chloro-3-methylphenol	49		10	ug/L	50.0	1.6 U	98	58-121			
4-Nitrophenol	35		10	ug/L	50.0	1.2 U	69	33-105			
Acenaphthene	45		10	ug/L	50.0	1.1 U	89	39-125			
N-Nitroso-di-n-propylamine	43		10	ug/L	50.0	1.8 U	85	48-126			
Pentachlorophenol	58		10	ug/L	50.0	1.0 U	117	51-135			
Phenol	24		10	ug/L	50.0	1.2 U	47	19-78			
Pyrene	52		10	ug/L	50.0	1.3 U	105	44-137			
Surrogate: 2,4,6-Tribromophenol	*100*			*ug/L*	*100*		*103*	*10-179*			
Surrogate: 2-Fluorobiphenyl	*41*			*ug/L*	*50.0*		*83*	*10-149*			
Surrogate: 2-Fluorophenol	*55*			*ug/L*	*100*		*55*	*10-110*			
Surrogate: Nitrobenzene-d5	*40*			*ug/L*	*50.0*		*80*	*10-149*			
Surrogate: Phenol-d5	*43*			*ug/L*	*100*		*43*	*10-88*			

QUALITY CONTROL

Semivolatile Organic Compounds by GCMS - Quality Control

Batch 0H04029 - EPA 3510C_MS

Matrix Spike (0H04029-MS1) Continued Prepared: 08/04/2010 13:52 Analyzed: 08/05/2010 19:59

Source: C009177-06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Surrogate: Terphenyl-d14	*52*			*ug/L*	*50.0*		*104*	*10-188*			

Matrix Spike Dup (0H04029-MSD1) Prepared: 08/04/2010 13:52 Analyzed: 08/05/2010 20:30

Source: C009177-06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2,4-Trichlorobenzene	40		10	ug/L	50.0	1.3 U	81	27-90	10	43	
1,4-Dichlorobenzene	39		10	ug/L	50.0	1.2 U	79	23-84	12	39	
2,4-Dinitrotoluene	54		10	ug/L	50.0	1.1 U	108	67-132	0.02	17	
2-Chlorophenol	44		10	ug/L	50.0	1.9 U	88	40-109	13	22	
4-Chloro-3-methylphenol	51		10	ug/L	50.0	1.6 U	102	58-121	4	22	
4-Nitrophenol	37		10	ug/L	50.0	1.2 U	75	33-105	7	27	
Acenaphthene	47		10	ug/L	50.0	1.1 U	93	39-125	4	25	
N-Nitroso-di-n-propylamine	47		10	ug/L	50.0	1.8 U	95	48-126	10	23	
Pentachlorophenol	63		10	ug/L	50.0	1.0 U	126	51-135	8	11	
Phenol	29		10	ug/L	50.0	1.2 U	57	19-78	19	18	
Pyrene	50		10	ug/L	50.0	1.3 U	100	44-137	4	24	
Surrogate: 2,4,6-Tribromophenol	*110*			*ug/L*	*100*		*105*	*10-179*			
Surrogate: 2-Fluorobiphenyl	*45*			*ug/L*	*50.0*		*90*	*10-149*			
Surrogate: 2-Fluorophenol	*67*			*ug/L*	*100*		*67*	*10-110*			
Surrogate: Nitrobenzene-d5	*45*			*ug/L*	*50.0*		*90*	*10-149*			
Surrogate: Phenol-d5	*54*			*ug/L*	*100*		*54*	*10-88*			
Surrogate: Terphenyl-d14	*50*			*ug/L*	*50.0*		*100*	*10-188*			

Tentatively Identified Compounds by Semivolatile GCMS - Quality Control

Batch 0H04029 - EPA 3510C_MS

Blank (0H04029-BLK1) Prepared: 08/04/2010 13:52 Analyzed: 08/05/2010 17:35

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Unknown	**7.4**	**J**		ug/L							

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 0H06014 - EPA 245.1

Blank (0H06014-BLK1) Prepared: 08/06/2010 09:52 Analyzed: 08/06/2010 14:45

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	0.170	U	0.200	ug/L							

LCS (0H06014-BS1) Prepared: 08/06/2010 09:52 Analyzed: 08/06/2010 14:48

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	4.92		0.200	ug/L	5.00		98	85-115			

QUALITY CONTROL

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 0H06014 - EPA 245.1

Matrix Spike (0H06014-MS1) Prepared: 08/06/2010 09:52 Analyzed: 08/06/2010 14:55

Source: C009071-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.83		0.200	ug/L	5.00	0.170 U	117	85-115			QM-07

Matrix Spike Dup (0H06014-MSD1) Prepared: 08/06/2010 09:52 Analyzed: 08/06/2010 15:03

Source: C009071-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.81		0.200	ug/L	5.00	0.170 U	116	85-115	0.4	15	QM-07

Post Spike (0H06014-PS1) Prepared: 08/06/2010 09:52 Analyzed: 08/06/2010 15:06

Source: C009071-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.22		0.200	ug/L	5.00	-0.0366	105	75-125			

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 0H05016 - EPA 3005A

Blank (0H05016-BLK1) Prepared: 08/05/2010 09:48 Analyzed: 08/10/2010 12:26

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	2.80	U	10.0	ug/L							
Beryllium	0.100	U	1.00	ug/L							
Cadmium	0.360	U	1.00	ug/L							
Chromium	1.00	U	10.0	ug/L							
Copper	1.60	U	10.0	ug/L							
Manganese	1.10	U	10.0	ug/L							
Nickel	1.80	U	10.0	ug/L							
Selenium	**4.60**	**J**	10.0	ug/L							
Silver	1.90	U	10.0	ug/L							
Zinc	3.80	U	10.0	ug/L							

LCS (0H05016-BS1) Prepared: 08/05/2010 09:48 Analyzed: 08/10/2010 12:30

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	529		10.0	ug/L	500		106	80-120			
Beryllium	270		1.00	ug/L	250		108	80-120			
Cadmium	259		1.00	ug/L	250		104	80-120			
Chromium	516		10.0	ug/L	500		103	80-120			
Copper	260		10.0	ug/L	250		104	80-120			
Manganese	255		10.0	ug/L	250		102	80-120			
Nickel	526		10.0	ug/L	500		105	80-120			
Selenium	546	B	10.0	ug/L	500		109	80-120			
Silver	260		10.0	ug/L	250		104	80-120			
Zinc	529		10.0	ug/L	500		106	80-120			

QUALITY CONTROL

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 0H05016 - EPA 3005A

Matrix Spike (0H05016-MS1) Prepared: 08/05/2010 09:48 Analyzed: 08/10/2010 12:42

Source: C008622-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	566		10.0	ug/L	500	2.80 U	113	75-125			
Beryllium	278		1.00	ug/L	250	0.100 U	111	75-125			
Cadmium	265		1.00	ug/L	250	0.360 U	106	75-125			
Chromium	526		10.0	ug/L	500	1.00 U	105	75-125			
Copper	270		10.0	ug/L	250	1.60 U	108	75-125			
Manganese	291		10.0	ug/L	250	23.4	107	75-125			
Nickel	535		10.0	ug/L	500	1.80 U	107	75-125			
Selenium	588	B	10.0	ug/L	500	2.70 U	118	75-125			
Silver	266		10.0	ug/L	250	1.90 U	107	75-125			
Zinc	559		10.0	ug/L	500	14.7	109	75-125			

Matrix Spike Dup (0H05016-MSD1) Prepared: 08/05/2010 09:48 Analyzed: 08/10/2010 12:57

Source: C008622-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	577		10.0	ug/L	500	2.80 U	115	75-125	2	20	
Beryllium	296		1.00	ug/L	250	0.100 U	119	75-125	7	20	
Cadmium	282		1.00	ug/L	250	0.360 U	113	75-125	6	20	
Chromium	559		10.0	ug/L	500	1.00 U	112	75-125	6	20	
Copper	285		10.0	ug/L	250	1.60 U	114	75-125	6	20	
Manganese	309		10.0	ug/L	250	23.4	114	75-125	6	20	
Nickel	570		10.0	ug/L	500	1.80 U	114	75-125	6	20	
Selenium	603	B	10.0	ug/L	500	2.70 U	121	75-125	2	20	
Silver	282		10.0	ug/L	250	1.90 U	113	75-125	6	20	
Zinc	597		10.0	ug/L	500	14.7	116	75-125	7	20	

Post Spike (0H05016-PS1) Prepared: 08/05/2010 09:48 Analyzed: 08/10/2010 12:59

Source: C008622-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	1.19		0.0100	mg/L	1.00	-0.000227	119	80-120			
Beryllium	0.620		0.00100	mg/L	0.500	-4.06E-5	124	80-120			QM-08
Cadmium	0.590		0.00100	mg/L	0.500	0.000129	118	80-120			
Chromium	1.18		0.0100	mg/L	1.00	-2.91E-5	118	80-120			
Copper	0.606		0.0100	mg/L	0.500	0.000452	121	80-120			QM-08
Manganese	0.619		0.0100	mg/L	0.500	0.0234	119	80-120			
Nickel	1.18		0.0100	mg/L	1.00	-0.000630	118	80-120			
Selenium	1.24	B	0.0100	mg/L	1.00	-0.000981	124	80-120			QM-08
Silver	0.549		0.0100	mg/L	0.500	0.000633	110	80-120			
Zinc	1.22		0.0100	mg/L	1.00	0.0147	121	80-120			QM-08

Batch 0H05032 - EPA 3005A

Blank (0H05032-BLK1) Prepared: 08/05/2010 14:22 Analyzed: 08/10/2010 11:06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	0.220	U	2.00	ug/L							

QUALITY CONTROL

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 0H05032 - EPA 3005A

Blank (0H05032-BLK1) Continued Prepared: 08/05/2010 14:22 Analyzed: 08/10/2010 11:06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Thallium	0.110	U	1.00	ug/L							

LCS (0H05032-BS1) Prepared: 08/05/2010 14:22 Analyzed: 08/10/2010 11:17

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	25.5		2.00	ug/L	25.0		102	80-120			
Thallium	26.5		1.00	ug/L	25.0		106	80-120			

Matrix Spike (0H05032-MS1) Prepared: 08/05/2010 14:22 Analyzed: 08/10/2010 11:24

Source: C009071-05

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	25.8		2.00	ug/L	25.0	0.475	101	75-125			
Thallium	25.8		1.00	ug/L	25.0	0.110 U	103	75-125			

Matrix Spike Dup (0H05032-MSD1) Prepared: 08/05/2010 14:22 Analyzed: 08/10/2010 11:28

Source: C009071-05

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	25.6		2.00	ug/L	25.0	0.475	101	75-125	0.7	20	
Thallium	25.6		1.00	ug/L	25.0	0.110 U	103	75-125	0.8	20	

Post Spike (0H05032-PS1) Prepared: 08/05/2010 14:22 Analyzed: 08/10/2010 11:31

Source: C009071-05

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	28.0		2.00	ug/L	25.0	0.475	110	80-120			
Thallium	27.5		1.00	ug/L	25.0	0.0110	110	80-120			

Metals (acid extractable) by EPA 6000/7000 Series Methods - Quality Control

Batch 0H05010 - SM18 3030C

Blank (0H05010-BLK1) Prepared: 08/05/2010 10:17 Analyzed: 08/11/2010 13:34

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Lead	1.90	U	10.0	ug/L							

LCS (0H05010-BS1) Prepared: 08/05/2010 10:17 Analyzed: 08/11/2010 13:37

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Lead	553		10.0	ug/L	500		111	80-120			

Matrix Spike (0H05010-MS1) Prepared: 08/05/2010 10:17 Analyzed: 08/11/2010 13:43

Source: C009065-01

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

QUALITY CONTROL

Metals (acid extractable) by EPA 6000/7000 Series Methods - Quality Control

Batch 0H05010 - SM18 3030C

Matrix Spike (0H05010-MS1) Continued Prepared: 08/05/2010 10:17 Analyzed: 08/11/2010 13:43

Source: C009065-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Lead	596		10.0	ug/L	500	29.8	113	75-125			

Matrix Spike Dup (0H05010-MSD1) Prepared: 08/05/2010 10:17 Analyzed: 08/11/2010 13:54

Source: C009065-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Lead	619		10.0	ug/L	500	29.8	118	75-125	4	20	

Post Spike (0H05010-PS1) Prepared: 08/05/2010 10:17 Analyzed: 08/11/2010 13:56

Source: C009065-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Lead	1.22		0.00935	mg/L	1.00	0.0298	119	80-120			

Classical Chemistry Parameters - Quality Control

Batch 0H03030 - NO PREP

Blank (0H03030-BLK1) Prepared: 08/03/2010 06:30 Analyzed: 08/03/2010 08:08

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	0.0056	U	0.10	mg/L							

LCS (0H03030-BS1) Prepared: 08/03/2010 06:30 Analyzed: 08/03/2010 08:09

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	0.96		0.10	mg/L	1.00		96	80-120			

Matrix Spike (0H03030-MS1) Prepared: 08/03/2010 13:44 Analyzed: 08/03/2010 14:13

Source: C009065-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	0.97		0.10	mg/L	1.00	0.019	96	80-120			

Matrix Spike Dup (0H03030-MSD1) Prepared: 08/03/2010 13:44 Analyzed: 08/03/2010 14:14

Source: C009065-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	0.98		0.10	mg/L	1.00	0.019	96	80-120	0.4	25	

Batch 0H05003 - NO PREP

Blank (0H05003-BLK1) Prepared: 08/05/2010 06:42 Analyzed: 08/05/2010 08:28

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Ammonia as N	0.0096	U	0.10	mg/L							

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 0H05003 - NO PREP

LCS (0H05003-BS1) Prepared: 08/05/2010 06:42 Analyzed: 08/05/2010 08:30

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Ammonia as N	0.97		0.10	mg/L	1.00		97	80-120			

Matrix Spike (0H05003-MS1) Prepared: 08/05/2010 06:42 Analyzed: 08/05/2010 08:34

Source: C006363-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Ammonia as N	0.90		0.10	mg/L	0.400	0.51	98	80-120			

Matrix Spike Dup (0H05003-MSD1) Prepared: 08/05/2010 06:42 Analyzed: 08/05/2010 08:37

Source: C006363-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Ammonia as N	0.89		0.10	mg/L	0.400	0.51	94	80-120	2	25	

Batch 0H09002 - NO PREP

Blank (0H09002-BLK1) Prepared: 08/09/2010 06:49 Analyzed: 08/09/2010 11:04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	0.025	U	0.10	mg/L							

LCS (0H09002-BS1) Prepared: 08/09/2010 06:49 Analyzed: 08/09/2010 11:11

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	1.3		0.10	mg/L	1.25		100	80-120			

Matrix Spike (0H09002-MS1) Prepared: 08/09/2010 06:49 Analyzed: 08/09/2010 11:37

Source: C008924-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	2.1		0.10	mg/L	0.500	1.5	121	80-120			QM-17

Matrix Spike Dup (0H09002-MSD1) Prepared: 08/09/2010 06:49 Analyzed: 08/09/2010 11:39

Source: C008924-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	2.1		0.10	mg/L	0.500	1.5	122	80-120	0.3	25	QM-17

Batch 0H09017 - NO PREP

Blank (0H09017-BLK1) Prepared: 08/09/2010 11:05 Analyzed: 08/09/2010 22:41

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	0.12	U	5.0	mg/L							

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 0H09017 - NO PREP

LCS (0H09017-BS1) Prepared: 08/09/2010 11:05 Analyzed: 08/09/2010 23:00

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	47		5.0	mg/L	50.0		95	90-110			

Matrix Spike (0H09017-MS1) Prepared: 08/09/2010 11:05 Analyzed: 08/09/2010 23:18

Source: C008837-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	51		5.0	mg/L	20.0	32	96	80-120			

Matrix Spike Dup (0H09017-MSD1) Prepared: 08/09/2010 11:05 Analyzed: 08/09/2010 23:37

Source: C008837-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	51		5.0	mg/L	20.0	32	94	80-120	0.6	15	

FLAGS/NOTES AND DEFINITIONS

B	The analyte was detected in the associated method blank.
D	The sample was analyzed at dilution.
J	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.
U	The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
MRL	Method Reporting Limit. The MRL is roughly equivalent to the practical quantitation limit (PQL) and is based on the low point of the calibration curve, when applicable, sample preparation factor, dilution factor, and, in the case of soil samples, moisture content.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-08	Post-digestion spike did not meet method requirements due to confirmed matrix effects (dilution test).
QM-17	Matrix spike recovery was outside acceptance limits due to high concentrations of analyte in source sample.

ENVIRONMENTAL CONSERVATION LABORATORIES
10775 Central Port Dr. Orlando, FL 32824 (407) 826-5314 Fax (407) 850-6945
4810 Executive Park Court, Suite 211 Jacksonville, FL 32216-6099 (904) 296-3007 Fax (904) 296-6210
120 A Woodwinds Industrial Ct. Cary, NC 27511 (919) 467-3090 Fax (919) 467-3515

CHAIN-OF-CUSTODY RECORD

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Page 1 of 1

Client Name: Withers & Ravenel Environmental (WIC09)	Project Number: 02100001 04
Address: 111 MacKenan Drive	Project Name/Desc: Cliffside Task 544-1
City/ST/Zip: Cary, NC 27511	PO # / Billing Info:
Tel: (919) 469-3340 Fax: (919) 535-4545	Reporting Contact: Chan Bryant
Sampler(s) Name: Affiliation(s): CHAN BRYANT	Billing Contact: Cynthia Woods
Sampler(s) Signature: CHAN BRYANT	Site Location / Time Zone: CLIFFSIDE EASTERN

Requested Analyses

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	8260B,8260B TICs	8270D,8270D TICs	Ag,As,Ba,Cd,Cr,Co,Mn,Ni,Pb (3010C) Se,Sn,Tl,Zn	Ammonia 350.1,NOX 353.2	Hg	Nitrate Calc 353.2	Nitrite as N 353.2	Sulfate 300			Sample Comments
	Well 1	8/2/10	10:52	G	GW	7	X	X	X	X	X	X	X	X			
	RF	8/2/10	11:07	G	GW	3	X										
	Trip Blank				WA	2	X										

Preservation (See Codes) (Combine in necessary)

<-- Total # of Containers

Requested Turnaround Times

Note: Rush requests subject to acceptance by the lab by

___ Standard

___ Expedited

Due ___/___/___

Lab Workorder: C009065

Sample Kit Prepared By: BJG	Date/Time: 7/30/10	Relinquished By:	Date/Time:
Comments/Special Reporting Requirements:		Relinquished By:	Date/Time:
		Relinquished By:	Date/Time: 8/3/10
		Received By:	Date/Time: 8/3/10 1145
		Received By:	Date/Time:
		Received By:	Date/Time:

Cooler # & Temp on Receipt: 2.6

Condition Upon Receipt: ✓ Acceptable ___ Unacceptable

Matrix: GW-Groundwater SO-Soil DW-Drinking Water SE-Sediment SW-Surface Water WW-Wastewater A-Air O-Other (detail in comments) Preservation: I-Ice H-HCl N-HNO3 S-H2SO4 NO-NaOH O-Other (detail in comments)

Note: All samples submitted to ENCO Laboratory in accordance with the terms and conditions listed on the reverse of this form, unless prior written agreements exist.

www.encolabs.com

Appendix E

Correspondence
From Regulatory Agencies

Cotter, Rachel

From: Legrand, Harry [harry.legrand@ncdenr.gov]
Sent: Monday, August 16, 2010 11:38 AM
To: Cotter, Rachel
Subject: RE: Request for Sensitive Environment Information

Follow Up Flag: Follow up
Flag Status: Flagged

Ms. Cotter:

Here is our response.

Harry LeGrand

Harry LeGrand, Vertebrate Zoologist
North Carolina Natural Heritage Program
NCDENR Office of Conservation, Planning, & Community Affairs
1601 Mail Service Center
Raleigh, NC 27699-1601
Office: (919) 715-8697
harry.legrand@ncdenr.gov
www.ncnhp.org

Note my new e-mail address (above)

August 16, 2010

Ms. Rachel Cotter
Withers & Ravenel
111 MacKenan Drive
Cary, NC 27511

Subject: Pre-Regulatory Landfill – 18.7-acre Site; Rutherford County

Dear Ms. Cotter:

The Natural Heritage Program has no record of rare species, significant natural communities, significant natural heritage areas, or conservation/managed areas within a mile of the project area. Although our maps do not show records of such natural heritage elements in the project area, it does not necessarily mean that they are not present. It may simply mean that the area has not been surveyed. The use of NHP data should not be substituted for actual field surveys, particularly if the project area contains suitable habitat for rare species, significant natural communities, or priority natural areas.

You may wish to check the Natural Heritage Program database website at www.ncnhp.org for a listing of rare plants and animals and significant natural communities in the county and on the quad map. Our Program also has a new website that allows users to obtain information on element occurrences and significant natural heritage areas within two miles of a given location: <http://nhpweb.enr.state.nc.us/nhis/public/gmap75_main.phtml>. The user name is "public" and the password is "heritage". You may want to click "Help" for more information.

NC OneMap now provides digital Natural Heritage data online for free. This service provides site specific information on GIS layers with Natural Heritage Program rare species occurrences and Significant Natural Heritage Areas. The NC OneMap website provides Element Occurrence (EO) ID numbers (instead of species name), and the data user is then encouraged to contact the Natural Heritage Program for detailed information. This service allows the user to quickly and efficiently get site specific NHP data without visiting the NHP workroom or waiting for the Information Request to be answered by NHP staff. For more information about data formats and access, visit <www.nconemap.com>, then click on "FTP Data Download", and then "nheo.zip" [to the right of "Natural Heritage Element Occurrences"]. You may also e-mail NC OneMap at <dataq@ncmail.net> for more information.

Please do not hesitate to contact me at 919-715-8697 if you have questions or need further information.

Sincerely,

Harry E. LeGrand, Jr., Zoologist
Natural Heritage Program

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Parks and Recreation

Beverly Eaves Perdue, Governor | Dee Freeman, Secretary | Lewis Ledford, Director

August 27, 2010

Ms. Rachel Cotter
Withers & Ravenel
111 MacKenan Drive
Cary, NC. 27511

Dear Ms. Cotter:

The North Carolina Division of Parks and Recreation (DPR) has reviewed the site location of the 18.7-acre 'Pre-Regulatory Landfill' site located adjacent to the intersection of High Shoals Church and Spea Ridge Roads north of Cliffside in Rutherford County, North Carolina. Per the site information you sent to us via your letter dated August 10, 2010, we did not find records of State Wild & Scenic Rivers, or other DPR managed lands or interests within the vicinity of this site.

However, Hills Creek appears to be located to the east and downgradient of this site according to USGS stream mapping. Hills Creek is classified as Water Supply Waters (WSW-IV) by the North Carolina Division of Water Quality (DWQ). Areas within water supply watersheds have special restrictions for building and development based on public water supply intakes. DPR recommends further consultations with DENR's Pre-Regulatory Landfill Unit or DWQ staff if project activities may adversely impact this environmentally-sensitive aquatic area.

Please contact me if you require additional information.

Sincerely,

Amin K. Davis

Amin K. Davis, C.E.
Environmental Review Coordinator
Division of Parks and Recreation, Natural Resources Program
North Carolina Department of Environment and Natural Resources
(919) 715-7584 / amin.davis@ncdenr.gov

Cotter, Rachel

From: Anita_Barnett@nps.gov
Sent: Monday, August 30, 2010 2:38 PM
To: Cotter, Rachel
Subject: Re: Request for Sensitive Environmental Information
Attachments: pic31708.gif; pic02641.gif; pic27732.gif; pic12437.gif

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Rachel Cotter:

The National Park Service (NPS) has reviewed your request for coordination for the site Assessment First Phase Report for the Preregulatory Landfill Unit of the Division of Waste Management (NCDENR) for a 18.7 acrea pre-regulatory landfill in Rutherford County, North Carolina.

A review was conducted of the subject project on August 27, 2010. Based on the information provided in your August, 10, 2010, correspondence, the proposed project will not have adverse impacts on NPS resources.

Thank you for including the NPS in your review. Please contact Anita Barnett at 404-507-5706 if you have further questions.

Anita Barnett
Environmental Protection Specialist
Planning and Compliance Division
National Park Service
Southeast Region

"Cotter, Rachel" <rcotter@withersravenel.com>
08/10/2010 02:26 PM

To "Anita_Barnett@nps.gov" <Anita_Barnett@nps.gov>
cc
Subject Request for Sensitive Environmental Information

Ms. Barnett,

Withers & Ravenel is in the process of completing a Site Assessment Phase I report and is therefore submitting this request for sensitive environment information. Please find a formal request letter and site information such as an aerial map and USGS quad map attached. Additionally, the study area can be found on Google Maps by using the intersection of US 221 and SR 1960 in Rutherfordton, NC.

If you are forwarding this request to another staff member or field office, please include me in the correspondence so I am able to track the request.

Withers & Ravenel would like to thank you in advance for your assistance.

Sincerely,

(Embedded image moved to file: pic31708.gif)Rachel Cotter

Withers &
Ravenel Inc.
111 MacKenan Dr. Cary, NC 27511
tel: 919.469.3340 fax:
919.467.6008
Direct: 919.327
(Embedded image moved to file: pic02641.gif) http://www.withersravenel.com (Embedded image moved to file: pic27732.gif)
[attachment "National Parks Service.pdf" deleted by Anita Barnett/Atlanta/NPS]

Cotter, Rachel

From: Ruth Berner [rberner@fs.fed.us]
Sent: Tuesday, August 10, 2010 3:09 PM
To: Cotter, Rachel
Subject: Re: Request for Sensitive Environment Information
Attachments: US Forest Service.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

There are NO sensitive environments of concern to the USDA Forest Service at or adjacent to the property described below.

Ruth Berner
Forest Planner
USDA Forest Service
National Forests in North Carolina
160A Zillicoa Street
Asheville, NC 28801
Office: 828-257-4862
FAX: 828-257-4263
rberner@fs.fed.us

"Cotter, Rachel" <rcotter@withersravenel.com>

08/10/2010 02:28 PM

To "Ruth.Berner@usda.gov" <Ruth.Berner@usda.gov>
cc
Subject Request for Sensitive Environment Information

Ms. Berner,

Withers & Ravenel is in the process of completing a Site Assessment Phase I report and is therefore submitting this request for sensitive environment information. Please find a formal request letter and site information such as an aerial map and USGS quad map attached. Additionally, the study area can be found on Google Maps by using the intersection of US 221 and SR 1960 in Rutherfordton, NC.

If you are forwarding this request to another staff member or field office, please include me in the correspondence so I am able to track the request.

Withers & Ravenel would like to thank you in advance for your assistance.

Sincerely,

RACHEL COTTER
WITHERS & RAVENEL
111 MacKenan Drive | Cary, North Carolina 27511
tel: 919.469.3340 | fax: 919.467.6008
direct: 919.238.0127
www.withersravenel.com

Cotter, Rachel

From: Williams, Melanie [melanie.williams@ncdenr.gov]
Sent: Tuesday, August 10, 2010 3:00 PM
To: Cotter, Rachel
Subject: RE: Request for Sensitive Environment Information

Follow Up Flag: Follow up
Flag Status: Flagged

This property is in the Broad River Basin and drains to Cleghorn Creek. This creek is impaired for biological integrity. Therefore, the property is located within an environmentally sensitive area for aquatic life health.

If you have any other questions, please let me know.
Melanie

~~~~~~~~~~~~~~~~

Melanie Williams
River Basin Planner
NC DENR, Div. of Water Quality
Basinwide Planning Unit
1617 Mail Service Center
Raleigh, NC 27699-1617
melanie.williams@ncdenr.gov
Phone: (919) 807-6447
http://portal.ncdenr.org/web/wq/ps/bpu

From: Cotter, Rachel [mailto:rcotter@withersravenel.com]
Sent: Tuesday, August 10, 2010 2:29 PM
To: Williams, Melanie
Subject: Request for Sensitive Environment Information

Ms. Williams,

Withers & Ravenel is in the process of completing a Site Assessment Phase I report and is therefore submitting this request for sensitive environment information. Please find a formal request letter and site information such as an aerial map and USGS quad map attached. Additionally, the study area can be found on Google Maps by using the intersection of US 221 and SR 1960 in Rutherfordton, NC.

If you are forwarding this request to another staff member or field office, please include me in the correspondence so I am able to track the request.
Hard copies of this request are available upon request and can be delivered by USPS.

Withers & Ravenel would like to thank you in advance for your assistance.

Sincerely,
~~~~~~~~~~~~~~~~

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

September 15, 2010

Ms. Rachel Cotter
Withers & Ravenel
111 MacKenan Drive
Cary, NC 27511

Dear Ms. Cotter:

Subject: Site Assessment for the Cliffside Landfill, Cliffside, Rutherford County, North Carolina

In your letter of August 10, 2010, you requested our comments about the subject project. **(Please note that you sent the letter to our Raleigh Field Office. They forwarded it to us, and we received it August 27, 2010. In the future, you would receive our responses in a more timely fashion if requests were sent to the appropriate office. To assist you with this, enclosed is a list of North Carolina's counties showing which ones are handled by our respective offices in North Carolina).** The following comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C.§ 4321 et seq.) (NEPA) and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

According to our records and a review of the information you provided, no federally listed species or their habitats occur on the subject site. Therefore, we believe the requirements under section 7 of the Act are fulfilled. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of these identified actions that may affect listed species or critical habitat in a manner not previously considered, (2) these actions are subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified actions.

Thank you for allowing us to comment on this project. Please contact Mr. Allen Ratzlaff of our staff at 828/258-3939, Ext. 229, if you have any questions. In any future correspondence concerning this project, please reference our Log Number 4-2-10-275.

NORTH CAROLINA COUNTIES

ASHEVILLE FIELD OFFICE WORK AREA:

Alexander
Alleghany
Anson
Ashe
Avery
Buncombe
Burke
Cabarrus
Caldwell
Catawba
Cherokee
Clay
Cleveland
Davidson
Davie
Forsyth
Gaston
Graham
Haywood
Henderson
Iredell
Jackson
Lincoln
Macon
Madison
McDowell
Mecklenburg
Mitchell
Polk
Rowan
Rutherford
Stanly
Stokes
Surry
Swain
Transylvania
Union
Watauga
Wilkes
Yadkin
Yancey

Contact Information:
Asheville Field Office
U.S. Fish and Wildlife Service
160 Zillicoa Street
Asheville, North Carolina 28801
Phone: 828/258-3939
Fax: 828/258-5330

RALEIGH FIELD OFFICE WORK AREA:

Alamance
Beaufort
Bertie
Bladen
Brunswick
Camden
Carteret
Caswell
Chatham
Chowan
Columbus
Craven
Cumberland
Currituck
Dare
Duplin
Durham
Edgecombe
Franklin
Gates
Granville
Greene
Guilford
Halifax
Harnett
Hertford
Hoke
Hyde
Johnston
Jones
Lee
Lenoir
Martin
Montgomery
Moore
Nash
New Hanover
Northampton
Onslow
Orange
Pamlico
Pasquotank
Pender
Perquimans
Person
Pitt
Randolph
Richmond
Robeson
Rockingham
Sampson
Scotland
Tyrrell
Vance
Wake
Warren
Washington
Wayne
Wilson

Contact Information:
Raleigh Field Office
U.S. Fish and Wildlife Service
P.O. Box 33726
Raleigh, North Carolina 27636-3726
Phone: 919/856-4520
Fax: 919/856-4556

Cotter, Rachel

From: Vicki Wedell [Vicki.Wedell@noaa.gov]
Sent: Wednesday, September 15, 2010 1:35 PM
To: Cotter, Rachel
Subject: Re: [Fwd: [Fwd: Request for sensitive environments review information]]

Follow Up Flag: Follow up
Flag Status: Flagged

Rachel,

Apologies for the confusion. I have reviewed the letter you sent regarding your site in Rutherford, NC and can confirm that there are no national marine sanctuaries adjacent to your study area.

Thank you,
Vicki

Cotter, Rachel wrote:
Vicki,
Thank you for your reply. I believe you actually sent this reply quite a few weeks ago for a different site. I sent you another request for sensitive environments information on August 10th for a site in Rutherford County. That was the site my voice message was in regards to. Maybe the email did not get to you and is lost in cyber space!
I've attached a copy of the request letter in case it never got to you. Sorry for the confusion!
Please let me know if you have any further questions.
Many Thanks,
Rachel

From: Vicki Wedell [mailto:Vicki.Wedell@noaa.gov]
Sent: Friday, September 10, 2010 9:51 AM
To: Cotter, Rachel
Subject: [Fwd: [Fwd: Request for sensitive environments review information]]

Dear Ms. Cotter;

Thank you for your interest in your national marine sanctuaries. The only National Marine Sanctuary (under NOAA's Office of National Marine Sanctuaries) near North Carolina is the Monitor National Marine Sanctuary. The description for this national marine sanctuary taken from the final designation document describes the site under section 924.2 as follows:

* The Sanctuary consists of a vertical water column in the Atlantic Ocean one mile in diameter extending from the surface to the
seabed. the center of which is at 35° 00' 23" north latitude, and 75° 24' 32" west longitude.

Based on our location and the description of the site you are working in Stanley, NC, I can state that you are not adjacent to any National Marine Sanctuaries. As to whether or not you are in proximity to any other environmentally sensitive areas, state wildlife preserve, or other protected areas, I suggest you contact the North Carolina State Department of Natural Resources. I hope this was helpful.

Regards,
Vicki Wedell

-------- Original Message --------
Subject:[Fwd: Request for sensitive environments review information]
Date: Thu, 29 Jul 2010 13:33:19 -0400
From: Matt Stout <Matthew.Stout@noaa.gov>
To: Vicki Wedell <Vicki.Wedell@noaa.gov>

-------- Original Message --------
Subject: Request for sensitive environments review information
Date: Thu, 29 Jul 2010 13:28:18 -0400
From: Cotter, Rachel <rcotter@withersravenel.com>
To:matthew.stout@noaa.gov <Matthew.Stout@noaa.gov>

Mr. Matt Stout or to whom it may concern,

Please find our request for sensitive environment information submission attached. Due to an aggressive project schedule, a response at your earliest convenience would be greatly appreciated.

Thank you in advance for your help!
Respectfully,

RACHEL COTTER
WITHERS & RAVENEL
111 MacKenan Drive | Cary, North Carolina 27511
tel: 919.469.3340 | fax: 919.467.6008
direct: 919.238.0327
www.withersravenel.com

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NATIONAL MARINE SANCTUARIES ™

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Vicki A. Wedell
NOAA Office of National Marine Sanctuaries
1305 East-West Highway (N/ORM6)
SSMC4, 11th Floor
Silver Spring, MD 20910
Ph: 301-713-7237
Fx: 301-713-0404
http://sanctuaries.noaa.gov

For whatever we lose (like a you or a me),
It's always our self we find in the sea.
~e.e. cummings

--
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~e.e. cummings

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

Beverly Eaves Perdue, Governor
Linda A. Carlisle, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

September 3, 2010

Rachel Cotter
Withers & Ravenel
111MacKenan Drive
Cary, NC 27511

rcotter@withersravenel.com

Re: Inactive Hazardous Site, Pre-Regulatory Landfill, Rutherford County, ER 10-1488

Dear Ms. Cotter:

Thank you for your email of August 10, 2010, concerning the above project.

There are no known recorded archaeological sites within the project boundaries. However, the project area has never been systematically surveyed to determine the location or significance of archaeological resources. Based on the topographic and hydrological situation, there is a high probability for the presence of prehistoric or historic archaeological sites.

We recommend that a comprehensive survey be conducted by an experienced archaeologist to identify and evaluate the significance of archaeological remains that may be damaged or destroyed by the proposed project. Potential effects on unknown resources must be assessed prior to the initiation of construction activities.

Two copies of the resulting archaeological survey report, as well as one copy of the appropriate site forms, should be forwarded to us for review and comment as soon as they are available and well in advance of any construction activities.

A list of archaeological consultants who have conducted or expressed an interest in contract work in North Carolina is available at www.arch.dcr.state.nc.us/consults.htm. The archaeologists listed, or any other experienced archaeologist, may be contacted to conduct the recommended survey.

We have determined that the project as proposed will not have an effect on any historic structures.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above-referenced tracking number.

Sincerely,

Renee Gledhill-Earley

for Peter Sandbeck

Cotter, Rachel

From: Rynas, Stephen [stephen.rynas@ncdenr.gov]
Sent: Thursday, August 12, 2010 10:31 AM
To: Cotter, Rachel
Cc: Tyndall, Ted
Subject: Site Remediation - of US 221 and SR 1960 Rutherfordton, Rutherford County, NC
Attachments: Stephen Rynas.vcf

Follow Up Flag: Follow up
Flag Status: Flagged

Mr. Tyndall asked that I respond to your request. The mission of North Carolina's Division of Coastal Management (DCM) is to manage and preserve coastal resources within the State. Since the location of the proposed project is outside of the State's coastal area, DCM does not have a direct regulatory involvement. Accordingly DCM does not maintain a database of environmentally sensitive areas outside of the State's coastal zone.

Nevertheless, please be aware that even if the location of a proposed project is outside of North Carolina's coastal area, DCM may exert regulatory oversight should a proposed project have a reasonable foreseeable effect on any coastal use or coastal resource. We would therefore encourage you to evaluate whether the proposed project could have a reasonable foreseeable effect on any coastal use or any coastal resource. For example, would site remediation activities potentially result in contaminants entering nearby water bodies and then being transported into the State's coastal zone? For further information on the State's consistency review process please see:
http://www.nccoastalmanagement.net/Permits/consist.htm

Moreover, while DCM may not have specifically identified any environmental sensitive areas that may exist at the project location or in the general vicinity of the project site; other State agencies, such as the Division of Water Quality and/or the Wildlife Resources Commission, may consider that the project area possess "*environmental sensitive areas*". These other State agencies should also be contacted to evaluate the existence and extent of any environmentally sensitive areas that may exist. Should you have any further questions, please email me at stephen.rynas@ncdenr.gov or phone me at 252-808-2808. Thank you for your consideration of the North Carolina Coastal Management Program.

Stephen Rynas
Federal Consistency Coordinator

North Carolina
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557-3421

(252) 808-2808
stephen.rynas@ncdenr.gov

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http://dcm2.enr.state.nc.us/Permits/consist.htm

Cotter, Rachel

From: McHenry, David G. [david.mchenry@ncwildlife.org]
Sent: Monday, August 16, 2010 3:22 PM
To: Cotter, Rachel
Subject: RE: Request for Sensitive Environemtns Information

Follow Up Flag: Follow up
Flag Status: Flagged

Ms. Cotter,

I have never visited the property, but I took a look at available GIS data that we have for the region. I have no records for any refuges, anadromous fish habitats, or spawning areas on or near the property. There is a record for a rare fish, Santee Chub (*Cyprinella zanema*, NC SR), in the Second Broad River a considerable distance downstream of the property.

Hope this helps. Please feel free to contact me if you have any futher questions.

Thanks

Dave 828/452-0422 x24

From: Cox, David R.
Sent: Thursday, August 12, 2010 7:48 AM
To: McHenry, David G.
Subject: FW: Request for Sensitive Environemtns Information

Please handle. – David

David R. Cox, Technical Guidance Supervisor
NC Wildlife Resources Commission
1142 Interstate 85 Service Rd.
Creedmoor, NC 27522
Phone: 919-528-9886 ex.1
Fax: 919-528-9839
david.cox@ncwildlife.org

From: Cotter, Rachel [mailto:rcotter@withersravenel.com]
Sent: Tuesday, August 10, 2010 2:43 PM
To: Cox, David R.
Subject: Request for Sensitive Environemtns Information

Mr. Cox,

Withers & Ravenel is in the process of completing a Site Assessment Phase I report and is therefore submitting this request for sensitive environment information. Please find a formal request letter and site information such as an aerial map and USGS quad map attached. Additionally, the study area can be found on Google Maps by using the intersection of US 221 and SR 1960 in Rutherfordton, NC.

If you are forwarding this request to another staff member or field office, please include me in the correspondence so I am able to track the request.

Withers & Ravenel would like to thank you in advance for your assistance.

Sincerely,

RACHEL COTTER
WITHERS & RAVENEL
111 MacKenan Drive | Cary, North Carolina 27511
tel: 919.469.3340 | fax: 919.467.6008
direct: 919.238.0127
www.withersravenel.com

Cotter, Rachel

From: Hair, Sarah E SAW [Sarah.E.Hair@usace.army.mil]
Sent: Monday, August 23, 2010 9:29 AM
To: Cotter, Rachel
Subject: Rutherford county NC

Follow Up Flag: Follow up
Flag Status: Flagged

Ms. Cotter,

Reference is made to your letter dated August 13, 2010 requesting a response regarding the presence of wetlands on or near a proposed landfill on an 18.7 acre parcel in Rutherford County, North Carolina.

Preliminary review of the information provided and available maps submitted is inconclusive as to whether the proposed project will impact jurisdictional wetlands and waters of the U. S.

It is strongly recommended that all areas within the project boundaries be inspected for the presence of jurisdictional waters and wetlands in order for our office to determine the need for Department of the Army (DA) authorization. Identified wetlands or waters must be delineated and then verified by our office. By delineating all jurisdictional areas, this will aid in your planning stage for avoiding any unnecessary impacts to waters and wetlands. Issuance of Department of the Army authorization must precede any placement of excavated or fill material within any wetlands or other waters of the United States within the project boundary. Any unauthorized work in jurisdictional areas may be a violation of Federal law.

Should you have any further questions related to DA permits for this project, please contact me at 919-271-7980 x.225.

Thank you,

Liz Hair
Project Manager
Asheville Regulatory Field Office
U.S Army Corps of Engineers-Wilmington District
151 Patton Ave, Room 208
Asheville, NC 28805
828-271-7980 x.225
sarah.e.hair@usace.army.mil

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://per2.nwp.usace.army.mil/survey.html to complete the survey online.