



Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

April 23, 2012

Mr. Robert Apple
Environmental Division
South Carolina Electric and Gas Company
4077 Haywood Road
Mills River NC 28759

RE: Project Delineation Report
SCE&G Huger Street Former MGP
March 29, 2012

Dear Mr. Apple,

The Department has reviewed the Project Delineation Report for the SCE&G Huger Street Former MGP Congaree River Project. The Department approves the assessment report and requests that an Engineering Evaluation Cost Analysis (EE/CA) be conducted for this site.

If you have any questions or comments please contact Lucas Berresford at (803)896-4071.

Sincerely

Lucas Berresford, Project Manager
State Remediation Section
Bureau of Land and Waste Management

CC: Gary Stewart
File 52561
John Ansel, Region 3

PROJECT DELINEATION REPORT

CONGAREE RIVER SEDIMENTS INVESTIGATION COLUMBIA, SOUTH CAROLINA

March 2012

Prepared for:

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220 Operation Way
Cayce, Carolina 29033

Prepared by:

Management and Technical Resources, Inc.

TABLE OF CONTENTS

1.0	INTRODUCTION AND BACKGROUND	1
1.1	Introduction	1
1.2	Regulatory Overview.....	1
1.3	Project Background.....	1
1.4	Report Purpose and Objective.....	2
2.0	DELINEATION ACTIVITIES.....	2
2.1	Preliminary Activities.....	2
2.2	Geophysical Surveys	2
2.3	TLM Delineation Activities.....	3
2.3.1	Sampling Locations	4
2.3.2	Sampling Techniques	4
2.3.3	Sample Processing.....	7
2.3.4	Decontamination and IDW Management	8
2.3.5	Location Control and Surveying	8
3.0	DELINEATION FINDINGS.....	9
3.1	Geophysical Survey	9
3.2	TLM Findings	9
3.2.1	TLM Observations – Congaree River.....	10
3.2.2	Analytical Results	13
3.3	Bathymetry	15
4.0	SUMMARY.....	16
4.1	Objectives of the DWP	16
4.2	Delineation Phases	16
4.3	Overall Findings	16
4.4	TLM Extent: Current Understanding	17

TABLES

- 1-1 Timeline of Project Activities
- 2-1 Summary of Sediment and Soil Parameters and Methods
- 3-1 Sediment and Soil Sensory Observations
- 3-2 SCDHEC and SCE&G Preliminary and Delineation Sediment Analytical Results with TLM
- 3-3 Sediment Analytical Results – Congaree River: 1 to 3 Lines
- 3-4 Sediment Analytical Results Western Boundary – Mid-Point Congaree River: 3 to 19 Lines
- 3-5 Sediment Analytical Results Eastern Boundary – Congaree River Shoreline: 1 to 19 Lines
- 3-6 Soil Analytical Results Top of the Congaree River Eastern Bank: 3 to 19 Lines
- 3-7 Sediment Analytical Results in the Congaree River: 19 to 36 Lines
- 3-8 Sediment Analytical Results Within the Congaree River: 36 to 80 Lines

FIGURES

- 1-1 Congaree River Features, Investigative Extent, and Approximate SCDHEC June 2010 Sampling Locations
- 2-1 Congaree River Investigation Extent and Extent of Reconnaissance and Delineation Activities
- 2-2a Investigation Point Locations From the 1 to 20 Lines
- 2-2b Investigation Point Locations From the 26 to 36 Lines
- 2-3 Investigation Locations From the 36 to 91.5 Lines
- 2-4 Congaree River Bathymetry From the 1 to 37 Lines
- 3-1 Observations and Sediment Analytical Results from the 1 to 36 Lines
- 3-2 Observations and Sediment Analytical Results from the 36 to 91.5 Lines
- 4-1 TLM Extent and Spatial Distribution in the Congaree River

APPENDICES

- A Photographs
- B Sediment Coring and Soil Boring Logs
- C Manifests
- D Summary of Sediment and Soil Analytical Results by Phases
- E Conceptual TLM Depositional Model
- F Laboratory Analytical Data and Data Validation

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

This Project Delineation Report (PDR) presents a summary of the activities completed by South Carolina Electric and Gas Company (SCE&G) to delineate the approximate extent of a tar-like material (TLM) that exists within a stretch of the Congaree River located in Columbia, South Carolina, as shown on Figure 1-1. The delineation activities extended from the Gervais Street Bridge (referred to as the 1 Line) downriver approximately 9,050 feet to the area near the abandoned lock and dam (91.5 Line) and extended approximately 200 feet into the river from the eastern shoreline.

1.2 Regulatory Overview

The South Carolina Department of Health and Environmental Control (SCDHEC) and SCE&G have executed a Voluntary Cleanup Contract (VCC) for the former manufactured gas plant (MGP) site located at 1409 Huger St. SCE&G and SCDHEC have been working proactively and cooperatively to complete the delineation activities within the Congaree River under the existing VCC. The primary objective of the investigative work is to determine the vertical and horizontal extent of the TLM within the river.

This project also involves potential historic and cultural resource management issues and SCE&G has been working closely the South Carolina Institute of Archeology and Anthropology (SCIAA) to develop an appropriate approach to complete the delineation. Due to the potential presence of objects of historical interest in the river, additional screening activities in the form of magnetometer and side scan sonar studies were completed by SCE&G.

Numerous other regulatory agencies as well as various stakeholder groups will have input into the project as details for addressing the TLM are developed.

1.3 Project Background

In June 2010, the occurrence of a tar-like material (TLM) within the Congaree River was reported to SCDHEC. Three sediment samples were collected by SCDHEC at the approximate locations shown on Figure 1-1. Preliminary testing conducted on the material by SCDHEC and SCE&G indicated that the material may be attributable to the former Manufactured Gas Plant[s] (MGP) that operated in Columbia beginning in the mid-1800s and ending in the 1950's. Predecessor companies to SCE&G operated a former MGP site at 1409 Huger St. Therefore, SCE&G has been working with SCDHEC to develop a plan to address the TLM within the Congaree River. A Delineation Work Plan (DWP) was submitted to the SCDHEC on September 16, 2010. The DWP was approved by SCDHEC on September 24, 2010. The objectives of the DWP were to:

- Delineate the vertical and lateral extent of TLM in the target area by visual observations of sediments obtained by coring;
- Collect a sufficient number of sediment samples, which were not visually impacted by TLM, for laboratory analysis to define the limit of impacts; and
- Complete the work in a safe and efficient manner.

1.4 Report Purpose and Objective

The purpose of this report is to provide a summary of the findings of the various delineation activities completed by SCE&G from June 2010 through February 2012. The information includes physical observations, chemical analyses, lithologic logs and bathymetric survey data. The objective is to describe the various sampling techniques and supporting data used to determine the extent of TLM within the Congaree River. As currently envisioned and subject to regulatory approval, the extent of TLM as defined by this PDR, will become the target area for a future evaluation.

2.0 DELINEATION ACTIVITIES

The following presents an overview of the delineation activities performed from June 2010 through February 2012 to delineate the extent of TLM within the Congaree River. A total of five separate phases (Phase I through Phase V) of field activities and many reconnaissance efforts were conducted during this period. Table 2-1 presents a list of the various phases and reconnaissance activities and Figure 2-1 shows the corresponding areas. Table 2-1 also provides a summary of delineation activity reports submitted to SCDHEC following each phase of fieldwork.

2.1 Preliminary Activities

In June 2010, the occurrence of a tar-like material (TLM) within the Congaree River was reported to SCDHEC. On June 28, 2010, SCDHEC began investigating the area of the river around the Senate Street Extension, south of the Gervais Street Bridge, to assess the presence or absence of the TLM (Figure 1-1). Three sediment samples (S-1 through S-3) were collected in the vicinity of an “alluvial fan” or mounded sand area and the approximate locations are shown on Figure 1-1. The SCDHEC samples were split with SCE&G for laboratory analyses and the actual sampling results are discussed in Section 3.0.

Preliminary testing conducted on the material by SCDHEC indicated that the material may be attributable to former Manufactured Gas Plant (MGP) operations. Predecessor companies to SCE&G operated a former MGP site at 1409 Huger St.

In July 20, 2010, SCE&G performed reconnaissance activities from the Senate Street extension alluvial fan north to the Gervais Street Bridge to gain a better understanding of the potential TLM presence and extent. The reconnaissance activities were performed using rudimentary hand investigative procedures referred to as “wade and spade techniques”. SCDHEC was present for some of the reconnaissance activities. The observations and findings are presented in the attached tables and figures.

2.2 Geophysical Surveys

Due to the potential presence of historical objects within the project area, geophysical surveys were performed prior to any intrusive work being completed. The geophysical surveys consisted of magnetic remote sensing (magnetometer) and acoustic (side scan sonar) studies to identify magnetic anomalies

that could be associated with historical objects. Tidewater Atlantic Research of Washington, North Carolina performed the geophysical surveys.

A total of four separate surveys were performed prior to conducting intrusive sampling activities, which consist of using direct push technology (DPT) or vibra-core drilling to collect the sediment samples. Table 2-1 lists the survey events. In addition, a side scan sonar survey was performed during the Phase I activities but given the shallow river conditions, the sonar survey was of limited value and not required in subsequent surveys. The magnetic anomaly surveys were performed by a combination of methods that included:

- From the water surface with the geophysical equipment mounted in a boat (Boston Whaler),
- Within the water by wading and pushing the equipment in a rubber raft, and
- On land by foot.

Appendix A provides photographs of the different techniques.

The magnetometer surveys were generally run on north-south trending lines and were controlled via a differential global positioning system (DGPS) using a Trimble AgCPS 132 navigation system. HYPACK navigation software was used to translate the DGPS data into real-time data that was used to direct the survey along a predetermined grid or transects. In general, the magnetometer transect lines were located approximately 20 feet apart. In some areas of the river where obstructions were encountered and navigation had to be altered, the distance between the transect lines varied and could be decreased to less than 10 feet.

The magnetometer survey was performed with an EG&G Geometrics G-858 cesium magnetometer that is capable of +/- 0.001 gamma resolution. The magnetic data was collected at a frequency of six samples per second. The locations of the magnetic readings were determined from the DGPS.

The side scan sonar survey was performed from approximately the 4 to 16 Lines and boulders and shallow water prevented performing the survey above the 4 Line. A 445/900 kHz Klein System 3900 digital side scan sonar was employed. The side scan sonar data was horizontally tied to the DGPS and reconciled with the HYPACK survey software. Where navigation was possible, a total of five side scan sonar survey passes were made on a 50-foot transect spacing.

A magnetometer detects changes in earth's magnetic field that may be attributed to buried anthropogenic influences (e.g., metal debris, electrical cables, etc.) or naturally occurring geologic features (e.g., remnant thermal magnetism, ore bodies, etc.). Once the magnetometer data was collected it was systematically analyzed to identify potential obstructions. The results are discussed in Section 3.1.

2.3 TLM Delineation Activities

A number of different delineation activities and investigative techniques were used to determine the presence or absence TLM within the river sediment and subsurface soil samples. The actual investigative technique employed was dictated by physical factors encountered in the field that included:

- The water level;
- The velocity of river current; and
- The sample location with respect to boulder fields and access limitations (or other obstructions).

The TLM delineation activities will be discussed by:

- Sample locations;
- Sampling subcontractors and techniques; and
- Sample processing;

2.3.1 Sampling Locations

Generally, a sampling grid was established beginning at the Gervais Street Bridge and extending southward. During the various phases of work, the sampling pattern evolved and was dependent upon the findings of the previous phase of work. The following items generally summarize the sampling locations, which are shown on Figures 2-2a, 2-2b and 2-3.

- **1 to 19 Lines:** Grid nodes were established on 50 feet west to east (designated by a letter) and 100 feet north to south (designated by a number and downriver direction) grid spacing. The 50' x 100' grid spacing was generally used during:
 - Phase I;
 - Phase II;
 - Phase III - landside soil borings; and
 - Phase V - shoreline soil borings.
- **20 to 36 Lines:** Grid nodes were expanded to 100 feet west to east and 200 feet north to south. The grid spacing was used for the Phase III waterside activities.
- **43 to 89.5 Lines:** Transect lines were designated with a number, lettered grid lines were utilized during Phase V activities.
- **Reconnaissance and Other Locations:** Other locations were selected to gain additional data and included Unnamed Tributary #1 (UT #1) and the alluvial fan at the mouth of UT #1. Designations included (UT – unnamed tributary, CR – Congaree River, and AB – alluvial fan).

In general, delineation points were labeled with an alphanumeric designation representing the grid node location.

2.3.2 Sampling Techniques

The intent of this section is to provide a brief overview of the investigative techniques used to delineate the TLM. Two subcontractors were utilized to complete the work:

- Geologic Exploration, Inc. of Statesville, North Carolina was used to complete the Geoprobe coring, soil borings and jackhammer activities (Whacker BH24);
- Athena Technologies, Inc. of McClellanville, South Carolina provided the pontoon boat and crew and performed the vibra-core drilling on the water and shoreline.

Sediment Coring: Pontoon Boat and DPT Drilling

A pontoon boat was equipped with a DPT drill (Geoprobe 420M) and was used to obtain core samples from approximately the 4 to 19 Lines when the Congaree River conditions (lower current and general absence of boulders) were suitable for navigation. Above the 4 and below the 19 Lines, the presence of boulders, swift current, and/or low water prevented use of the pontoon boat. Appendix A provides photographs of the DPT equipment on the pontoon boat.

State plane coordinates for each coring location were defined prior to mobilizing to the field and a map depicting the targeted locations was incorporated into the HYPACK navigation software. The location of the pontoon boat was tracked with a Trimble AgCPS 132, which provided guidance to the proposed sample location. Once the pontoon boat was anchored (via spuds and at times idling the engine), the actual coring location was then recorded using the navigation system. The actual sample location was adjusted based on the presence of magnetic anomalies, boulders, and/or river current, where required. Some proposed coring locations could not be evaluated because of these physical constraints.

Sediment cores were obtained via the DPT by driving a 3-foot macrocore containing a dedicated acetate liner until refusal was encountered. Refusal generally occurred at shallow sediment depths of less than 1 to 2 feet. The total depth and sample length were recorded and the percent recovery was calculated. At many sample locations, a second or third sample run was completed if sample recovery was generally less than 80%. Generally, three sample attempts were made at locations where recovery was limited. Observations of TLM were noted (either within the sample or on the macrocore barrel), the acetate liner ends were capped, and the top, bottom and coring location were recorded on the acetate liner. The samples were then transported to the Huger Street site for processing. A log for each sediment sampling location is provided in Appendix B.

Whacker/Macrocore

A gas-powered jackhammer (Whacker BH24) was modified to drive a 3-foot long macrocore barrel and was used at some locations along the 2 and 3 Lines, and the UT #1 alluvial fan. The jackhammer was used to drive the macrocore barrel and a winch was used to retrieve the sample. Similar to DPT drilling, a dedicated acetate liner was used for each macrocore barrel. The same procedures discussed in Section 2.3.2 were followed for acetate liner labeling and preparation for processing at the Huger Street site.

Wade and Spade

The “wade and spade” investigative technique was used in the shallower stretches of the Congaree River that were not accessible by watercraft and represented a common technique for reconnaissance. Generally, wade and spade was used for delineation activities at various locations:

- From the 1 to 3 Lines;
- Between the 19 to 36 Lines;
- Between the 45 and 71.5 Lines; and
- From the 80 to 91.5 Lines.

The wade portion of this sampling technique actually involved wading into the Congaree River to access the sample location. The spade part involved use of a narrow bladed shovel, referred to as a “sharp-shooter”, that was used to dig and retrieve the sediment. Because of the ease of sample collection, the

wade and spade technique afforded the opportunity to inspect multiple locations within close proximity to a proposed investigation point. The sharp shooter was generally advanced until refusal was encountered (most locations) or when the depth became too great (e.g., near the shoreline and in finer grained sediments). For all samples, the maximum depth penetrated was recorded. It should be noted that this method was very similar to the original sampling methods used by SCDHEC.

Photographic examples of the wade and spade technique are provided in Appendix A.

Vibra-Coring

Vibra-core drilling was performed during the Phase V activities and included obtaining sediment corings along transect Lines 43, 49, 57, 64, 70, 80, and 89.5. Soil borings at grid nodes from the 6 through 11.5 Lines near the Senate Street extension alluvial fan and along the eastern Congaree River shoreline were also collected using the vibra-core method.

For the Congaree River transects, two john boats were physically joined together to provide the base for the tripod that supported the aluminum tube and a winch that was used to extract the sediment-filled tubes. A tripod was also used for the soil borings. The power source was contained in a backpack unit that used vibratory oscillations to drive the aluminum tube into the sediment. The vibrating aluminum tube liquefies the sediment, which allows the tube to advance. Once refusal was encountered, the depth was recorded, the aluminum tube was extracted, the ends were capped, and labeling was completed and the sample was transported to the Huger Street site for processing.

Variability associated with coarse-grained material within the actual sediment sample reduced recovery with the vibra-core in many locations. When the sediment was too coarse (e.g., very coarse sands and coarser grain size sediment), the material would not expand in the aluminum tube and drop out during retrieval. When cobbles or boulder size material were encountered, the material would not liquefy and the downward movement of the sampling device would be stopped. These lithologic conditions were encountered at a number of locations along the 43 to 89.5 Lines during Phase V. Therefore, in lieu of collecting an actual sediment sample at these locations, only observations of TLM on the aluminum tube were noted, if present. Given the physical nature of the TLM, it would have been obviously observed on the aluminum tube. Photographs of the water and land based vibra-coring unit are shown in Appendix A.

Soil Boring Drilling

A total of 15 soil borings (J3, K4 through K6, J7 through J13, I14 and I15, and H16 and H17) were drilled on the top of the eastern bank of the Congaree River with a track mounted DPT (Figure 2-2a). Five-foot long macrocore sample barrels with dedicated acetate liners were used. The soil borings were continuously sampled to refusal. The acetate liners were capped, labeled (identification, top and bottom) and transported back to the Huger Street site for processing. The soil borings were abandoned by poring hole plug into the annular opening. A pin flag was placed in the hole plug. The location of the soil borings were determined at the time of drilling using a hand held GPS or documented at a later date by the surveyor.

A hand-held, underwater, metal detector was also used as a screening tool at many sampling locations.

2.3.3 Sample Processing

Logging

Sample material contained in the acetate liners and aluminum tubes were transported to the Huger Street site for processing. Processing included:

- Opening the acetate liner or aluminum tube;
- Screening the sample with a photo-ionization detector (PID);
- Recording the estimated volume of sample material recovered;
- Lithologically describing the sample, defining intervals with visual and olfactory observations, which generally included a descriptor such as;
 - TLM;
 - Other weathered material (OWM); or
 - TLM fragments.

Other weathered material (OWM) refers to a substance encountered that has the physical appearance of a cinder-like material, notably different than TLM. Similar to TLM fragments, OWM is not interpreted to be widespread.

The total depth was based on depth penetrated at the sediment coring or soil boring location. The information described above was used to develop sediment coring and soil boring logs, which are contained in Appendix B. Intervals with obvious TLM were usually photographed. Once logging was completed, the sample material, along with the acetate liner and aluminum tube was placed in a 55-gallon drum for proper disposal.

Sediment samples collected from the wade and spade activities were logged at the point of collection and included similar information to that noted above. The length of sediment contained on the sharp shooter was measured and for logging purposes the depth penetrated and amount recovered was considered the same and noted on the coring logs as 100% recovery. In general, PID screening was not performed for samples collected via wade and spade since water and moisture would negatively impact the PID and provide erroneous readings or damage to the PID. After logging was completed, the sediment sample was returned to the river.

Sample Collection for Laboratory Analyses

The three preliminary investigation samples (S-1 through S-3) split with SCDHEC were analyzed by META Environmental, Inc. of Watertown, Massachusetts. Table 2-1 lists the preliminary investigation parameters, which were analyzed by Method 8270 SIM.

A total of 40 delineation samples (32 sediment and eight soil samples) were collected for laboratory analyses of total benzene, toluene, ethylbenzene, and total xylenes (BTEX) and polynuclear aromatic hydrocarbons (PAH) and are listed on Table 2-1. The analytical parameters were specified in the approved DWP and were selected for delineation purposes since these parameters are representative indicators of MGP constituents (Table 2-1). Shealy Environmental Services, Inc. of West Columbia analyzed the BTEX samples by EPA Method 8260B and PAH samples by EPA Method 8270D.

Representative samples of the sediment corings and soil borings were collected for laboratory analyses. Soil samples from soil borings located on top of the Congaree River bank, were collected at deeper intervals that were believed to be laterally equivalent in elevation to the Congaree River.

For BTEX and PAH analyses, equal aliquots of sediment or soil were obtained (to the extent practicable) over the recovered length in the acetate liner or aluminum tube. BTEX and PAH samples collected via wade and spade were either collected directly from the sharp shooter or placed in stainless steel bowl and then collected. Care was taken when collecting the sharp shooter samples in that only sediment that was not in contact with the metal was collected. BTEX samples were collected with a “T” handle sampler and PAH samples were collected with dedicated sampling scoops. The sediment or soil was placed in laboratory supplied sample containers, labeled with the appropriate identifiers, and stored in a refrigerator. The samples were then placed in a cooler with ice and were maintained under standard chain of custody procedures, while being transported to Shealy for analysis.

2.3.4 Decontamination and IDW Management

The various sampling techniques required specific decontamination procedures. For the Geoprobe and vibra-core methods, the cutting shoe was decontaminated between each use and the macrocore barrel between each investigation point by washing with a non-phosphate detergent solution and rinsing with tap water. The aluminum tubes were dedicated to each sediment coring or soil boring and therefore did not require decontamination. Occasionally, TLM was noted on the sampling implements and was removed using an acetone rinse, prior to re-use. At some locations, the sharp shooter was decontaminated using these procedures, while at other locations. As discussed previously, care was maintained while collecting sediment samples from the sharp shooter to collect sediment that was not in contact with the metal blade.

Solid, investigative-derived waste (IDW) included sediment, soil, acetate liners, aluminum tubes, gloves, etc. The solid IDW was placed in labeled 55-gallon drums and staged at the Huger Street site. Liquid IDW, consisting primarily of decontamination water, was also placed in labeled 55-gallon drums and staged at the Huger Street site.

The solid and liquid IDW was transported and managed for proper disposal by A&D Environmental. Liquids were disposed at VLR/RS located in Mauldin, South Carolina and solids were disposed at Waste Management’s Richland Landfill in Elgin, South Carolina. Appendix C provides the waste manifests.

2.3.5 Location Control and Surveying

Bathymetric Survey

The Congaree River bathymetry (underwater topographic features) was surveyed by GEL Engineering, LLC (GEL) from approximately the 1 to 37 Lines, and from the eastern shoreline to approximately mid-river. The survey work also included a portion of the shoreline and UT #1 bathymetry. The bathymetric survey map from the 1 to 37 Line is provided as Figure 2-4. Horizontal control was based on the state plane coordinate system and vertical control was based on the North American Vertical Datum 1988 (NAVD '88). No bathymetric surveying was completed below the 37 Line.

Delineation Points

Delineation points or sampling locations (also referred to as investigation points) were predetermined prior to mobilizing to the field. Coordinates for the predetermining determined points were obtained from

the survey map and provided a means to accurately locate the investigation points in the water. The delineation points were completed as close as possible to the proposed location with consideration for the presence of magnetic anomalies, boulders, water levels, current, etc.

Investigation points on the 1 through 3 Lines were located with a hand held GPS, via triangulation, or field located from known points (e.g., 1 Line corings along the Gervais Street Bridge). Sediment coring and soil boring locations drilled from the pontoon boat or vibra-cored were located with a DGPS. Phase III and Phase IV sediment coring and soil boring delineation points and some reconnaissance points were located with a hand held GPS. Investigation points on the UT #1 alluvial fan at the mouth, within UT #1, along the 32 Line (bridge decking disrupted the GPS signal), and the Phase I reconnaissance points were field located.

3.0 DELINEATION FINDINGS

3.1 Geophysical Survey

A geophysical survey using the methods discussed above was completed within various sections of the project area to screen for potential magnetic anomalies or obstructions, prior to completing the sampling work. Based on this screening, a total of 570 potential obstructions were detected from the 1 through 36 Lines and within UT #1 and sampling locations were adjusted accordingly. Other documented magnetic anomalies were further described as geologic features or consisted of various man-made debris including hubcaps, a washing machine, a lamppost, etc.

3.2 TLM Findings

The overall objective of the delineation activities was to define the extent of TLM within the Congaree River. The use of sensory observations (visual and olfactory) proved to yield the most conclusive evidentiary data to determine the presence or absence of TLM. The readily identifiable characteristics of TLM included:

- A distinctive odor - that differs from naturally occurring sediment;
- A distinctive color (black) - that generally differs from coarser grained sediments observed in the Congaree River;
- Tends to be highly weathered with a consistency ranging from near solid to taffy-like. [Occasionally less viscous TLM was noted, displaying a more “fluid like” appearance, and was generally found in deeper sediment that was less likely exposed to weathering];
- When contacted, tends to stain and is fairly resistant to removal.

Sediment samples were also collected for laboratory analysis to augment and confirm the visual and olfactory observations. Originally, the objective for analyzing sediment samples was to provide confirmation of the absence of TLM at the delineation boundary locations. As the delineation activities expanded downriver and the spatial extent of the project area increased, the analytical objective evolved into obtaining data at logical and representative sampling locations. As a result, some of these down river sampling locations may have contained TLM or TLM fragments.

The following discusses the TLM findings based on sensory observations and the analytical results.

3.2.1 TLM Observations – Congaree River

The following sections summarize the observations completed over the stretch of the Congaree River evaluated. Appendix E provides a conceptual TLM depositional model that graphically depicts a number of variables that may have contributed to the location and occurrence of TLM in the Congaree River and relies primarily on empirical data. The cross-sectional view of the river shows the sediment deposits with TLM impacts and conceptually displays the transport mechanism for deposition.

It should be noted that the vertical thickness of TLM and lithologic intervals noted in this report are approximate due to the inherent problems of sediment sampling (i.e. sample recovery, estimated depths etc.). Therefore, all thickness and interval measurements should be considered approximate. A summary of the visual observations is provided on Table 3-1 and the coring / soil boring log for each delineation point is included in Appendix B.

TLM Overview

As currently understood, the TLM observed within the Congaree River is likely a coal tar material that is potentially attributable to former MGP operations. Coal tar is also referred to as a DNAPL (dense, non-aqueous phase liquid). Characteristics of a coal tar / DNAPL include:

- A specific gravity greater (heavier) than water;
- When in an aqueous system, will settle (due to specific gravity);
- Immiscible (or will not mix homogeneously) with water;
- Can migrate in saturated porous media when the DNAPL pool height exceeds the pore entry pressure of the media (can move within the media);
- Can “weather” through various attenuative means such as volatilization, dilution, degradation, etc.

UT #1 and Congaree River 1 to 3 Lines

Figure 3-1 provides the approximate sampling locations, analytical data and physical observations. Investigative activities in UT #1 (wade and spade) did not indicate visual evidence of TLM in sediment and the only evidence of TLM occurred at UT4, as noted by one or two blebs on the water surface. TLM was not noted in sediment at the UT4 location.

TLM was generally absent from the 1 to 3 Line. TLM was noted in sediment that comprises the alluvial fan (AB series boring) located to the north of the confluence and one coring location (K3) located along the shore (Figure 3-1). Vertically, TLM was found to occur at depth of approximately 0.3 to 1.1 feet below ground surface (bgs) or river bottom and attained a maximum interval thickness of 0.6 feet (Table 3-1 and Appendix B).

For the northern boulder field, the delineation points and analytical data did not indicate the presence of TLM. Reconnaissance in the northern boulder field indicated only potential residual evidence of TLM such as a light gray sheen occurring on a limited number of boulders. Generally, TLM was absent between the 1 to 3 Lines with the exception of the areas discussed.

4 Line South to the 19 Line

TLM was generally noted from north to south (downriver direction) from the approximate 4 Line to near the 19 Line as shown on Figure 3-1. The 4 Line is situated just south of the northern boulder field and the 19 Line represents a transitional boundary where continuous TLM appears to dissipate. From west to the east, the boundary is a little more variable but generally falls on the O to N Lines and with distance, tends to narrow in the vicinity of the 17 to 19 Lines (Figure 3-1). Within the 4 to 19 Lines, TLM is considered to be continuous because of the density and proximity of coring locations showing visual evidence of TLM. However, the TLM and sediment thickness can vary within this general area.

The western boundary of TLM within this area was likely the result of the hydraulic influence from the Saluda River, which enters the Congaree River at the Gervais Street Bridge. The current velocity and southern flow direction likely prevented more westerly migration of TLM.

Based on the visual observations, the extent of TLM appears to end within the Congaree River, adjacent to the eastern shoreline, as noted by a number of corings/borings completed (Figure 3-1). Corings defining the eastern extent where TLM was not visually noted include L4, L6, L7, K7, K8, K9, K10, J11.5, I17, and I18. Also, findings from soil borings drilled on the Senate Street extension alluvial fan indicate TLM was not visually observed, supporting a hypothesis that the alluvial fan existed prior to the time of TLM deposition. The absence of TLM (both visual and olfactory) was supported by soil borings drilled on the top of the Congaree River bank and includes J3, K4, K5, K6, J7, J8, J9, J10, J11, J12, J13, I14, I15, H16, and H17.

For discussion purposes, other common attributes of the 4 to 19 Line area include:

- Sediment thickness;
- TLM Thickness;
- TLM Absence; and
- Eastern Shoreline Odors.

Sediment Thickness

As would be expected, the thickest sediment is found along the eastern shoreline and Senate Street extension alluvial fan. Within the Congaree River, sediment thickness can be quite variable (ranging from 0 to 6 feet in thickness). The sediment can be absent where boulders are present, but was most commonly found at minimal thickness (approximately 0 to 2 feet thick). The maximum sediment thickness noted was six feet at the O11 location. The sediment thickness variability is attributed to the irregular surface of the Congaree River bottom, which is influenced by the granite bedrock expression and boulders. In addition, current velocity also influences sediment thickness with greater scouring and less deposition in stretches of the river exhibiting higher velocities.

TLM Thickness

The estimated thickness of TLM in the Congaree River is highly variable. In summary, the thickest interval of TLM observed was approximately 4.9 feet at the M6 location, which was virtually impacted with over the entire sediment depth. At a number of locations, the TLM thickness was less than 1 foot. In general, TLM was typically found below a “veneer” of visibly un-impacted sediment and when encountered, the TLM was observed to be highly weathered with a taffy-like consistency. Some

“flowable” TLM was encountered at the L16, N16 and N7 locations, at a deeper interval and generally below some highly weathered TLM. At some locations, TLM was found to decrease with depth in the sediment column.

TLM Absence

At a number of locations within the 4 to 19 Lines, TLM was not visually observed, which may be attributed to hydraulic influences of the Congaree River, sediment thickness or sample volume recovered.

Delineation points with some variability as to the occurrence of TLM includes:

- O14 - where sediment from three cores indicated TLM absence [although a TLM bleb was noted on one acetate liner]; and
- M11-O11, L15, and M15 - absence of TLM [although investigation points north and south show visual presence of TLM].

Odors

It should be noted that some of the corings and soil borings drilled on the eastern shoreline of this area exhibited mild or faint TLM odors. Along the shoreline, the sediments tend to be finer grained which may have acted to retain or adsorb TLM. Also, naturally occurring organic matter (i.e., vegetative material) would have a greater affinity to adsorb TLM constituents. The shoreline is likely oxygen deficient (presence of vegetative material) and given the sediment type (silts and clay) does not permit a high degree of flushing and subsequently attenuative processes may be limited. Therefore, the presence of TLM odors in shoreline sediments is not unexpected.

19 Line South to the 36 Line

This Congaree River stretch is characterized by the general absence of TLM (exception L34, N34, N36, and N36.5 grid nodes) as shown on Figure 3-1. The dominant sediment observation from this area was absence of visual TLM and limited TLM-like odors. There were occurrences of TLM fragments and other weathered material (OWM). The source of OWM is not known. The TLM fragments are believed to have originated up river were transported down river via scouring and re-deposited. Some TLM-like odors were noted in sediment samples generally located along the shoreline.

An isolated and discontinuous apparent deposit of TLM was found at grid nodes L34, N34, N36, and N36.5 (Figure 3-1). Factors contributing to this apparent TLM deposition area are not fully known or understood since TLM was not observed over an up river distance of approximately 1,500 feet. Turbulent flow as depicted on the conceptual TLM deposition model presented in Appendix E provides a potential hypothesis to explain TLM occurrence at this location.

36 Line South to the 91.5 Line

This area includes the stretch of the Congaree River below the 36 Line and south to just up river of the abandoned lock and dam at the 91.5 Line (Figure 3-2). Because of the extended length of the delineation area, these reference lines are considered approximate.

In general, TLM was not noted in the Congaree River sediment in the main channel or along the riverbank from the 43 Line down river to the 87.5 Line. For the accessible areas between the 87.5 Line and 91.5 Line, visual evidence of TLM in sediment was not noted. In the backwater channel, located along the

eastern shoreline between the 56 and 64 Lines, no TLM was observed. TLM-like odors were noted in one shoreline sample (CR-10).

Some TLM fragments were observed at a few locations, likely emanating from upriver TLM scouring, transport and deposition.

A total of seven locations (CR2/CR28, and CR18-CR23) of discontinuous TLM “deposits” were noted in the southern boulder field and between the 47 and 53 Lines (Figure 3-2). Each of these locations were noted while traversing the boulder field in an effort to thoroughly inspect as much of the Congaree River as practical. Due to the low Congaree River level, the CR2/CR28 TLM “deposit” was visible above the water line whereas the other locations were submerged and covered with a veneer of sediment. The TLM deposits were highly weathered, spongy under foot, or were “solidified” (CR2/CR28) and were found at various approximate dimensions as noted on Table 3-1 and photographs provided in Appendix A.

3.2.2 Analytical Results

The sediment and soil analytical results are provided on Tables 3-2 through 3-8 (organized by river area) and shown spatially on Figures 3-1 and 3-2. Appendix D provides sediment and soil analytical results by phases. The analytical data was evaluated and no major issues regarding data quality objectives were noted. The laboratory reporting limits are provided.

A total of 37 sediment and soil samples were collected for laboratory analysis. The primary objective for collecting the samples was to provide laboratory data to confirm the visual observations. Initially, a sample was collected at a perimeter location where visual observations indicated the absence of TLM. As the various phases of delineation progressed down river, samples were collected at locations that were logical and feasible.

The following sections discuss the sediment analytical results, which have been segregated into various areas based on TLM observations. It should be noted that the Congaree River receives runoff from the City of Columbia and intuitively it could be expected that analytical data discussed below may include contributions from other potential sources. The constituents of interest (COI) for the TLM (benzene and various polynuclear aromatic hydrocarbons [PAHs]) are common to road materials (i.e., asphalt), petroleum-based products from motor vehicles, and a host of other non-point source materials. No allocation from other anthropogenic source was attempted.

Preliminary Results and Samples Containing TLM

Table 3-2 provides the SCDHEC and SCE&G preliminary analytical results that were used to assess the initial TLM, when first noted in June 2010. The S-1 through S-3 samples were collected in a stretch of the Congaree River where TLM was noted and TLM was present in the sample submitted for analysis. As a result, these three samples exhibited the highest concentrations of COI from the entire study area. For comparison purposes, Table 3-2 also includes three additional sediment samples that contained TLM (with one sample collected at the 19 Line and two samples collected at the 36 Line). Only the sample from N36.5 yielded comparable results. Based on visual observations, the sample collected from the 19 Line indicated staining and blebs whereas the more highly weathered TLM was present in the N36.5 sample and may explain the difference in the analytical results between these two locations.

Congaree River: 1 to 3 Lines

Three sediment samples (I1, K1, and M1) were collected at the 1 Line, which is located at the Gervais Street Bridge and upriver from where the TLM was first observed. One sample was collected from the western boundary along the 2 Line (O2) and one sample (L3) from within the northern boulder field. The 1 Line and O2 samples indicated non-detect results and provide a northern boundary and start of the western boundary of the TLM Area (Table 3-3 and Figure 3-1). TLM (odors or visual) was not observed in the L3 sediment sample but reconnaissance in July 2010 indicated a slight gray sheen at some locations in the northern boulder field and may help explain the analytical results from L3.

Western Boundary – Mid-Point Congaree River: 3 to 19 Lines

A total of eight sediment samples were collected along a “north-south” trending Line (L-P Lines), along the western boundary where TLM was generally absent, on approximately 300-foot centers, and along the length of the Congaree River to the 19 Line (Figure 4-2 and Table 3-4). Sediment samples were collected along this western boundary since the Phase I and Phase II activities suggested the presence of TLM was diminishing below the 18 to the 19 Line. The vast majority of the analytical results indicated COI were not detected and the relatively low level concentration of COI detected at O14 (some BTEX constituents) and L19 (some PAH constituents) may be attributed to general quality of the river sediments from non-point sources and/or residual impacts from TLM. Visual observations of the sediment indicate an absence of TLM except at O14 where a bleb was noted on the acetate liner (absent in three sediment cores). No PAHs were detected. Therefore, the analytical data coupled with visual observations were used to define the western extent of TLM.

Eastern Boundary – Congaree River Shoreline: 1 to 19 Lines

The eastern Congaree River sediments are characterized as finer grained silts and clays and can contain various amounts of naturally organic material. On many occasions, TLM-like odors were noted in these sediments although visual TLM was absent. It is believed that the organic matter acts to adsorb TLM COI and the environment may be oxygen limited, which slows attenuation. In addition, because these sediments have a low hydraulic conductivity due to their particle size and are located along the shoreline, flushing is reduced, which will also serve to further reduce attenuative processes. Therefore, the constituents concentrations observed in the sediment samples collected along the eastern shoreline are not unexpected.

Table 3-5 provides the results. In general, COI were detected with PAHs typically yielding higher concentrations than BTEX. Three of the samples (L7, K8, J11.5) were non-detect for BTEX and one sample (I17) indicated very low levels of BTEX. Total PAHs ranged from 3.78 mg/Kg (J11.5) to 630.1 mg/Kg (I17).

Top of Congaree River Eastern Bank: 1 to 19 Lines

A total of five soil samples were collected from soil borings drilled on the top of the Congaree River bank. The soil samples were collected from depth intervals that were believed to be similar to the level of the Congaree River sediments. Table 3-6 provides the soil analytical results and indicates COI were not detected.

In the Congaree River: 19 to 36 Lines

A total of nine sediment samples were collected from the 19 to the 36 Line. [From the approximate 4 to 19 Lines, a high density of TLM bearing sediments were noted and based on reconnaissance activities it

appeared that TLM diminishes below the 19 Line.] Therefore, the purpose of the sediment samples collected between the 19 and 36 Lines was to provide analytical data to support visual observations.

Eight of the nine sediment samples collected indicated BTEX was not detected. Minimal BTEX concentrations were present in sample L24 (Table 3-7). Three samples, M20, L30, and P36 showed PAHs were not detected whereas the remaining six samples (K19, I20, K20, H24, L24, and I30) indicated the presence of PAH, with total PAH concentrations ranging from 3.5 mg/Kg (I20) to 27.5 mg/Kg (K19) as noted on Table 3-7. The sediment analytical results for I19 (Table 3-2) and L19 (Table 3-4) collected along the 19 Line were discussed previously.

Sample K19 is located at the transitional line and along a line segment where TLM was visually noted and therefore the analytical results would not be unexpected. A very faint odor was noted as well as TLM and OWM fragments at the K20 location and these observations may confirm the analytical results. Samples I20, H24 and I30 were collected along the shoreline and only very slight TLM odors were noted; no visual TLM was observed. Factors potentially contributing to the presence of TLM COI in silty material comprising the shoreline samples were discussed previously. I20 was collected near the shoreline. And finally, a TLM fragment was noted adjacent to sediment comprising the L24 sample. The fragment was not included in the sample but was in close proximity and therefore was included in the recorded observations.

Within the Congaree River: Below the 36 to 80 Line

A total of eight sediment samples were collected below the 36 to 80 Line (Figure 3-2 and Table 3-8). Analytical results from the eight sediment samples indicated BTEX was not detected. Six (CR4, CR7, CR9, AM70, AQ70, and AK80) of the eight PAH analytical results indicated PAH were not detected. Low level PAH concentrations were detected in CR-1 and Y57 with total PAHs of 1.53 mg/Kg and 0.98 mg/Kg, respectively.

3.3 Bathymetry

A bathymetric survey (an underwater topographic survey) was performed from the 1 Line to near the 36 Line and from the approximate mid-point of the river to the eastern shoreline (Figure 2-4). For this area, the river bottom can be variable due to the granite outcropping and differential erosion of the bedrock surface by the Congaree River. From the Gervais Street Bridge to near the 4 Line, boulders are present with a pronounced boulder field (i.e., northern boulder field) from approximately the 2 to 4 Lines. From the 4 Line to 19 Line, the Congaree River shows an irregular surface with some deeper sections and generally an absence of rocks above the normal surface water level. Boulders and boulder assemblages are present in this stretch of the river, but typically below the waterline. Near the 19 Line, the bathymetric surface rises and represents the start of the central boulder field, which extends to approximately the 30 Line. A channel exists through the eastern part of the central boulder field. The channel can have deeper pools and the current is relatively swift through this section of the river. Below the 30 Line to near the 36 Line, exposed boulders are generally absent and the presence of the Blossom Street Bridge piers has likely contributed to underwater depositional fans of sediment and channeling.

4.0 Summary

This section provides a concise summary of the following items:

- Objectives of the approved Delineation Work Plan (DWP);
- The delineation phases, (work dates, areas and SCDHEC submittal date);
- The overall findings of the delineation work; and
- The extent of TLM within the Congaree River.

4.1 Objectives of the DWP

The objectives of the approved DWP were to:

- Delineate vertical and lateral extent of TLM in the Congaree River using visual observations of sediments collected from corings;
- Collect a sufficient number of sediment samples that are not visually impacted with TLM for laboratory analysis to confirm the impact limits; and
- Complete the work in a safe and efficient manner.

4.2 Delineation Phases

These objectives were successfully achieved by completing a total of five different delineation phases (Phase I through Phase V) and a number of other reconnaissance activities. In summary the work that included:

- Phase I - September and October 2010: Investigated from the 1 Line (established at the Gervais Street Bridge) to the 16 Line. The findings were reported to SCDHEC on December 29, 2010;
- Phase II – January and February 2011: Investigated from the 17 Line to the 19 Line and UT #1. The findings were reported to SCDHEC on June 6, 2011;
- Phase III – June and July 2011: Investigated from the 20 Line to the 36 Line and drilled 15 landside soil borings on the top of the eastern riverbank. The findings were reported to SCDHEC on August 3, 2011;
- Phase IV - August 2011: Investigated the area downriver from the 36 Line to the 71.5 Line (i.e., railroad trestles). The findings were reported to SCDHEC on September 27, 2011;
- Phase V – January and February 2012: Investigated from the 43 Line to the 87.5 Line, and Senate Street extension alluvial fan on accessible shoreline. The findings from the Phase V activities are provided herein; and
- Numerous “reconnaissance activities” were also completed in conjunction with the various delineation phases to provide data to develop the overall scope of work for the project.

All work was safely completed by adhering to the project health and safety plans and procedures.

4.3 Overall Findings

Based on the delineation work, the overall findings consist of:

- Defined numerous potential obstructions or debris locations within the project area;
- Completing 244 sediment corings and soil borings using various investigation techniques with documented lithology and TLM observations;
- Collecting and analyzing 37 sediment and soil samples for COI;
- Determining the Congaree River bathymetry from the 1 to the 36 Line;

Based on the activities discussed above, the following summary is provided.

4.4 TLM Extent: Current Understanding

The TLM lateral extent is shown on Figure 4-1. The spatial extent of TLM is characterized as either “continuous” or “discontinuous” and the distinction is determined by the continuity of the visual TLM observations. In summary, the following characterizes the spatial extent:

- River hydraulics and bathymetry likely influenced deposition and spatial extent.
- TLM (2 to 4 Lines): TLM was noted on the alluvial fan at the confluence of UT#1 at one boring located along the shoreline of the Congaree River. The horizontal extent is assumed to be continuous from the alluvial fan, along the shoreline to the 4 Line. TLM thickness was found to range from approximately 0.25 to 1.1 feet. Investigation points in the further west in the Congaree River did not indicate the presence of TLM.
- Continuous TLM (4 to 18 Lines): Extending from north to south (downriver direction), from the 4 to 18 Lines. Continuous TLM is characterized by the visual presence of TLM at multiple contiguous or near-contiguous investigative points. Within the continuous TLM area, it is possible that the spatial continuity of TLM may be disrupted. The western boundary extends approximately 200 feet into the Congaree River and inflects eastward near the 18 Line. The eastern boundary may be characterized by the shoreline.
- The vertical thickness of TLM can be variable and is likely influenced by sediment thickness, the amount of TLM present during deposition, and river hydraulics.
- Discontinuous TLM (34, 36, 47, 49, and 53 Lines): Noted at several locations below the Blossom Street Bridge. Discontinuous TLM is sporadic in occurrence and is characterized by limited spatial continuity. The discontinuous TLM thickness may range from 0.2 to 1.5 feet.
- For both the continuous and discontinuous TLM areas, the TLM exhibits similar physical characteristics that generally includes a highly viscous and taffy-like consistency, typically has sediment as part of the matrix, and has a distinct tar-like odor. Some less viscous TLM was encountered between the 4 and 18 Lines and is generally found below the highly weathered TLM.
- An apparent transition zone is noted at the 19 Line and likely represents the end of continuous TLM.

In addition, other observations noted while completing the fieldwork included TLM fragments and OWM. TLM fragments represent that fraction of TLM that was likely eroded (by fluvial action) from the continuous TLM area, transported downstream, and deposited. When encountered, the quantity of TLM fragments was typically limited, did not exhibit spatial continuity, and tended to have a more solidified consistency. Therefore, TLM fragments were noted when observed but are not considered to have spatial continuity or aerial extent.

TABLES

TABLE 1-1

TIMELINE OF PROJECT ACTIVITIES

Congaree River Sediments
Columbia, South Carolina

Date	Description of Activity	Areas Investigated
June 2010 - September 2010		
Preliminary Activities		
June 28, 2010	SCDHEC split sediment sampling with SCE&G	Three discrete locations near shore between the 4 and 8 Lines
July 20, 2010	SCDHEC and SCE&G performed field reconnaissance	Senate Street Extension alluvial fan area north to the Gervais Sreet Bridge
September 15, 2010	Delineation Work Plan submitted to SCDHEC	--
September 24, 2010	Delineation Work Plan approved by SCDHEC	--
August - October 2010		
Phase I Activities		
August 25-26, 2010	Geophysical (i.e., magnetometer) and side scan sonar survey.	North to south from the 1 Line to near the 16 Line and west to east from near mid-river to eastern shoreline.
September 29 - October 7, 2010	Sediment coring using direct push technology (DPT) drill mounted on a pontoon boat. Wade and spade utilized in stretches of the Congaree River that could not be accessed with the pontoon boat due to low water and/or boulders, and at the down river reconnaissance locations.	North to south from the 1 Line to near the 16 Line, and west to east from near mid-river to eastern shoreline. Reconnaissance at approximately the 19, 23, and 29 Lines. The approximate 1/3 eastern extent of the river was investigated at the 19 and 23 Lines whereas, location specific was investigated at the 29 Line.
December 14 and 29, 2010	Phase I Delineation - Summary and Phase II Delineation - Proposed Activities submitted to SCDHEC	--
January - February 2011		
Phase II - Activities		
January 4, 2011	Magnetometer survey in the river and Unnamed Tributary (UT) #1	Performed magnetometer survey from approximately the 16 Line to near the 20 Line, and west to east from near mid-river to eastern shoreline. Magnetometer survey from near the mouth of UT #1 to near the falls.
February 22 and 23, 2011	Sediment coring using direct push technology (DPT) drill mounted on a pontoon boat. Wade and spade in the UT #1.	North to south from the 17 Line to the 19 Line and west to east from near mid-river to eastern shoreline. In UT #1 from near the mouth and east to the falls.
June 6, 20102	Phase II Delineation - Summary and Phase III Delineation - Proposed Activities submitted to SCDHEC	--
June - August 2011		
Phase III Activities		
June 9, 2011	Used a motorized john boat to evaluate the potential to navigate the pontoon boat from the public boat launch (end of Rosewood Street) through the abandoned lock in order to investigate in the 20 to 36 Line area.	--
June 30, 2011	Performed magnetometer survey	Performed magnetometer survey down river from near the 19 Line to near the 36 Line and west to east from near mid-river to the eastern shoreline. Continuity of the magnetometer survey at some stretches of the river was interrupted due to low water and/or presence of boulders.
July 19-21, 2011	Sediment investigation performed via wade and spade due to low Congaree River levels, which resulted in access constraints for the pontoon boat.	North to south from the 20 Line to near the 36 Line and west to east from near mid-river to the eastern shoreline.
July 21, 2011	Reconnaissance activities to assess sediment conditions and utilizing wade and spade techniques.	Performed preliminary reconnaissance below the 36 Line.
July 27 and July 28, 2011	Landside soil boring drilling using DPT.	North to south from the 3 to 17 Lines and at the top of the river bank.
August 3, 2011	Phase III Delineation - Preliminary Findings and Phase IV Delineation - Proposed Activities submitted to SCDHEC	--
August and September 2011		
Phase IV Activities		
August 10, 2011	Based on Phase III reconnaissance findings, utilized wade and spade techniques to investigate sediments down river from the 36 Line. This investigative activity was designed to maximize coverage over a broad area to gain an understanding of potential TLM occurrence.	North to south below the 36 Line and starting near the 45 Line and extending down river to the 71.5 Line. West-east, general width of river assessed where wading was possible.
September 1, 2011	Based on August 10, 2011 findings and where wading was possible, delineation performed with goal of maximizing aerial coverage using rapid spading and logging techniques to assess potential TLM occurrence.	North to south from near the 80 Line to near the 91.5 Line and just up river of the abandoned lock and dam. West to east generally from mid-river to the shoreline.
September 27, 2010	Phase IV Delineation - Preliminary Findings and Phase V Delineation - Proposed Activities submitted to SCDHEC	--
October 2011 - February 2012		
Phase V Activities		
October - December 2011	Monitored river levels to determine when levels would raise and sustain 3 feet or greater, permitting navigation of the john boat through the abandoned lock to access the coring locations.	--
January 10-12, 2012	Used two john boats rigged side-by-side and equipped with a vibra-core to obtain cores at the Phase V proposed investigation locations.	North to south from the 43 Line to the 87.5, and west to east across the river width where the boulder field was absent (i.e., 43 and 49 Lines).
January 12, 2012	Performed magnetometer survey on the eastern shoreline to clear locations for vibra-coring and provide additional data for potential UXO locations.	North to south from near the 6 Line to approximately the 11 Line and along the eastern shoreline.
February 1, 2012	Vibra-core locations along the eastern shoreline to further refine TLM horizontal extent.	North to south from near the 6 to approximately the 11 Line and along the eastern shoreline.

TABLE 2-1

SUMMARY OF SEDIMENT AND SOIL ANALYTICAL PARAMETERS AND METHODS

Congaree River Sediments
Columbia, South Carolina

Parameter	Preliminary Activity Methods	Delineation Methods
Volatile Organic Compounds		
Benzene	8270 SIM	8260B
Ethylbenzene	8270 SIM	8260B
Toluene	8270 SIM	8260B
Total Xylenes	8270 SIM	8260B
1,2,4 - Trimethylbenzene	8270 SIM	NA ⁽¹⁾
1,3,5 - Trimethylbenzene	8270 SIM	NA
Isopropylbenzene	8270 SIM	NA
p - isopropylbenzene	8270 SIM	NA
Styrene	8270 SIM	NA
Semi-Volatile Organic Compounds		
Acenaphthene	8270 SIM	8270D
Acenaphthylene	8270 SIM	8270D
Anthracene	8270 SIM	8270D
Benz(a)anthracene	8270 SIM	8270D
Benzo(a)pyrene	8270 SIM	8270D
Benzo(b)fluoranthene	8270 SIM	8270D
Benzo(k)fluoranthene	8270 SIM	8270D
Benzo(g,h,i)perylene	8270 SIM	8270D
Chrysene	8270 SIM	8270D
Dibenz(a,h)anthracene	8270 SIM	8270D
Fluoranthene	8270 SIM	8270D
Fluorene	8270 SIM	8270D
Indeno(1,2,3-cd)pyrene	8270 SIM	8270D
Naphthalene	8270 SIM	8270D
Phenanthrene	8270 SIM	8270D
Pyrene	8270 SIM	8270D
1 - Methylnaphthalene	8270 SIM	NA
2 - Methylnaphthalene	8270 SIM	NA
Biphenyl	8270 SIM	NA

Notes:

(1) NA - not analyzed and represents additional parameters analyzed by Meta Environmental, Inc. during the preliminary activities and were not incorporated into the delineation analytical program.

TABLE 3-1

SEDIMENT AND SOIL SENSORY OBSERVATIONS

Congaree River Sediment Site
Columbia, South Carolina

Point Number	Coring or Boring ID ⁽¹⁾	Approximate Sediment Thickness (feet brb) ⁽²⁾	Tar-Like Material (TLM) Observed ⁽³⁾	Top of TLM (feet brb) ⁽⁴⁾	Bottom of TLM (feet brb) ⁽⁴⁾	Approximate TLM Thickness (feet brb) ⁽⁴⁾	TLM Odor and Depth Interval(s) (feet brb) ⁽⁴⁾	TLM Sheens or Staining Interval(s) (feet brb) ⁽⁴⁾	Other Observations/Notes (TLM Fragments ⁽⁵⁾ , OWM ⁽⁶⁾ , Cinders/Clinkers)
1	UT1	1.4	●	--	--	--	--	--	
2	UT2	1.8	●	--	--	--	--	--	
3	UT3	1.4	●	--	--	--	--	--	
4	UT4	2.5	●●	--	--	--	--	--	TLM was not noted in sediment but was observed while wading
5	UT5	1.9	●	--	--	--	--	--	
6	UT6	0.7	●	--	--	--	--	--	
7	UT7	0.25	●	--	--	--	--	--	
8	UT8	2.0	●	--	--	--	--	--	Minor amounts of light gray sheen noted as digging
9	AB1	1.0	●	--	--	--	--	--	
10	AB2	1.0	●	0.55	0.8	0.25	0.25-0.80	--	
11	AB3	2.3	●	1.2	2.3	1.1	1.2-2.3	--	
12	AB4	0.9	●	--	--	--	--	--	
13	AB5	See Note							Located on rocks, no recovery
14	AB6/I2	1.5	●	0.5	0.8	0.3	--	0.5-0.8	Co-located with I2
15	G1	1.5	●	--	--	--	--	--	
16	H1	1.1	●	--	--	--	--	--	
17	I1	0.5	●	--	--	--	--	--	
18	J1	1.25	●	--	--	--	--	--	
19	K1	0.25	●	--	--	--	--	--	
20	L1	0.25	●	--	--	--	--	--	
21	M1	1.0	●	--	--	--	--	--	
22	N1	0.5	●	--	--	--	--	--	
23	O1	0.42	●	--	--	--	--	--	
24	I2	1.5	●	0.5	0.8	0.3	--	0.5-0.8	Co-located with AB6
25	J2	See Note							Located in and on boulders, not investigated
26	K2	0.6	●	--	--	--	--	--	
27	L2	0.9	●	--	--	--	--	--	
28	M2	0.75	●	--	--	--	--	--	
29	N2	0.8	●	--	--	--	--	--	
30	O2	1.4	●	--	--	--	--	--	
31	J3	15.0	●	--	--	--	--	--	
32	K3	1.0	●	0.3	0.9	0.6	0.3-1.0	--	
33	L3	0.25	●	--	--	--	--	--	
34	M3	0.25	●	--	--	--	--	--	

TABLE 3-1

SEDIMENT AND SOIL SENSORY OBSERVATIONS

Congaree River Sediment Site
Columbia, South Carolina

Point Number	Coring or Boring ID ⁽¹⁾	Approximate Sediment Thickness (feet brb) ⁽²⁾	Tar-Like Material (TLM) Observed ⁽³⁾	Top of TLM (feet brb) ⁽⁴⁾	Bottom of TLM (feet brb) ⁽⁴⁾	Approximate TLM Thickness (feet brb) ⁽⁴⁾	TLM Odor and Depth Interval(s) (feet brb) ⁽⁴⁾	TLM Sheens or Staining Interval(s) (feet brb) ⁽⁴⁾	Other Observations/Notes (TLM Fragments ⁽⁵⁾ , OWM ⁽⁶⁾ , Cinders/Clinkers)
35	N3	0.20	●	--	--	--	--	--	
36	K4	14.0	●	--	--	--	--	--	
37	L4	1.0	●	--	--	--	--	--	
38	M4	1.5	●	1.3	1.5	0.2	0.6-1.3	1.3-1.5	
39	N4	1.0	●	1.0	1.0	~0.01	0.75-1.0	--	
40	O4	2.9	●	--	--	--	--	--	
41	K5	11.5	●	--	--	--	--	--	
42	L5	2.0	●	0.2	0.4	--	0.2-0.4	--	
43	M5	1.5	●	--	--	--	--	--	
44	N5	4.0	●	0.5	4.0	3.5	0.5-4.0	--	
45	O5	1.8	●	0.0	1.8	1.8	1.0-1.8	--	
46	P5	1.1	●	--	--	--	--	--	
47	K6	14.25	●	--	--	--	--	--	
48	L6	5.9	●	--	--	--	3.5-5.9	--	
49	M6	5.1	●	0.2	5.1	4.9	0.2-5.1	0.2-2.0, 4.25-4.75	Clinker noted at top of interval
50	N6	1.0	●	0.5	1.0	0.5	0.5-1.0	--	
51	O6	2.25	●	0.4	2.25	1.85	--	--	
52	P6	0.5	●	--	--	--	--	--	
53	J7	20.5	●	--	--	--	--	--	
54	K7	8.8	●	--	--	--	6.7-8.75	--	
55	L7	2.1	●	--	--	--	--	--	
56	N7	1.1	●	0.0	1.1	1.1	0-1.1	--	
57	O7	0.6	●	--	--	--	0.6	--	
58	J8	23.0	●	--	--	--	--	--	
59	K8	6.1	●	--	--	--	0.2-6.1	--	
60	L8	See Note							Too may anomolies
61	M8	4.0	●	0.0	3.5	3.5	0-3.4	0-3.4	
62	N8	1.25	●	--	--	--	--	--	
63	O8	1.3	●	--	--	--	--	--	
64	J9	23.0	●	--	--	--	--	--	
65	K9	7.3	●	--	--	--	1.7-2.4	--	
66	L9	3.0	●	1.25	2.0	0.75	1.25-2.0	--	
67	M9	1.6	●	--	--	--	--	--	
68	N9	0.75	●	0.55	0.75	0.25	--	0.55 - 0.75	

TABLE 3-1

SEDIMENT AND SOIL SENSORY OBSERVATIONS

Congaree River Sediment Site
Columbia, South Carolina

Point Number	Coring or Boring ID ⁽¹⁾	Approximate Sediment Thickness (feet brb) ⁽²⁾	Tar-Like Material (TLM) Observed ⁽³⁾	Top of TLM (feet brb) ⁽⁴⁾	Bottom of TLM (feet brb) ⁽⁴⁾	Approximate TLM Thickness (feet brb) ⁽⁴⁾	TLM Odor and Depth Interval(s) (feet brb) ⁽⁴⁾	TLM Sheens or Staining Interval(s) (feet brb) ⁽⁴⁾	Other Observations/Notes (TLM Fragments ⁽⁵⁾ , OWM ⁽⁶⁾ , Cinders/Clinkers)	
69	O9	1.1	●	--	--	--	--	--		
70	J10	21.0	●	--	--	--	--	--		
71	K10	7.7	●	--	--	--	--	--		
72	L10	4.5	●	1.5	4.5	3.0	1.5-3.0	3.5 - 4.5	Odors likely at TLM layers, TLM layers grouped	
73	M10	1.25	● ●	0.5	0.6	0.1	0.5-0.6	--		
74	N10	1.5	●	--	--	--	--	--		
75	O10	2.9	●	--	--	--	--	--		
76	J11	21.0	●	--	--	--	--	--		
77	J11.5	6.3	●	--	--	--	--	--		
78	K11	0.7	●	0.5	0.6	0.1	0.5-0.6	0.5-0.6		
79	L11	1.0	●	0.05	1.0	0.95	0.05-1.0	0.05-1.0		
80	M11	0.8	●	--	--	--	--	--		
81	N11	0.33	●	--	--	--	--	--		
82	O11	6.0	●	--	--	--	--	--		
83	J12	21.0	●	--	--	--	--	--		
84	K12	1.0	●	0.3	0.5	0.2	0.5-1.0	0.3-0.5		
85	L12	0.7	●	--	--	--	--	--		
86	M12	0.5	●	0.0	0.5	0.5	--	--	Blebs on rock fragments	
87	N12	0.8	●	--	--	--	0-0.8	--	TLM on cutting shoe, not in sample	
88	O12	1.5	●	--	--	--	--	--		
89	J13	19.0	●	--	--	--	--	--		
90	K13	See Note							Water was too shallow to access location with pontoon boat	
91	L13	0.40	●	0.20	0.28	0.08	0.2-0.28	--		
92	M13	0.65	●	0.0	0.55	0.55	0-0.55	0-0.3		
93	N13	0.5	●	0.25	0.5	0.3	0-0.25	0.25-0.5		
94	O13	1.0	●	--	--	--	--	--		
95	I14	22.0	●	--	--	--	--	--		
96	J14	3.0	●	--	--	--	--	--	No recovery and no evidence of TLM on liner or core barrel	
97	K14	0.16	●	--	--	--	--	--		
98	L14	0.2	●	--	--	--	--	--	TLM noted on cutting shoe, no recovery	
99	M14	0.8	●	0.0	0.8	0.8	0-0.8	--		
100	N14	0.6	●	0.6	0.62	0.02	0.60	0.62	Represents TLM observations from second sample event	
101	O14	0.7	●	--	--	--	--	--	Three cores obtained and did not indicate presence of TLM except one bleb on one of the three acetate liners	

TABLE 3-1

SEDIMENT AND SOIL SENSORY OBSERVATIONS

Congaree River Sediment Site
Columbia, South Carolina

Point Number	Coring or Boring ID ⁽¹⁾	Approximate Sediment Thickness (feet brb) ⁽²⁾	Tar-Like Material (TLM) Observed ⁽³⁾	Top of TLM (feet brb) ⁽⁴⁾	Bottom of TLM (feet brb) ⁽⁴⁾	Approximate TLM Thickness (feet brb) ⁽⁴⁾	TLM Odor and Depth Interval(s) (feet brb) ⁽⁴⁾	TLM Sheens or Staining Interval(s) (feet brb) ⁽⁴⁾	Other Observations/Notes (TLM Fragments ⁽⁵⁾ , OWM ⁽⁶⁾ , Cinders/Clinkers)
102	I15	21.0	●	--	--	--	--	--	
103	J15	See Note							Multiple sample attempts and no recovery due to rocks
104	K15	0.75	●	0.0	0.37	0.37	0-0.37	0-0.37	
105	L15	0.5	●	--	--	--	--	--	
106	M15	0.75	●	--	--	--	0.5-0.75	--	
107	H16	27.0	●	--	--	--	--	--	
108	J16	0.25	●	0.0	0.25	0.25	0-0.25	--	
109	K16	0.75	●	0.25	0.75	0.5	--	--	
110	L16	1.1	●	0.0	1.1	1.1	--	0.65-1.1	Odors likely in TLM intervals
111	M16	1.0	●	0.0	0.5	0.5	0-0.5	0.75-1.0	Odors likely in other TLM intervals
112	N16	1.2	●	0.45	1.2	0.75	0-0.45, 0.70-1.20	--	Odors likely in other TLM intervals
113	O16	1.0	●	--	--	--	--	--	
114	H17	27.0	●	--	--	--	--	--	
115	I17	2.8	●	--	--	--	0.5-2.0	--	
116	J17	1.4	●	0	1.4	1.4	0-1.4	--	
117	K17	1.0	●	0.8	1.0	0.2	0.8-1.0	0.8-1.0	
118	L17	1.5	●	--	--	--	--	--	
119	M17	1.7	●	0, 0.6, 1.0	0.6, 0.85, 1.7	0.25, 0.25, 0.70	1.0-1.7	--	Odors likely in other TLM intervals
120	N17	2.6	●	--	--	--	--	--	
121	O17	1.4	●	--	--	--	--	--	
122	I18	2.0	●	--	--	--	1.4-2.0	--	
123	J18	1.6	●	0.5	1.6	1.1	0.5-1.6	--	
124	K18	0.25	●	0	0.01	0.01	0-0.25	--	Couple of TLM "balls" noted on top of sample matrix
125	L18	0.35	●	--	--	--	--	--	
126	M18	1.0	●	--	--	--	--	--	
127	N18	0.75	●	--	--	--	--	--	
128	O18	0.5	●	--	--	--	--	--	
129	P18	1.5	●	--	--	--	--	--	
130	J19	2.0	●	1.75	2.00	0.25	1.75-2.0	1.75-2.0	Blebs in interval
131	K19	0.6	●	--	--	--	--	--	
132	L19	0.5	●	--	--	--	--	--	Bleb noted on one fragment in one of three cores
133	M19	0.3	●	--	--	--	--	--	
134	a	1.5	●	--	--	--	--	--	
135	b	1.5	●	--	--	--	--	--	

TABLE 3-1

SEDIMENT AND SOIL SENSORY OBSERVATIONS

Congaree River Sediment Site
Columbia, South Carolina

Point Number	Coring or Boring ID ⁽¹⁾	Approximate Sediment Thickness (feet brb) ⁽²⁾	Tar-Like Material (TLM) Observed ⁽³⁾	Top of TLM (feet brb) ⁽⁴⁾	Bottom of TLM (feet brb) ⁽⁴⁾	Approximate TLM Thickness (feet brb) ⁽⁴⁾	TLM Odor and Depth Interval(s) (feet brb) ⁽⁴⁾	TLM Sheens or Staining Interval(s) (feet brb) ⁽⁴⁾	Other Observations/Notes (TLM Fragments ⁽⁵⁾ , OWM ⁽⁶⁾ , Cinders/Clinkers)
136	c	0.5	●	--	--	--	--	--	
137	d	0.3	●				--	--	Interpreted to be OWM fragments
138	e	0.75	●	--	--	--	--	--	Cinders present in very minor amounts
139	f	0.75	●	--	--	--	--	--	
140	g	1.0	●●				--	--	Interpreted to be OWM fragments, amount limited
141	h	1.0	●				--	--	Interpeted to be OWM fragments
142	i	1.0	●	--	--	--	--	--	
143	j	NR	●						TLM fragments and cinders
144	I20	0.7	●	--	--	--	--	--	
145	J20	0.5	●	--	--	--	0-0.5	--	One to two pieces of OWM
146	K20	0.8	●●	--	--	--	0.4	--	OWM or TLM fragment
147	L20	1.0	●	--	--	--	--	--	
148	M20	0.6	●	--	--	--	--	--	
149	N20	0.5	●	--	--	--	--	--	
150	O20	0.6	●	--	--	--	--	--	
151	H22	1.1	●	--	--	--	0.8-1.1	--	
152	J22	0.6	●●	--	--	--	--	--	One fragment of TLM and one fragment of OWM at depth of 0.2' to 0.3'
153	L22	0.9	●	--	--	--	--	--	
154	N22	0.7	●	--	--	--	--	--	
155	H24	0.7	●	--	--	--	0-0.7	--	Depth not specifically defined and may be less than noted
156	J24	0.5	●	--	--	--	--	--	OWM fragment noted ~3" in diameter
157	L24	0.5	●	--	--	--	--	--	TLM fragment
158	N24	0.7	●	--	--	--	--	--	
159	H26	1.5	●	--	--	--	--	--	
160	J26	0.75	●	--	--	--	--	--	Noticed one clinker while inspecting samples
161	L26	0.7	●	--	--	--	--	--	
162	N26	0.5	●	--	--	--	--	--	
163	H28	1.0	●	--	--	--	--	--	
164	J28	0.6	●	--	--	--	--	--	
165	L28	0.7	●	--	--	--	--	--	
166	N28	0.7	●	--	--	--	--	--	
167	I30	1.0	●	--	--	--	0-1.0	--	
168	J30	1.0	●	--	--	--	1.0	--	
169	L30	0.7	●	--	--	--	--	--	

TABLE 3-1

SEDIMENT AND SOIL SENSORY OBSERVATIONS

Congaree River Sediment Site
Columbia, South Carolina

Point Number	Coring or Boring ID ⁽¹⁾	Approximate Sediment Thickness (feet brb) ⁽²⁾	Tar-Like Material (TLM) Observed ⁽³⁾	Top of TLM (feet brb) ⁽⁴⁾	Bottom of TLM (feet brb) ⁽⁴⁾	Approximate TLM Thickness (feet brb) ⁽⁴⁾	TLM Odor and Depth Interval(s) (feet brb) ⁽⁴⁾	TLM Sheens or Staining Interval(s) (feet brb) ⁽⁴⁾	Other Observations/Notes (TLM Fragments ⁽⁵⁾ , OWM ⁽⁶⁾ , Cinders/Clinkers)
170	N30	1.0	●	--	--	--	--	--	Noted two fragments that resembled cinders/clinkers and one that appeared to be OWM
171	I32	1.5	●	--	--	--	--	--	
172	J32	0.5	●	--	--	--	--	--	
173	L32	0.4	●	--	--	--	--	--	
174	N32	0.4	●	--	--	--	--	--	
175	P32	0.5	●	--	--	--	--	--	Several TLM fragments ranging in size from ~1/4" to 1/2" in diameter and were likely transported down river
176	R32	0.75	●	--	--	--	--	--	
177	J34	0.4	●	--	--	--	0.33-0.4	--	
178	L34	0.5	●	0.2	0.5	0.3	0.2-0.5	--	
179	L34 1/2	NR ⁽⁷⁾	●	--	--	--	--	--	
180	N34	0.9	●	0.5	0.8	0.3	0.5 - 0.8	--	
181	P34	1.1	●	--	--	--	--	--	Very weathered TLM fragments noted and was not within sample matrix
182	L36	3.0	●	--	--	--	--	--	
183	N36	0.5	●	NR	NR	NR	--	--	
184	N36 1/2	0.5	●	0.2	0.5	0.3	0.2-0.5	--	
185	P36	NR	●	--	--	--	--	--	
186	R36	NR	●	--	--	--	--	--	
187	T43	0.3	●	--	--	--	--	--	No recovery, TLM was not noted on core barrel
188	V43	0.7	●	--	--	--	--	--	
189	X43	1.5	●	--	--	--	--	--	
190	Z43	2.0	●	--	--	--	--	--	
191	AD49	2.0	●	--	--	--	--	--	
192	AF49	4.0	●	--	--	--	--	--	
193	Y57	0.7	●	--	--	--	--	--	
194	AA57	0.0	●	--	--	--	--	--	No recovery, TLM was not noted on core barrel
195	AC57	0.2	●	--	--	--	--	--	No recovery, TLM was not noted on core barrel
196	AE57	1.3	●	--	--	--	--	--	
197	AJ57	2.1	●	--	--	--	--	--	
198	AL57	1.7	●	--	--	--	--	--	
199	AE64	1.1	●	--	--	--	--	--	
200	AG64	1.2	●	--	--	--	--	--	Two TLM fragments at ~1.1'
201	AI64	2.6	●	--	--	--	--	--	Potential TLM fragment observed at 1.3'

TABLE 3-1

SEDIMENT AND SOIL SENSORY OBSERVATIONS

Congaree River Sediment Site
Columbia, South Carolina

Point Number	Coring or Boring ID ⁽¹⁾	Approximate Sediment Thickness (feet brb) ⁽²⁾	Tar-Like Material (TLM) Observed ⁽³⁾	Top of TLM (feet brb) ⁽⁴⁾	Bottom of TLM (feet brb) ⁽⁴⁾	Approximate TLM Thickness (feet brb) ⁽⁴⁾	TLM Odor and Depth Interval(s) (feet brb) ⁽⁴⁾	TLM Sheens or Staining Interval(s) (feet brb) ⁽⁴⁾	Other Observations/Notes (TLM Fragments ⁽⁵⁾ , OWM ⁽⁶⁾ , Cinders/Clinkers)
202	AK64	1.7	●	--	--	--	--	--	One clinker observed at 0.1'
203	AM64	1.9	●	--	--	--	--	--	
204	AO64	2.1	●	--	--	--	--	--	
205	AK70	0.6	●	--	--	--	--	--	
206	AM70	3.0	●	--	--	--	--	--	
207	AO70	1.0	●	--	--	--	--	--	
208	AQ70	0.75	●	--	--	--	--	--	
209	AG80	4.0	●	--	--	--	--	--	
210	AI80	1.0	●	--	--	--	--	--	
211	AK80	2.5	●	--	--	--	--	--	
212	AM80	3.0	●	--	--	--	--	--	
213	AO80	0.0	●	--	--	--	--	--	No recovery, TLM was not noted on core barrel
214	AD87.5	1.0	●	--	--	--	--	--	No recovery, TLM was not noted on core barrel
215	AF87.5	1.0	●	--	--	--	--	--	No recovery, TLM was not noted on core barrel
216	AH87.5	1.6	●	--	--	--	--	--	No recovery, TLM was not noted on core barrel
217	AJ87.5	0.0	●	--	--	--	--	--	No recovery, TLM was not noted on core barrel
218	CR1	1.5	●	--	--	--	--	--	
219	CR2/CR28	NR	●	See Note					TLM "deposition" above water and approximately 10' long and 3' wide
220	CR3	1.5	●	--	--	--	--	--	
221	CR4	1.0	●	--	--	--	--	--	
222	CR5	2.5	●	--	--	--	--	--	
223	CR6	NR	●	--	--	--	--	--	One clinker noted
224	CR7	0.5	●	--	--	--	--	--	Noted one clinker, one cinder and one coal fragment
225	CR8	1.0	●	--	--	--	--	--	One asphaltic-like fragment noted
226	CR9	0.75	●	--	--	--	--	--	
227	CR10	1.0	●	--	--	--	0.5-1.0	--	
228	CR11	1.5	●	--	--	--	--	--	
229	CR12	NR	●	--	--	--	--	--	
230	CR13	0.5	●	--	--	--	--	--	
231	CR14	0.75	●	--	--	--	--	--	
232	CR15	NR	●	--	--	--	--	--	Brick found with unknown black coating
233	CR16	NR	●	--	--	--	--	--	
234	CR17	NR	●	--	--	--	--	--	

TABLE 3-1

SEDIMENT AND SOIL SENSORY OBSERVATIONS

Congaree River Sediment Site
Columbia, South Carolina

Point Number	Coring or Boring ID ⁽¹⁾	Approximate Sediment Thickness (feet brb) ⁽²⁾	Tar-Like Material (TLM) Observed ⁽³⁾	Top of TLM (feet brb) ⁽⁴⁾	Bottom of TLM (feet brb) ⁽⁴⁾	Approximate TLM Thickness (feet brb) ⁽⁴⁾	TLM Odor and Depth Interval(s) (feet brb) ⁽⁴⁾	TLM Sheens or Staining Interval(s) (feet brb) ⁽⁴⁾	Other Observations/Notes (TLM Fragments ⁽⁵⁾ , OWM ⁽⁶⁾ , Cinders/Clinkers)
235	CR18	1.0	●	See other observations					TLM "deposition" approximately 20' long, 20' wide (discontinuous) and approximately 1' thick
236	CR19	NR	●	See other observations					TLM "deposition" - dimensions not recorded
237	CR20	NR	●	See other observations					TLM "deposition" approximately 30' long, 10' wide and 0.5' thick
238	CR21	NR	●	See other observations					TLM "deposition" approximately 15' long, 5' wide and 0.5' thick
239	CR22	NR	●	See other observations					TLM "deposition" approximately 30' long, 8' wide and 1.5' thick
240	CR23	NR	●	See other observations					TLM "deposition" approximately 8' long, 3' wide and 0.2' thick
241	CR24	NR	●	--	--	--	--	--	
242	CR25	NR	●	--	--	--	--	--	TLM fragments (size and number not noted)
243	CR26	NR	●	--	--	--	--	--	
244	CR27	NR	●	--	--	--	--	--	Several TLM fragments at a depth of 0.3'

Notes:

- (1) Corings represent those points in the Congaree River or UT #1 and were generally submerged. Borings represent those points investigated on land and were generally above water.
- (2) brb - below river bottom. Based on total depth penetrated with direct push technology (DPT), whacker/macrocore, vibra-core, or maximum depth penetrated by hand digging.
- (3) Dot color guide:
 - Green - no visual tar-like material (TLM)
 - Red - visual TLM
 - Yellow - TLM fragments
 - Orange - other weathered material (OWM)
- (4) TLM top, bottom, and thickness was adjusted when recovery to total or maximum depth penetrated was less than 100% and is therefore, approximated. Subsequently, the TLM measurements shown may or may not be reflective of actual TLM vertical extent.
- (5) TLM fragments are fragmented and solid pieces of TLM that are believed to have originated upstream, were eroded, and transported downstream. The TLM fragments occur as distinct fragments and found in the sediment matrix but are not part of the sediment matrix. When encountered, the number of fragments and length (or diameter) were typically limited and small. TLM fragments can have TLM odors.
- (6) OWM has characteristics that could potentially be MGP-like material or other material and the OWM is distinctly different from TLM.
- (7) NR - Not recorded or not noted.

TABLE 3-2

SCDHEC AND SCE&G PRELIMINARY AND DELINEATION SEDIMENT ANALYTICAL RESULTS WITH TLM

Congaree River Sediments
Columbia, South Carolina

General Area Source	Preliminary - Near the Alluvial Fan and Sand Bar				
	SCE&G	SCE&G	SCDHEC	SCE&G	SCDHEC
(Line) Location of Sample	S-1	S-1 Dup	S-1	S-2	S-2
Date Sampled	6/28/2010	6/28/2010	6/28/2010	6/28/2010	6/28/2010
Sample Interval (feet brb) ⁽¹⁾	(2)	(2)	(2)	(2)	(2)
Parameters					
Volatiles (mg/Kg)					
1,2,4-Trimethylbenzene	90.2 B ⁽³⁾	52 B	NA ⁽⁵⁾	4.31 B	NA
1,3,5-Trimethylbenzene	28.8 B	16.6 B	NA	1.84 B	NA
Benzene	43.9 B	22.1 B	16	1.22 B	0.97
Ethylbenzene	214 B	124 B	150	6.64 B	10
Isopropylbenzene	22.2	12.8	14	1.25	2.2
p-Isopropyltoluene	11.7	6.78	NA	0.965	NA
Styrene	11.7 B	4.04 B	5.7 U ⁽⁶⁾	0.807 B	0.35 U
Toluene	6.43 B	1.47 B	5.7 U	0.555 B	0.35 U
Total Xylenes	124.3 B	74.5 B	79	2.773	4.1
Semi-Volatiles (mg/Kg)					
1-Methylnaphthalene	1,170 E ⁽⁴⁾ B	666 B	NA	134 B	NA
2-Methylnaphthalene	1,870 EB	1,070 EB	1,700	231 B	400
Acenaphthene	644	371	730	194	380
Acenaphthylene	146	72	170	10.5	44 U
Anthracene	385	222	450	142	300
Benz(a)anthracene	270	154	340	40.2	130
Benzo(a)pyrene	320 B	179 B	380	60 B	130
Benzo(b)fluoranthene	123 B	70.9 B	220	29.1 B	110
Benzo(g,h,i)perylene	159 B	89.5 B	140 U	27.1 B	47
Benzo(j/k)fluoranthene ⁽⁷⁾	153 B	84.8 B	140 U	38 B	44 U
Biphenyl	302 B	172 B	300	33.3 B	64
Chrysene	287	163	340	54.1	110
Dibenz(a,h)anthracene	47	26.1	140 U	7.8	44 U
Fluoranthene	417	244	530	145	320
Fluorene	405	229	490	98.8	220
Indeno(1,2,3-cd)pyrene	116	65.1	140 U	23.6	44 U
Naphthalene	3,710 EB	2,140 EB	3,100	291 B	470
Phenanthrene	1,510 E	869	1,600	365	710
Pyrene	737 B	432 B	900	178 B	380
Totals (mg/Kg)⁽¹⁰⁾					
Total BTEX	389	222	245	11.2	15.1
Total PAH ⁽¹¹⁾	9,429	5,411	9,250	1,704	3,307

Notes:

- (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
- (2) Depth of sample is not known
- (3) B - Analyte detected in the blank.
- (4) E - Estimate, result detected above calibration range.
- (5) NA - Not analyzed
- (6) U - Indicates that the constituent was not detected at the reported detection limit.
- (7) Delineation samples were analyzed for benzo(k)fluoranthene only.
- (8) J - Indicates an estimated value.
- (9) Indicates that the constituent was not detected at the reported detection limit; however the result is qualified as estimated based on the data evaluation.
- (10) Total BTEX and total PAH includes only detected results and PAHs are those analyzed during the delineation phases.
- (11) Includes only those PAH compounds comprising the semi-volatiles.

TABLE 3-2

SCDHEC AND SCE&G PRELIMINARY AND DELINEATION SEDIMENT ANALYTICAL RESULTS WITH TLM

Congaree River Sediments
Columbia, South Carolina

General Area Source	Preliminary (Cont.)		Delineation - Various in River		
	SCE&G	SCDHEC	SCE&G	SCE&G	SCE&G
(Line) Location of Sample	S-3	S-3	J19	N36	N36.5
Date Sampled	6/28/2010	6/28/2010	2/22/2011	7/19/2011	7/19/2011
Sample Interval (feet brb) ⁽¹⁾	(2)	(2)	0 - 2.0	0 - 0.5	0 - 0.5
Parameters					
Volatiles (mg/Kg)					
1,2,4-Trimethylbenzene	49.9 B	NA	NA	NA	NA
1,3,5-Trimethylbenzene	16 B	NA	NA	NA	NA
Benzene	17 B	8	0.037 U	0.005 U	0.067 J
Ethylbenzene	113 B	90	2.2	0.005 U	4.7
Isopropylbenzene	12.5	8	NA	NA	NA
p-Isopropyltoluene	6.67	NA	NA	NA	NA
Styrene	9.44 B	3.2 U	NA	NA	NA
Toluene	4.33 B	3.2 U	0.0081	0.005 U	0.19 J
Total Xylenes	26.42	19	0.19	0.005 U	1.7
Semi-Volatiles (mg/Kg)					
1-Methylnaphthalene	792 B	NA	NA	NA	NA
2-Methylnaphthalene	1,320 EB	1,200	NA	NA	NA
Acenaphthene	642	740	58	3.1	660
Acenaphthylene	85.8	100	4.5	0.94 J ⁽⁸⁾	1.6 UJ ⁽⁹⁾
Anthracene	355	430	41	6.2	460
Benz(a)anthracene	207	290	29	7.7	370
Benzo(a)pyrene	232 B	310	34	8.2	390
Benzo(b)fluoranthene	92.3 B	180	18	7.9	320
Benzo(g,h,i)perylene	115 B	110	9.5	3.2	150
Benzo(j,k)fluoranthene ⁽⁷⁾	117 B	94	0.42 UJ	0.40 UJ	3.4 UJ
Biphenyl	209 B	220	NA	NA	NA
Chrysene	216	280	34	8.6	360
Dibenz(a,h)anthracene	33	82 U	2.4	0.40 UJ	33 J
Fluoranthene	350	480	51	13.0	590
Fluorene	336	420	35	3.7	450
Indeno(1,2,3-cd)pyrene	84.6	82 U	7.2	2.5	97
Naphthalene	2,240 EB	2,000	82	0.40 UJ	690
Phenanthrene	1,250 E	1,400	150	19.0	1,800
Pyrene	607 B	800	92	23.0	1,000
Totals (mg/Kg)⁽⁹⁾					
Total BTEX	160.8	117.0	2.4	0.005 U	6.7
Total PAH ⁽¹⁰⁾	6,963	7,634	647.6	107.0	7,370

Notes:

- (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
- (2) Depth of sample is not known
- (3) B - Analyte detected in the blank.
- (4) E - Estimate, result detected above calibration range.
- (5) NA - Not analyzed
- (6) U - Indicates that the constituent was not detected at the reported detection limit.
- (7) Delineation samples were analyzed for benzo(k)fluoranthene only.
- (8) J - Indicates an estimated value.
- (9) Indicates that the constituent was not detected at the reported detection limit; however the result is qualified as estimated based on the data evaluation.
- (10) Total BTEX and total PAH includes only detected results and PAHs are those analyzed during the delineation phases.
- (11) Includes only those PAH compounds comprising the semi-volatiles.

TABLE 3-3

SEDIMENT ANALYTICAL RESULTS
 CONGAREE RIVER: 1 TO 3 LINES

Congaree River Sediments
 Columbia, South Carolina

General Area	Gervais Street Bridge			Northern Boulder Field	
Line Location of Sample	1 Line			2 Line	3 Line
Sample Identification	I1	K1	M1	O2	L3
Date Sampled	10/6/2010	10/6/2010	10/6/2010	10/6/2010	10/7/2010
Sample Interval (feet brb) ⁽¹⁾	0 - 0.5	0 - 0.25	0 - 1.0	0 - 0.5	0 - 0.25
Parameters					
Volatiles (mg/Kg)					
Benzene	0.005 U ⁽²⁾	0.005 U	0.005 U	0.0046 U	0.0048 U
Ethylbenzene	0.005 U	0.005 U	0.005 U	0.0046 U	0.0048 U
Toluene	0.005 U	0.005 U	0.005 U	0.0046 U	0.0048 U
Total Xylenes	0.005 U	0.005 U	0.005 U	0.0046 U	0.0048 U
Semi-Volatiles (mg/Kg)⁽³⁾					
Acenaphthene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U
Acenaphthylene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U
Anthracene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U
Benzo(a)anthracene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U
Benzo(a)pyrene	0.41 U	0.39 U	0.41 U	0.37 U	0.91
Benzo(b)fluoranthene	0.41 U	0.39 U	0.41 U	0.37 U	0.92
Benzo(g,h,i)perylene	0.41 U	0.39 U	0.41 U	0.37 U	0.60
Benzo(k)fluoranthene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U
Chrysene	0.41 U	0.39 U	0.41 U	0.37 U	0.67
Dibenz(a,h)anthracene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U
Fluoranthene	0.41 U	0.39 U	0.41 U	0.37 U	0.95
Fluorene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U
Indeno(1,2,3-cd)pyrene	0.41 U	0.39 U	0.41 U	0.37 U	0.45
Naphthalene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U
Phenanthrene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U
Pyrene	0.41 U	0.39 U	0.41 U	0.37 U	1.10
Totals (mg/Kg)⁽⁴⁾					
Total BTEX	0.005 U	0.005 U	0.005 U	0.0046 U	0.0048 U
Total PAH	0.41 U	0.39 U	0.41 U	0.37 U	5.6

Notes:

(1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.

(2) U - Indicates the constituent was not detected at the reported detection limit.

(3) The semi-volatiles analyzed were polynuclear aromatic hydrocarbons.

(4) Total BTEX and total PAH includes only detected results.

The laboratory may have reported some results between the method detection limit (MDL) and reporting limit (RL).

For purposes of this reporting, the results are shown at the RL.

TABLE 3-4

**SEDIMENT ANALYTICAL RESULTS
WESTERN BOUNDARY - MID-POINT CONGAREE RIVER: 3 TO 19 LINES**

**Congaree River Sediments
Columbia, South Carolina**

General Area	Mid-Congaree River					
Line Location of Sample	5 Line	8 Line	11 Line	14 Line	17 Line	19 Line
Sample Identification	P5	O8	O11	O14	O17	L19
Date Sampled	10/4/2010	10/04/2010	10/4/2010	10/5/2010	2/23/2011	2/22/2011
Sample Interval (feet brb) ⁽¹⁾	0 - 1.1	0 - 1.1	0 - 6	0 - 0.7	0 - 1.4	0 - 0.5
Parameters						
Volatiles (mg/Kg)						
Benzene	0.0054 U ⁽²⁾	0.0049 U	0.0052 U	0.0048 U	0.0055 U	0.0051 U
Ethylbenzene	0.0054 U	0.0049 U	0.0052 U	0.0055	0.0055 U	0.0051 U
Toluene	0.0054 U	0.0049 U	0.0052 U	0.0048 U	0.0055 U	0.0051 U
Total Xylenes	0.0054 U	0.0049 U	0.0052 U	0.0057	0.0055 U	0.0051 U
Semi-Volatiles (mg/Kg)⁽³⁾						
Acenaphthene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Acenaphthylene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Anthracene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Benzo(a)anthracene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Benzo(a)pyrene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Benzo(b)fluoranthene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Benzo(g,h,i)perylene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Benzo(k)fluoranthene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Chrysene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Dibenz(a,h)anthracene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Fluoranthene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.45
Fluorene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Indeno(1,2,3-cd)pyrene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Naphthalene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.37 U
Phenanthrene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.94
Pyrene	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	0.75
Totals (mg/Kg)⁽⁴⁾						
Total BTEX	0.0054 U	0.0049 U	0.0052 U	0.0112	0.0055 U	0.0051 U
Total PAH	0.36 U	0.35 U	0.36 U	0.35 U	0.37 U	2.1

Notes:

(1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.

(2) U - Indicates the constituent was not detected at the reported detection limit.

(3) The semi-volatiles analyzed were polynuclear aromatic hydrocarbons.

(4) Total BTEX and total PAH includes only detected results.

The laboratory may have reported some results between the method detection limit (MDL) and reporting limit (RL). For purposes of this reporting, the results are shown at the RL.

TABLE 3-5

SEDIMENT ANALYTICAL RESULTS
EASTERN BOUNDARY - CONGAREE RIVER SHORELINE: 1 TO 19 LINES

Congaree River Sediments
Columbia, South Carolina

General Area	Eastern Shoreline			
Line Location of Sample	7 Line	8 Line	11 Line	17 Line
Sample Identification	L7	K8	J11.5	I17
Date Sampled	2/1/2012	2/1/2012	2/1/2012	2/23/2011
Sample Interval (feet brb) ⁽¹⁾	0 - 1.55	0 - 5.1	0 - 5.25	0 - 2.8
Parameters				
Volatiles (mg/Kg)				
Benzene	0.0076 U	0.0060 U	0.0097 U	0.0084 U
Ethylbenzene	0.0076 U	0.0060 U	0.0097 U	0.0084 U
Toluene	0.0076 U	0.0060 U	0.0097 U	0.0084 U
Total Xylenes	0.0076 U	0.0060 U	0.0097 U	0.058
Semi-Volatiles (mg/Kg)⁽³⁾				
Acenaphthene	0.41 U	3.7	0.52 U	59
Acenaphthylene	0.41 U	0.89	0.52 U	4.7
Anthracene	0.41 U	1.2	0.52 U	65
Benzo(a)anthracene	0.68	4.3	0.56	28
Benzo(a)pyrene	0.86	4.7	1.0	27
Benzo(b)fluoranthene	0.79	4.2	0.97	17
Benzo(g,h,i)perylene	0.50	1.9	0.60	7.4
Benzo(k)fluoranthene	0.41 U	1.6	0.52 U	6.6
Chrysene	0.70	4.0	0.52 U	26
Dibenz(a,h)anthracene	0.41 U	0.44	0.52 U	1.8
Fluoranthene	0.95	8.2	0.52 U	76
Fluorene	0.41 U	2.4	0.52 U	37
Indeno(1,2,3-cd)pyrene	0.41 U	1.5	0.52 U	6.8
Naphthalene	0.41 U	0.41 U	0.52 U	0.79
Phenanthrene	0.41 U	9.8	0.52 U	170
Pyrene	1.4	9.1	0.65	97
Totals (mg/Kg)⁽⁴⁾				
Total BTEX	0.0076 U	0.0060 U	0.0097 U	0.058
Total PAH	5.88	57.93	3.78	630.1

Notes:

- (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
- (2) U - Indicates the constituent was not detected at the reported detection limit.
- (3) The semi-volatiles analyzed were polynuclear aromatic hydrocarbons.
- (4) Total BTEX and total PAH includes only detected results.

The laboratory may have reported some results between the method detection limit (MDL) and reporting limit (RL). For purposes of this reporting, the results are shown at the RL.

TABLE 3-6

**SOIL ANALYTICAL RESULTS
TOP OF THE CONGAREE RIVER EASTERN BANK: 1 TO 19 LINES**

**Congaree River Sediments
Columbia, South Carolina**

General Area	Top of the Congaree River Eastern Bank				
Line Location of Sample	4 Line	8 Line	11 Line	14 Line	17 Line
Sample Identification	K4	J8	J11	I14	H17
Date Sampled	7/28/2011	7/27/2011	7/27/2011	7/27/2011	7/28/2011
Sample Interval (feet bgs) ⁽¹⁾	12 - 14	20 - 23	17 - 21	17.5 - 22	22 - 26
Parameters					
Volatiles (mg/Kg)					
Benzene	0.006 U ⁽²⁾	0.005 U	0.006 U	0.006 U	0.006 U
Ethylbenzene	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U
Toluene	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U
Total Xylenes	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U
Semi-Volatiles (mg/Kg)⁽³⁾					
Acenaphthene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Acenaphthylene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Anthracene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(a)anthracene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(a)pyrene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(b)fluoranthene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(g,h,i)perylene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(k)fluoranthene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Chrysene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Dibenz(a,h)anthracene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Fluoranthene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Fluorene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Indeno(1,2,3-cd)pyrene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Naphthalene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Phenanthrene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Pyrene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Totals (mg/Kg)⁽⁴⁾					
Total BTEX	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U
Total PAH	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U

Notes:

(1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.

(2) U - Indicates the constituent was not detected at the reported detection limit.

(3) The semi-volatiles analyzed were polynuclear aromatic hydrocarbons.

(4) Total BTEX and total PAH includes only detected results.

The laboratory may have reported some results between the method detection limit (MDL) and reporting limit (RL).

For purposes of this reporting, the results are shown at the RL.

TABLE 3-7

**SEDIMENT ANALYTICAL RESULTS
IN THE CONGAREE RIVER: 19 TO 36 LINES**

**Congaree River Sediments
Columbia, South Carolina**

General Area	In the Congaree River								
	Line Location of Sample	20 Line				24 Line		30 Line	
Sample Identification	K19	I20	K20	M20	H24	L24	I30	L30	P36
Date Sampled	2/22/2011	7/21/2011	7/21/2011	7/21/2011	7/20/2011	7/20/2011	7/20/2011	7/20/2011	7/19/11
Sample Interval (feet brb) ⁽¹⁾	0 - 0.6	0 - 0.6	0 - 0.7	0 - 0.8	0 - 0.7	0 - 0.5	0 - 1.0	0 - 0.7	0 - 0.5
Parameters									
Volatiles (mg/Kg)									
Benzene	0.0052 U ⁽²⁾	0.005 U	0.005 U	0.005 U	0.005 U	0.009	0.006 U	0.005 U	0.004 U
Ethylbenzene	0.0052 U	0.005 U	0.005 U	0.005 U	0.005 U	0.062	0.006 U	0.005 U	0.004 U
Toluene	0.0052 U	0.005 U	0.005 U	0.005 U	0.005 U	0.009	0.006 U	0.005 U	0.004 U
Total Xylenes	0.0052 U	0.005 U	0.005 U	0.005 U	0.005 U	0.026	0.006 U	0.005 U	0.004 U
Semi-Volatiles (mg/Kg)⁽³⁾									
Acenaphthene	0.89	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	0.38 U
Acenaphthylene	0.41	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	0.38 U
Anthracene	1.8	0.38 U	0.40 U	0.39 U	0.41 U	0.43	0.47 U	0.36 U	0.38 U
Benzo(a)anthracene	1.9	0.39	0.83	0.39 U	0.57	1.10	0.47	0.36 U	0.38 U
Benzo(a)pyrene	1.9	0.38 U	0.92	0.39 U	0.71	1.30	0.59	0.36 U	0.38 U
Benzo(b)fluoranthene	1.4	0.63	0.74	0.39 U	0.92	1.30	0.85	0.36 U	0.38 U
Benzo(g,h,i)perylene	0.65	0.38 U	0.40 U	0.39 U	0.41 U	0.61	0.47 U	0.36 U	0.38 U
Benzo(k)fluoranthene	0.54	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	0.38 U
Chrysene	2.1	0.42	0.77	0.39 U	0.72	1.30	0.64	0.36 U	0.38 U
Dibenz(a,h)anthracene	0.42	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	0.38 U
Fluoranthene	3.6	0.77	1.20	0.39 U	1.00	1.60	0.90	0.36 U	0.38 U
Fluorene	0.81	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	0.38 U
Indeno(1,2,3-cd)pyrene	0.5	0.38 U	0.40 U	0.39 U	0.41 U	0.46	0.47 U	0.36 U	0.38 U
Naphthalene	0.34 U	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.48	0.38 U
Phenanthrene	4.8	0.49	0.49	0.39 U	0.65	1.70	0.71	0.36 U	0.38 U
Pyrene	5.8	0.77	1.70	0.39 U	1.40	3.00	1.10	0.36 U	0.38 U
Totals (mg/Kg)⁽⁴⁾									
Total BTEX	0.0052 U	0.005 U	0.005 U	0.005 U	0.005 U	0.11	0.006 U	0.005 U	0.004 U
Total PAH	27.5	3.5	6.7	0.39 U	6.0	12.8	5.3	0.48	0.38 U

Notes:

(1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.

(2) U - Indicates the constituent was not detected at the reported detection limit.

(3) The semi-volatiles analyzed were polynuclear aromatic hydrocarbons.

(4) Total BTEX and total PAH includes only detected results.

The laboratory may have reported some results between the method detection limit (MDL) and reporting limit (RL). For purposes of this reporting, the results are shown at the RL.

TABLE 3-8

**SEDIMENT ANALYTICAL RESULTS
WITHIN THE CONGAREE RIVER BELOW THE 36 TO 80 LINES**

**Congaree River Sediments
Columbia, South Carolina**

General Area	South of Blossom Street Bridge to South of Railroad Trestles							
	45 Line	57 Line		63 Line	64 Line	70 Line		80 Line
Line Location of Sample	CR1	CR4	Y57	CR7	CR9	AM70	AQ70	AK80
Sample Identification								
Date Sampled	8/10/2011	8/10/2011	1/12/2012	8/10/2011	8/10/2011	1/10/2012	1/20/2012	1/10/2012
Sample Interval (feet brb) ⁽¹⁾	0 - 1.5	0 - 1.0	0 - 0.7	0 - 0.5	0 - 0.75	0 - 3.0	0 - 0.75	0 - 2.5
Parameters								
Volatiles (mg/Kg)								
Benzene	0.008 U ⁽²⁾	0.009 U	0.0052 U	0.008 U	0.009 U	0.0054 U	0.0051 U	0.0056 U
Ethylbenzene	0.008 U	0.009 U	0.0052 U	0.008 U	0.009 U	0.0054 U	0.0051 U	0.0056 U
Toluene	0.008 U	0.009 U	0.0052 U	0.008 U	0.009 U	0.0054 U	0.0051 U	0.0056 U
Total Xylenes	0.008 U	0.009 U	0.0052 U	0.008 U	0.009 U	0.0054 U	0.0051 U	0.0056 U
Semi-Volatiles (mg/Kg)⁽³⁾								
Acenaphthene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Acenaphthylene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Anthracene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Benzo(a)anthracene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Benzo(a)pyrene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Benzo(b)fluoranthene	0.41	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Benzo(g,h,i)perylene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Benzo(k)fluoranthene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Chrysene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Dibenz(a,h)anthracene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Fluoranthene	0.64	0.40 U	0.36	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Fluorene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Indeno(1,2,3-cd)pyrene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Naphthalene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Phenanthrene	0.40 U	0.40 U	0.36 U	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Pyrene	0.48	0.40 U	0.62	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U
Totals (mg/Kg)⁽⁴⁾								
Total BTEX	0.008 U	0.009 U	0.0052 U	0.008 U	0.009 U	0.0054 U	0.0051 U	0.0056 U
Total PAH	1.53	0.40 U	0.98	0.40 U	0.37 U	0.37 U	0.35 U	0.36 U

Notes:

(1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.

(2) U - Indicates the constituent was not detected at the reported detection limit.

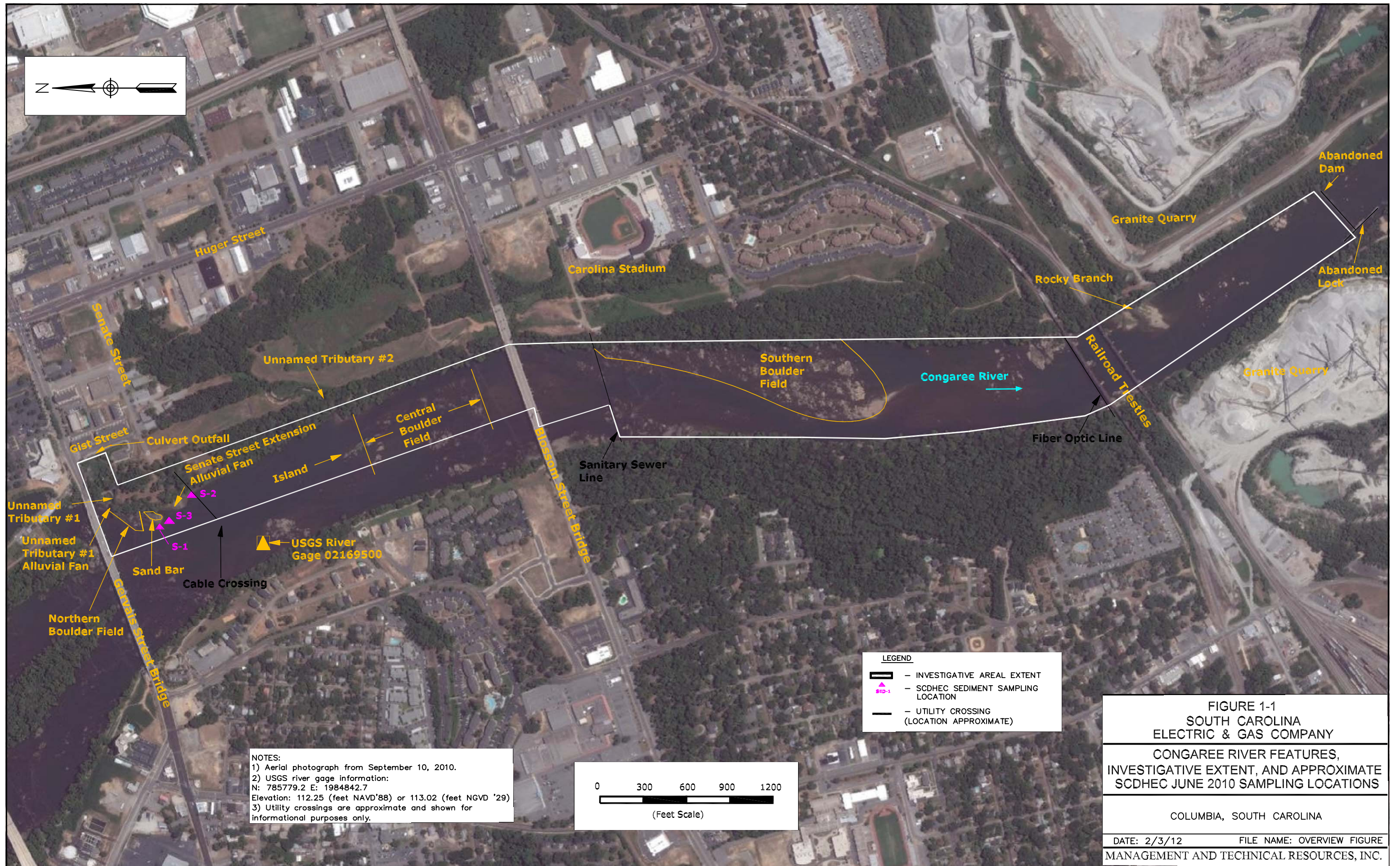
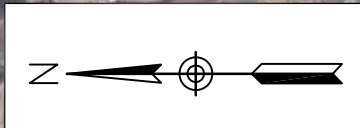
(3) The semi-volatiles analyzed were polynuclear aromatic hydrocarbons.

(4) Total BTEX and total PAH includes only detected results.

The laboratory may have reported some results between the method detection limit (MDL) and reporting limit (RL).

For purposes of this reporting, the results are shown at the RL.

FIGURES



Unnamed Tributary #1
 Unnamed Tributary #1 Alluvial Fan
 Northern Boulder Field
 Sand Bar
 Cable Crossing
 USGS River Gage 02169500
 Island
 Central Boulder Field
 Senate Street Extension Alluvial Fan
 Culvert Outfall
 Gist Street
 Senate Street
 Unnamed Tributary #2
 Southern Boulder Field
 Sanitary Sewer Line
 Blossom Street Bridge
 Rocky Branch
 Railroad Trestles
 Fiber Optic Line
 Granite Quarry
 Abandoned Lock
 Abandoned Dam
 Granite Quarry

LEGEND

- INVESTIGATIVE AREAL EXTENT
- SCDHEC SEDIMENT SAMPLING LOCATION
- UTILITY CROSSING (LOCATION APPROXIMATE)

NOTES:
 1) Aerial photograph from September 10, 2010.
 2) USGS river gage information:
 N: 785779.2 E: 1984842.7
 Elevation: 112.25 (feet NAVD'88) or 113.02 (feet NGVD '29)
 3) Utility crossings are approximate and shown for informational purposes only.

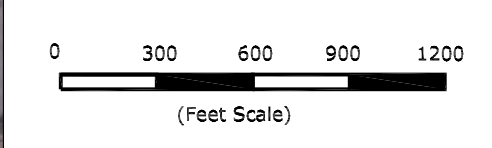
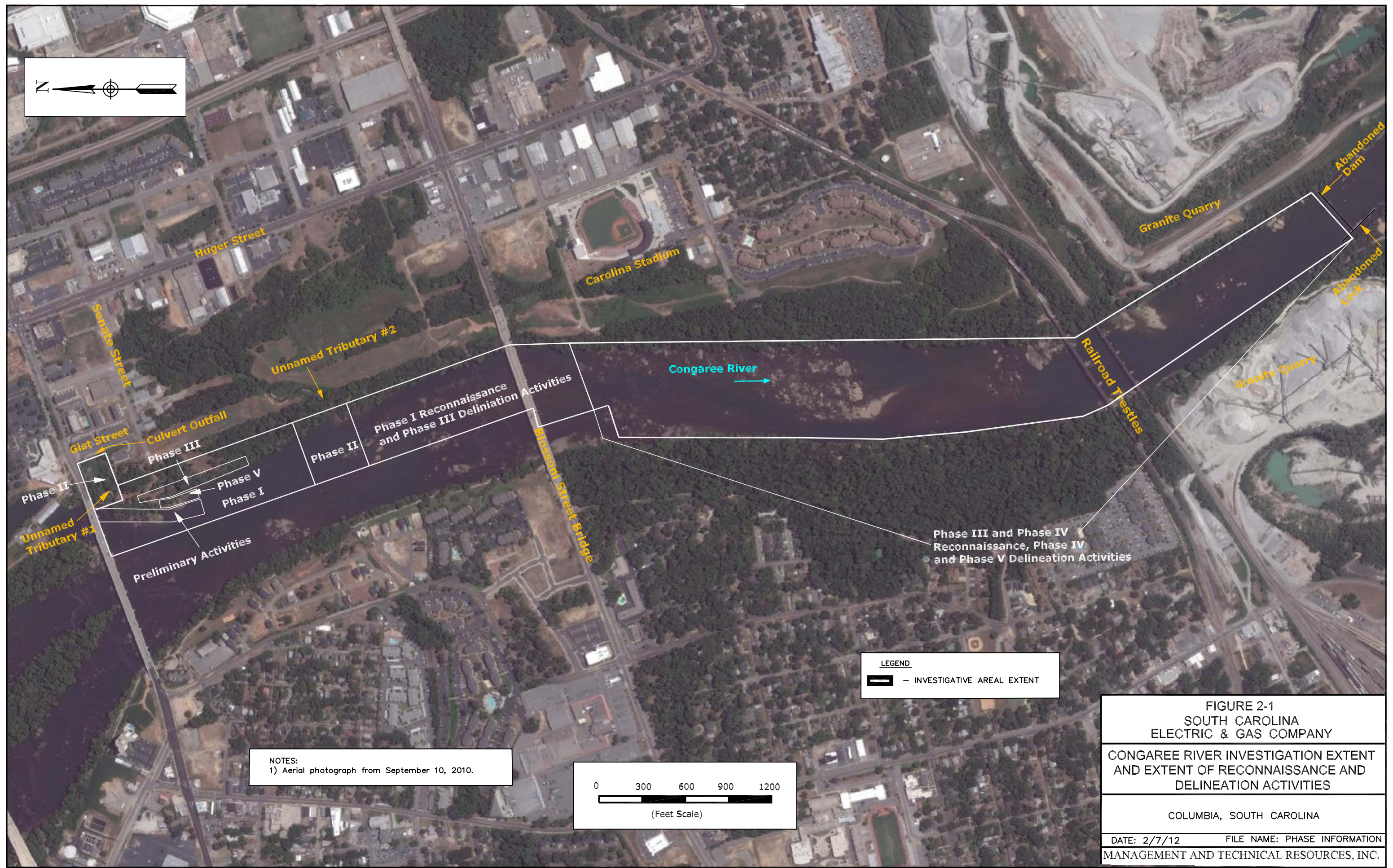
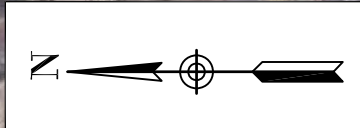


FIGURE 1-1
SOUTH CAROLINA
ELECTRIC & GAS COMPANY
CONGAREE RIVER FEATURES,
INVESTIGATIVE EXTENT, AND APPROXIMATE
SCDHEC JUNE 2010 SAMPLING LOCATIONS

COLUMBIA, SOUTH CAROLINA

DATE: 2/3/12 FILE NAME: OVERVIEW FIGURE
 MANAGEMENT AND TECHNICAL RESOURCES, INC.



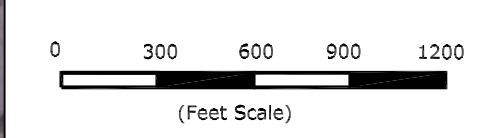
Phase II
 Unnamed Tributary #1
 Preliminary Activities
 Phase I
 Phase V
 Phase III
 Culvert Outfall
 Gist Street

Phase II
 Phase I Reconnaissance and Phase III Delineation Activities
 Unnamed Tributary #2

Congaree River

Phase III and Phase IV Reconnaissance, Phase IV and Phase V Delineation Activities

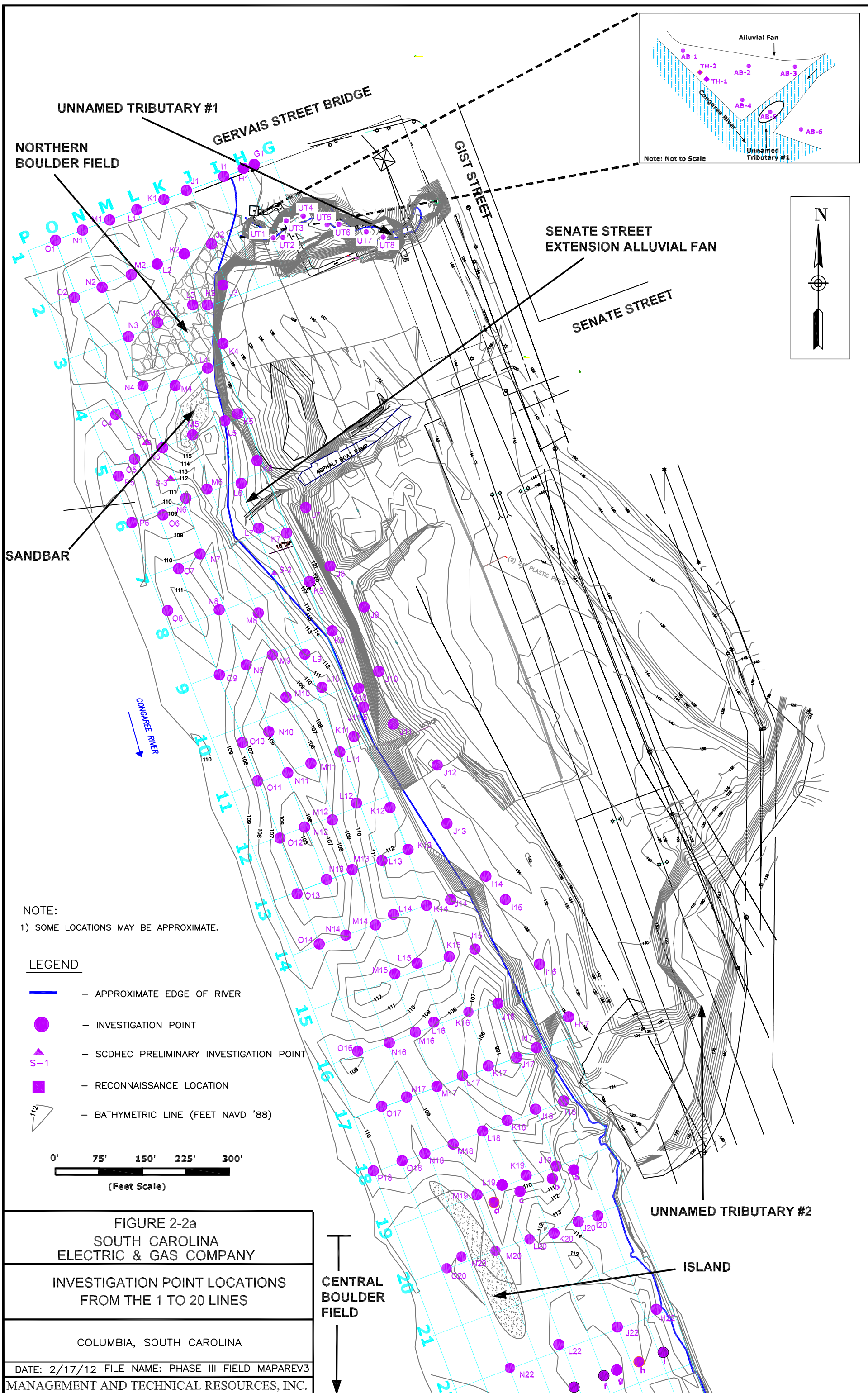
NOTES:
 1) Aerial photograph from September 10, 2010.

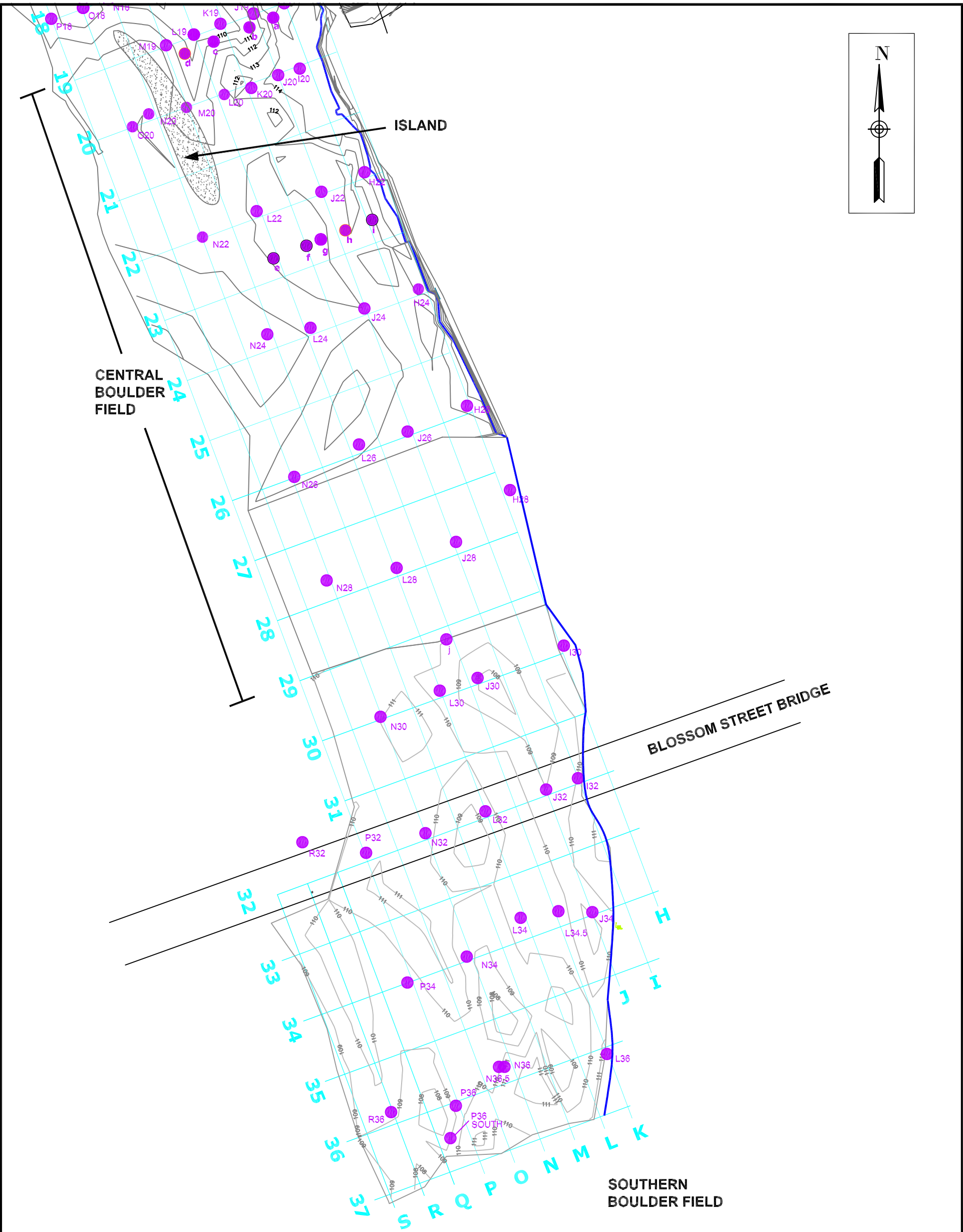
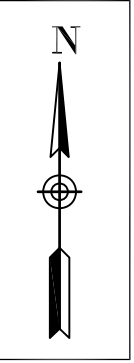


LEGEND
 — INVESTIGATIVE AREAL EXTENT






FIGURE 2-1
SOUTH CAROLINA
ELECTRIC & GAS COMPANY
CONGAREE RIVER INVESTIGATION EXTENT
AND EXTENT OF RECONNAISSANCE AND
DELINERATION ACTIVITIES

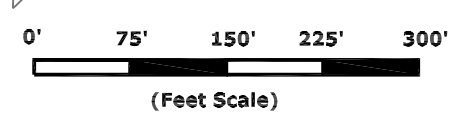
 COLUMBIA, SOUTH CAROLINA
 DATE: 2/7/12 FILE NAME: PHASE INFORMATION
 MANAGEMENT AND TECHNICAL RESOURCES, INC.





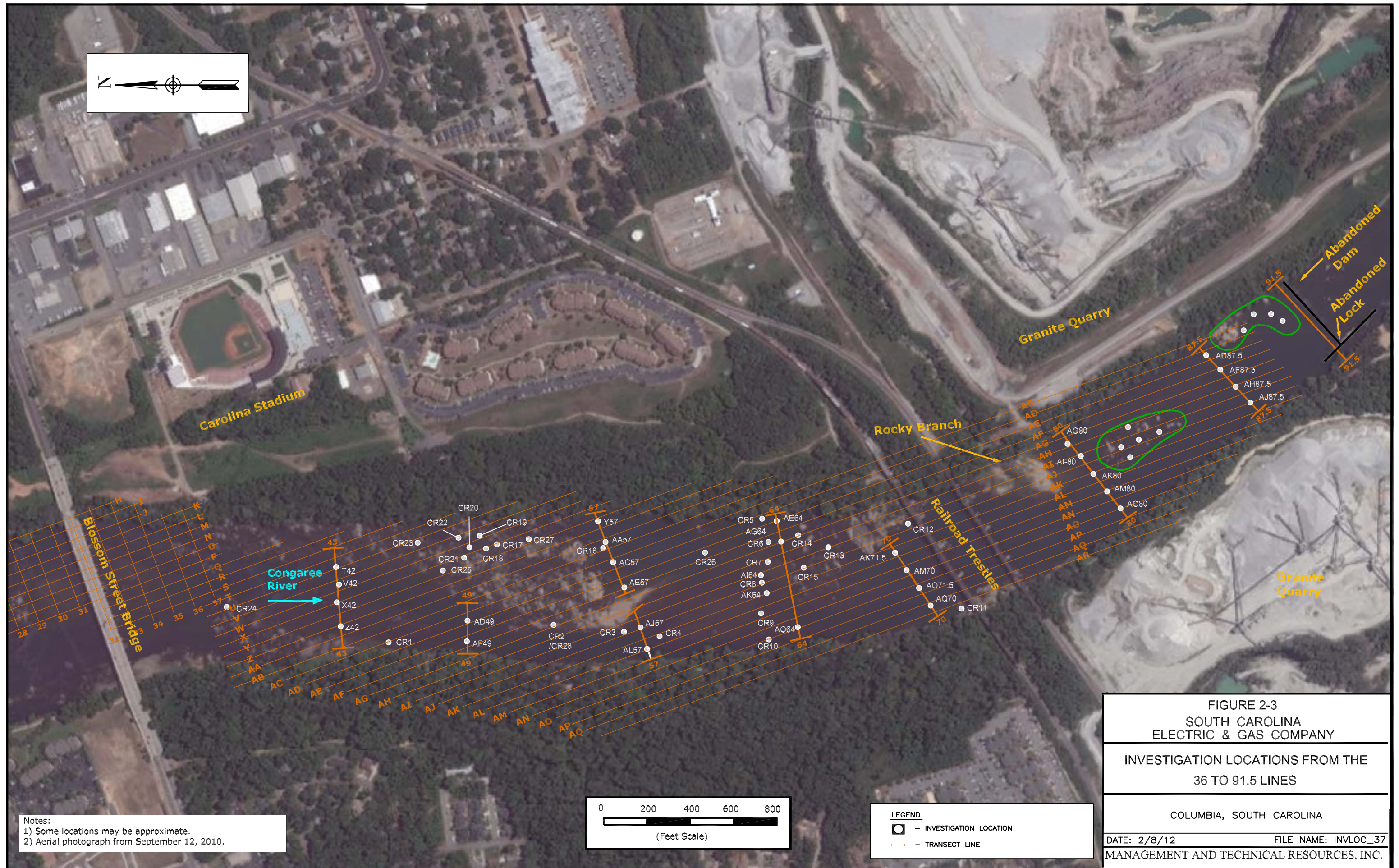
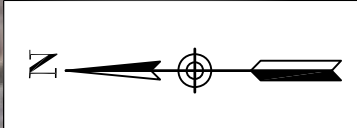
LEGEND

-  - APPROXIMATE EDGE OF RIVER
-  - INVESTIGATION POINT
-  - SCDHEC PRELIMINARY INVESTIGATION POINT
-  - RECONNAISSANCE LOCATION
-  - BATHYMETRIC LINE (FEET NAVD '88)

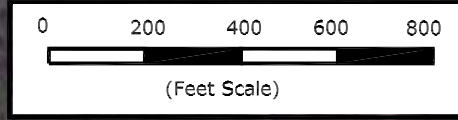


NOTE:
1) SOME LOCATIONS MAY BE APPROXIMATE.

<p>FIGURE 2-2b SOUTH CAROLINA ELECTRIC & GAS COMPANY</p>
<p>INVESTIGATION POINT LOCATIONS FROM THE 26 TO 36 LINES</p>
<p>COLUMBIA, SOUTH CAROLINA</p>
<p>DATE: 2/17/12 FILE NAME: PHASE III FIELD MAPAREV4 MANAGEMENT AND TECHNICAL RESOURCES, INC.</p>

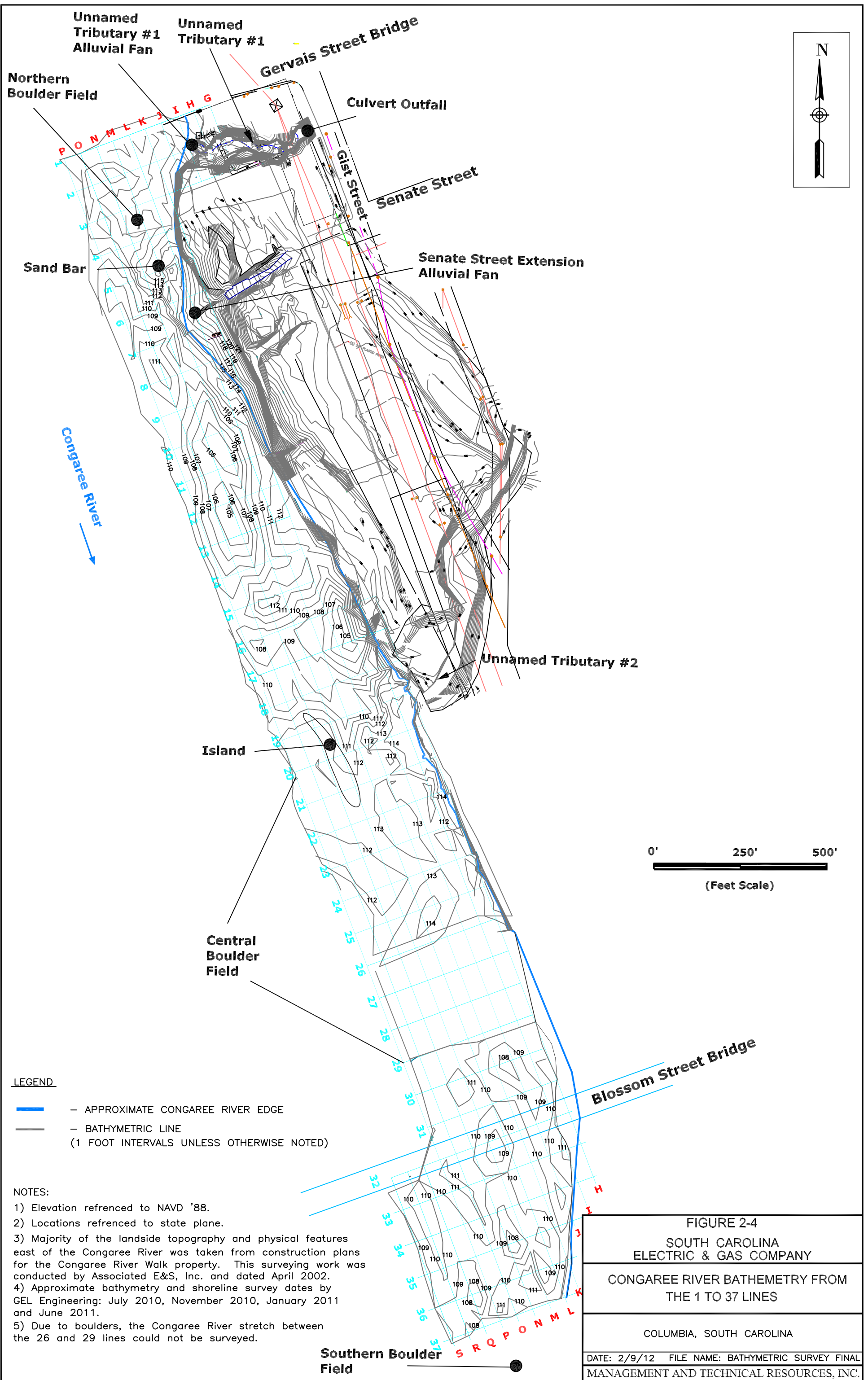


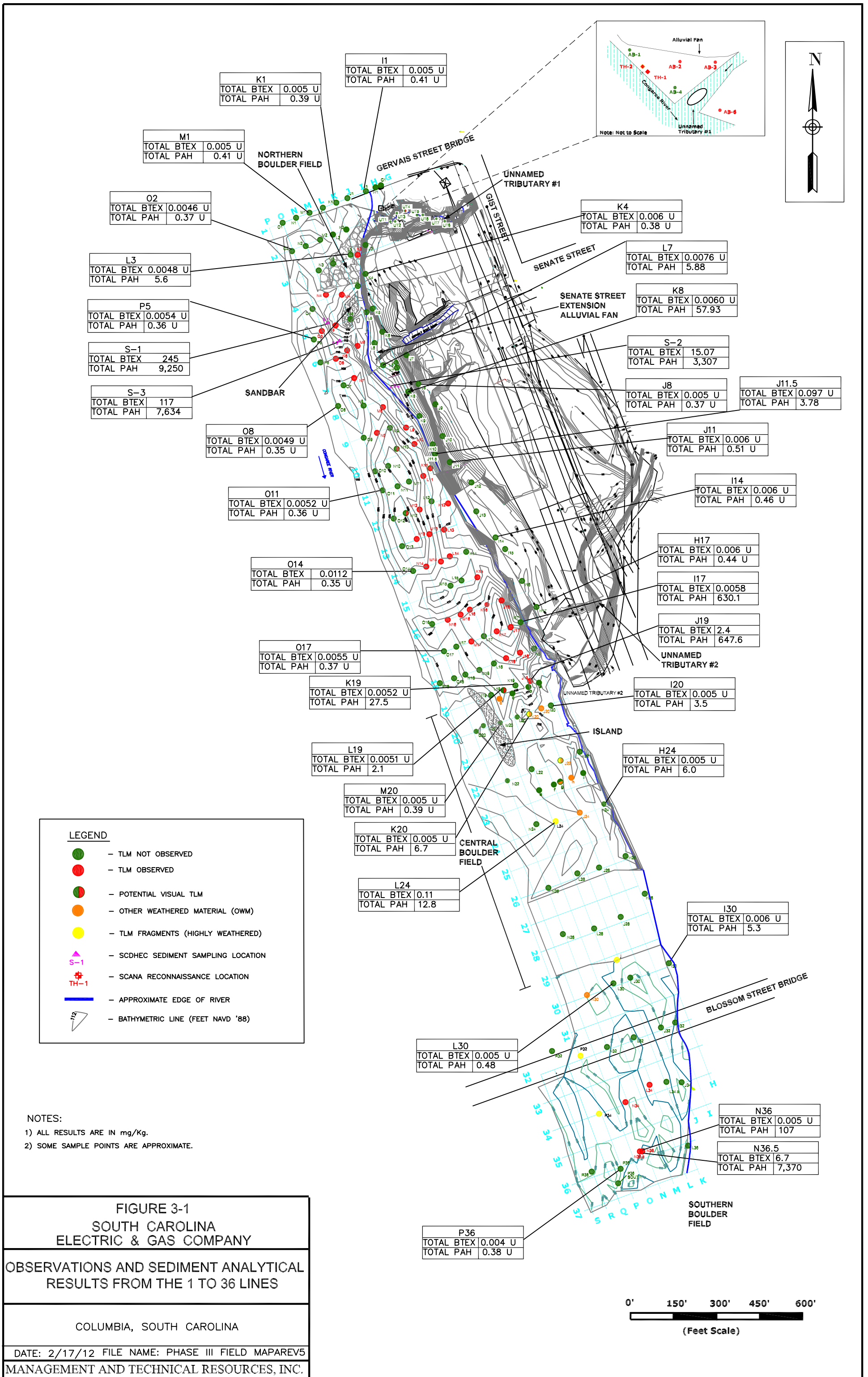
Notes:
 1) Some locations may be approximate.
 2) Aerial photograph from September 12, 2010.

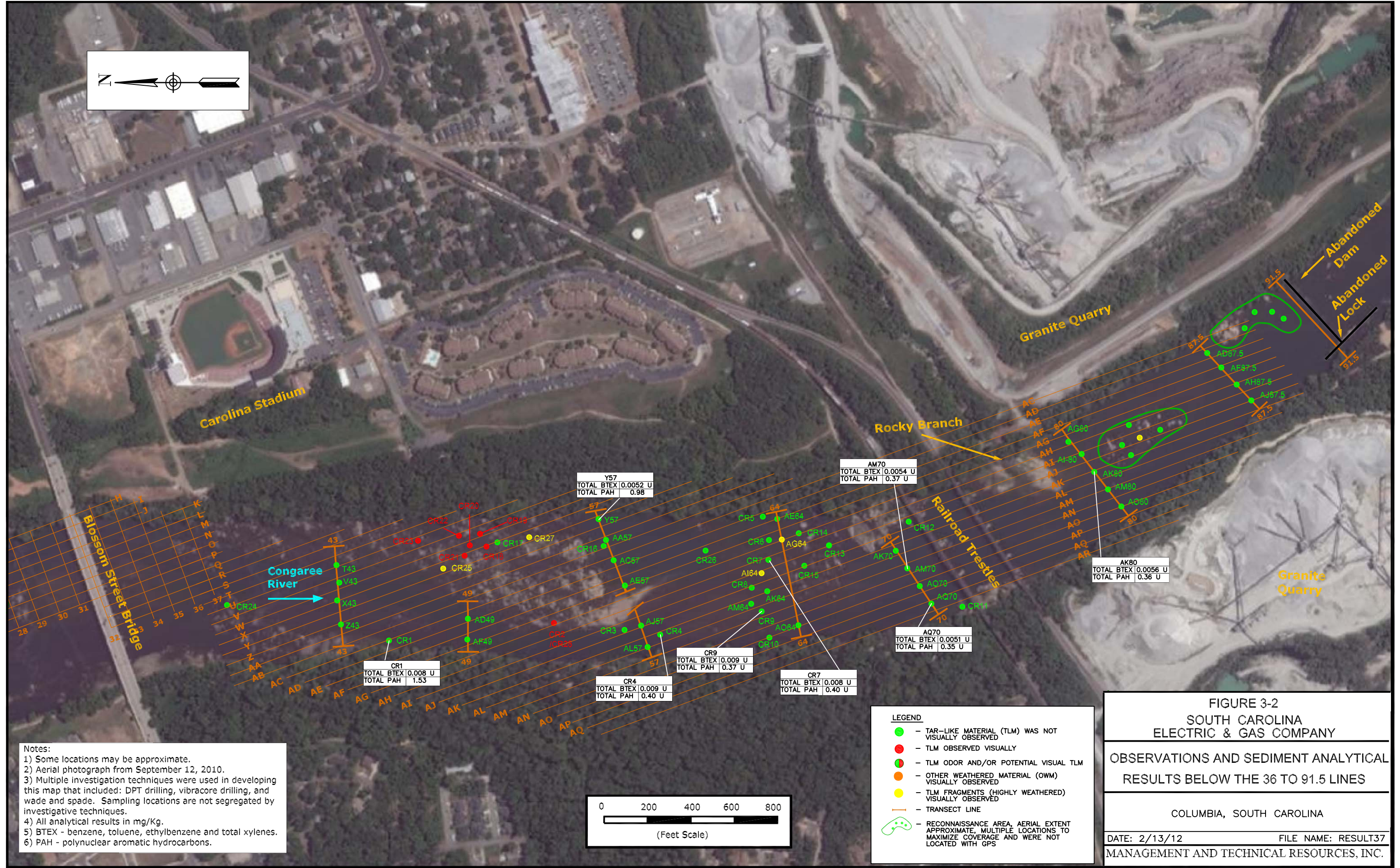
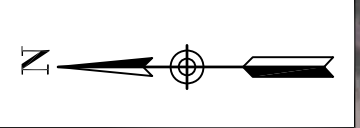


LEGEND	
	- INVESTIGATION LOCATION
	- TRANSECT LINE

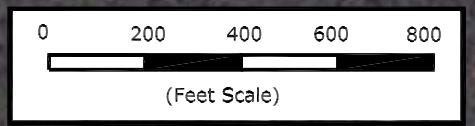
FIGURE 2-3
SOUTH CAROLINA
ELECTRIC & GAS COMPANY
 INVESTIGATION LOCATIONS FROM THE
 36 TO 91.5 LINES
 COLUMBIA, SOUTH CAROLINA
 DATE: 2/8/12 FILE NAME: INVLOC_37
 MANAGEMENT AND TECHNICAL RESOURCES, INC.







Notes:
 1) Some locations may be approximate.
 2) Aerial photograph from September 12, 2010.
 3) Multiple investigation techniques were used in developing this map that included: DPT drilling, vibracore drilling, and wade and spade. Sampling locations are not segregated by investigative techniques.
 4) All analytical results in mg/Kg.
 5) BTEX - benzene, toluene, ethylbenzene and total xylenes.
 6) PAH - polynuclear aromatic hydrocarbons.



LEGEND

- - TAR-LIKE MATERIAL (TLM) WAS NOT VISUALLY OBSERVED
- - TLM OBSERVED VISUALLY
- - TLM ODOR AND/OR POTENTIAL VISUAL TLM
- - OTHER WEATHERED MATERIAL (OWM) VISUALLY OBSERVED
- - TLM FRAGMENTS (HIGHLY WEATHERED) VISUALLY OBSERVED
- - TRANSECT LINE
- - RECONNAISSANCE AREA, AERIAL EXTENT APPROXIMATE, MULTIPLE LOCATIONS TO MAXIMIZE COVERAGE AND WERE NOT LOCATED WITH GPS

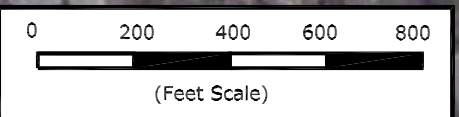
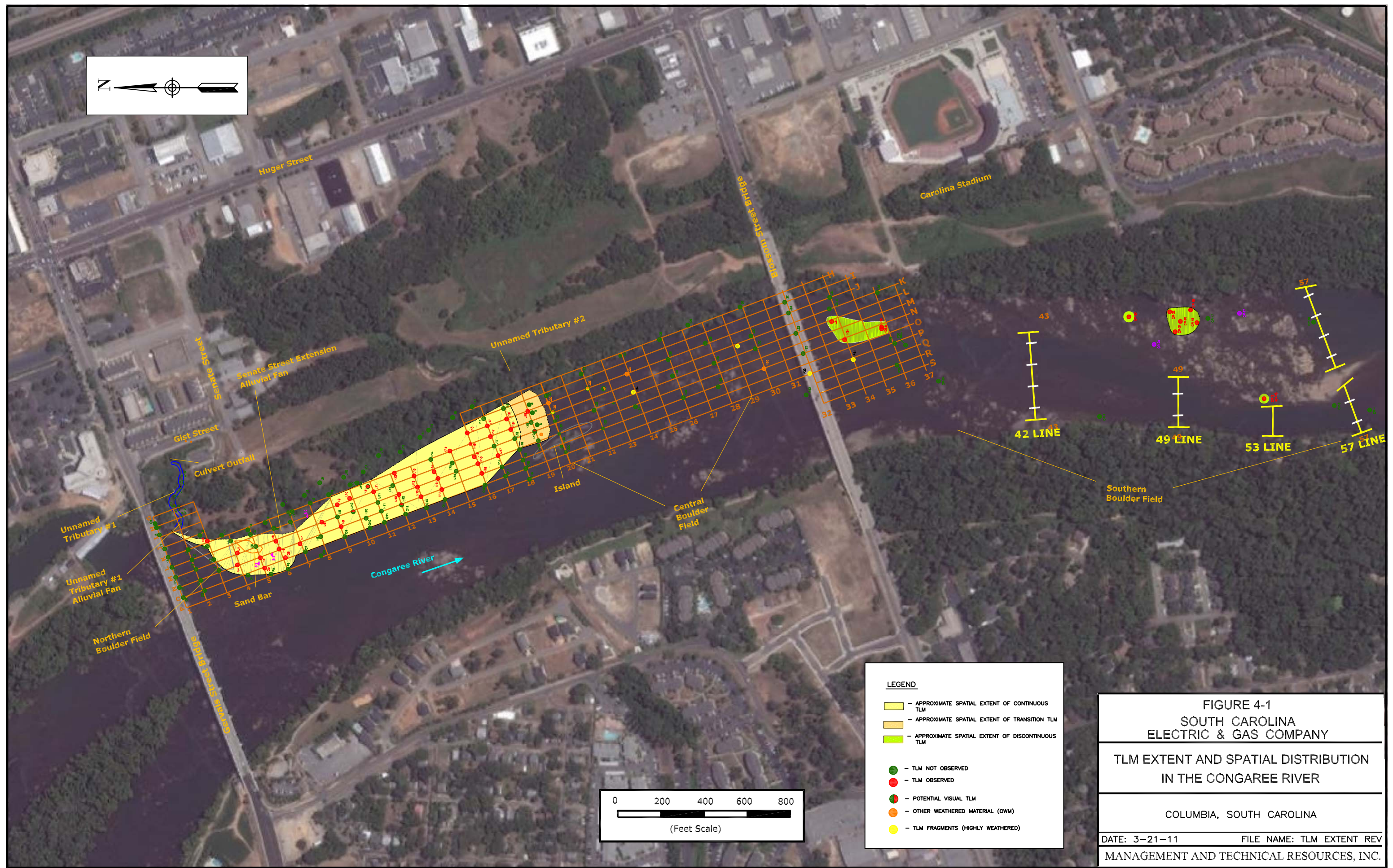
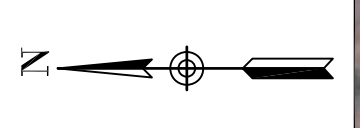
FIGURE 3-2
SOUTH CAROLINA
ELECTRIC & GAS COMPANY

OBSERVATIONS AND SEDIMENT ANALYTICAL
RESULTS BELOW THE 36 TO 91.5 LINES

COLUMBIA, SOUTH CAROLINA

DATE: 2/13/12 FILE NAME: RESULT37

MANAGEMENT AND TECHNICAL RESOURCES, INC.



LEGEND

- APPROXIMATE SPATIAL EXTENT OF CONTINUOUS TLM
- APPROXIMATE SPATIAL EXTENT OF TRANSITION TLM
- APPROXIMATE SPATIAL EXTENT OF DISCONTINUOUS TLM
- TLM NOT OBSERVED
- TLM OBSERVED
- POTENTIAL VISUAL TLM
- OTHER WEATHERED MATERIAL (OWM)
- TLM FRAGMENTS (HIGHLY WEATHERED)

FIGURE 4-1
SOUTH CAROLINA
ELECTRIC & GAS COMPANY

TLM EXTENT AND SPATIAL DISTRIBUTION
IN THE CONGAREE RIVER

COLUMBIA, SOUTH CAROLINA

DATE: 3-21-11 FILE NAME: TLM_EXTENT_REV
 MANAGEMENT AND TECHNICAL RESOURCES, INC.

APPENDIX A
PHOTOGRAPHS



1. Rubber raft containing geophysical equipment.



2. Performing geophysical survey from the Boston Whaler.



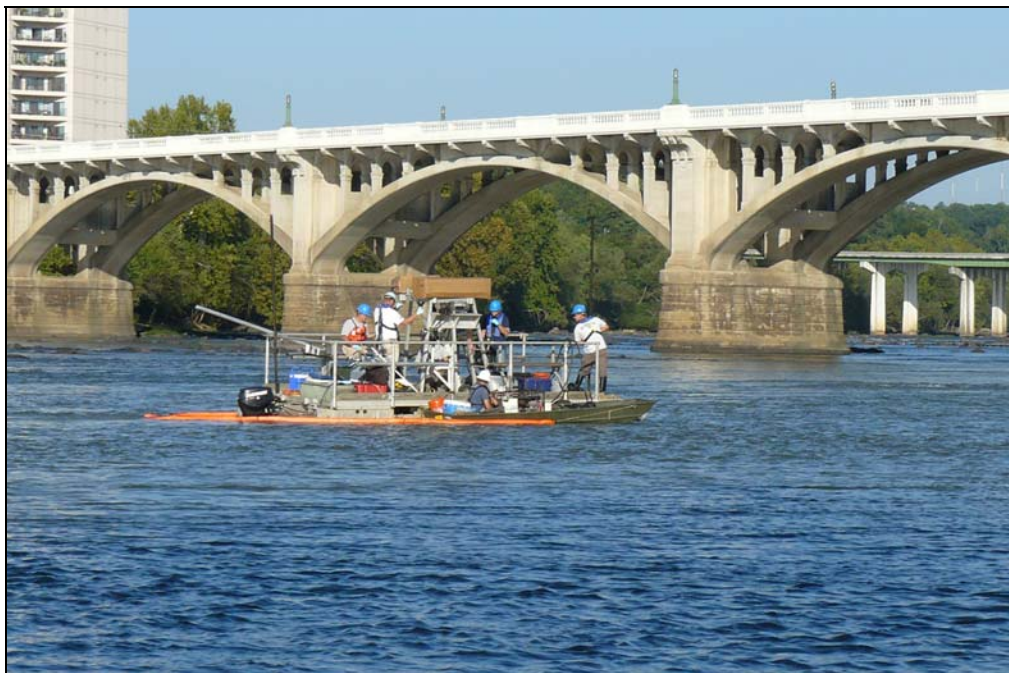
3. Performing geophysical survey via wading with equipment contained in a rubber raft.



4. Preparing pontoon boat and sidecar for launch.



5. Moving pontoon boat and sidecar to a coring location.



6. Pontoon boat and sidecar set up at a coring location.



7. Example of wade and spade activities.



8. TLM at the 36 Line using wade and spade techniques.



9. TLM at the 34 Line using wade and spade techniques.



10. Jon boats rigged together for vibracoring on the water.



11. Vibracore head and tripod on eastern Congaree River shoreline.



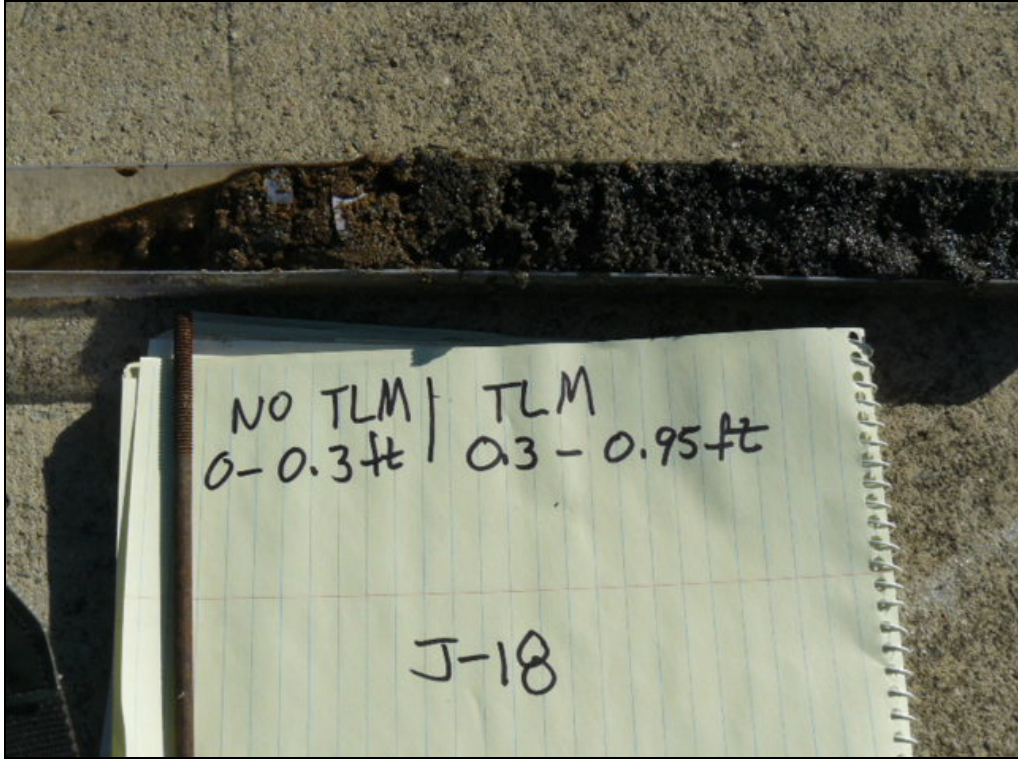
12. Sediment core sample N13 showing TLM.



13. Sediment core sample M16 showing TLM.



14. Sediment core sample K17 showing unimpacted sediment above TLM layer.



15. Sediment core sample J18 showing unimpacted sediment above TLM layer.



16. TLM "deposit" near the 53 Line.



17. Example of TLM “deposit” at the CR18 through CR23 locations.

APPENDIX B

SEDIMENT CORING AND SOIL BORING LOGS

Sediment Coring: UT1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

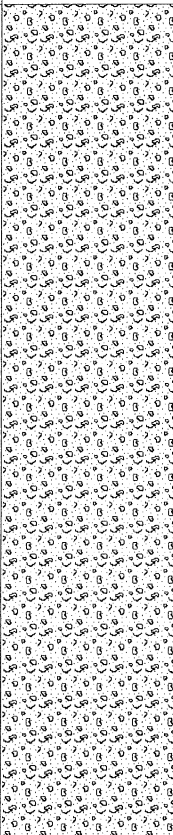
Bathymetric Elevation (feet, NAVD '88): 117.70
Northing: 786851.1
Easting: 1985174.1
Total Depth (feet): 1.4
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.4/1.4	NR		0-1.4 ft: gray, fine to coarse sand, fine to coarse gravel, vegetative matter.	0-1.4 ft: no TLM odor, no visual TLM
1					
				Maximum Depth: 1.4 feet	
				Notes: 1. Coring located in unnamed tributary (UT) #1. 2. NR - Not recorded since wading in water and moisture would negatively impact PID. 3. The coring was field located and location and elevation determined from bathymetric survey map.	
2					

Sediment Coring: UT2

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 115.90
Northing: 786851.8
Easting: 1985190.9
Total Depth (feet): 1.8
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.8/1.8	NR		0-1.8 ft: brown, medium to coarse sand and fine gravels.	0-1.8 ft: no TLM odor, no visual TLM
2				Maximum Depth: 1.8 feet. Notes: 1. Coring located in unnamed tributary (UT) #1. 2. NR - Not recorded since wading in water and moisture would negatively impact PID. 3. The coring was field located and location and elevation determined from bathymetric survey map.	

Sediment Coring: UT3

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

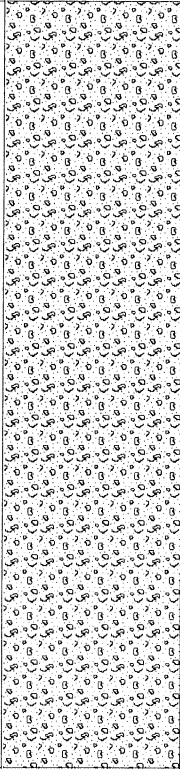
Bathymetric Elevation (feet, NAVD '88): 116.30
Northing: 786880.5
Easting: 1985196.6
Total Depth (feet): 1.4
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.5 ft: coarse sand, fine to coarse gravels.	
	1.4/1.4	NR		0.5-1.4 ft: gray, silt and very fine sand, muscovite flakes. (likely saprolite)	0-1.4 ft: no TLM odor, no visual TLM
1					
				Maximum Depth: 1.4 feet.	
				Notes: 1. Coring located in unnamed tributary (UT) #1. 2. NR - Not recorded since wading in water and moisture would negatively impact PID. 3. The coring was field located and location and elevation determined from bathymetric survey map.	
2					

Sediment Coring: UT4

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 116.00
Northing: 786888.8
Easting: 1985225.4
Total Depth (feet): 2.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	2.5/2.5	NR		0-2.5 ft: light gray to brown, medium to very coarse sand and fine to coarse gravels.	0-2.5 ft: no TLM odor, no visual TLM (see note #4)
2					
3				Maximum Depth: 2.5 feet Notes: 1. Coring located in unnamed tributary (UT) #1. 2. NR - Not recorded since wading in water and moisture would negatively impact PID. 3. The coring was field located and location and elevation determined from bathymetric survey. 4. TLM was not noted in sample but one or two blebs were noted on water surface when walking in stream. Gray sheen was also noted around bleb. 5. Depth range from 0.7 to 2.5 feet and at multiple locations.	

Sediment Coring: UT5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

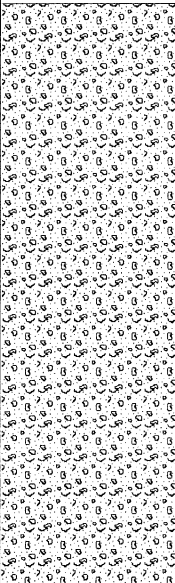
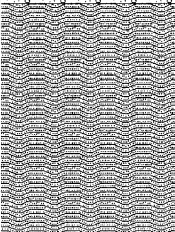
Bathymetric Elevation (feet, NAVD '88): 117.80
Northing: 786873.7
Easting: 1985267.2
Total Depth (feet): 1.9
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.9/1.9	NR	[Symbol]	0-1.9 ft: light brown to light gray silt and clay (saprolite).	0-1.9 ft: no TLM odor, no visual TLM
2				Maximum Depth: 1.9 feet Notes: 1. Coring located in unnamed tributary (UT) #1. 2. NR - Not recorded since wading in water and moisture would negatively impact PID. 3. The coring was field located and location and elevation determined from bathymetric survey map.	

Sediment Coring: UT6

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

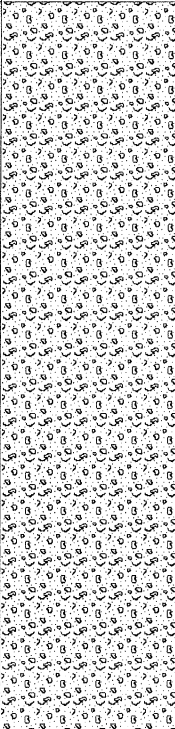
Bathymetric Elevation (feet, NAVD '88): 119.90
Northing: 786874.4
Easting: 1985287.6
Total Depth (feet): 0.7
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	NR		0-0.5 ft: brown, very coarse sand, fine to coarse gravels, boulders.	0-0.7 ft: no TLM odor, no visual TLM
				0.5-0.7 ft. saprolite	
1				Maximum Depth: 0.7 feet Notes: 1. Coring located in unnamed tributary (UT) #1. 2. NR - Not recorded since wading in water and moisture would negatively impact PID. 3. The coring was field located and location and elevation determined from bathymetric survey map.	

Sediment Coring: UT7

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 121.80
Northing: 786861.2
Easting: 1985334.9
Total Depth (feet): 0.25
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.25/0.25	NR		0-0.25 ft: brown, medium to very coarse sand, gravels, boulders.	0-0.25 ft: no TLM odor, no visual TLM
				Maximum Depth: 0.25 feet Notes: 1. Coring located in unnamed tributary (UT) #1. 2. NR - Not recorded since wading in water and moisture would negatively impact PID. 3. The coring was field located and location and elevation determined from bathymetric survey map.	

Sediment Coring: UT8

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

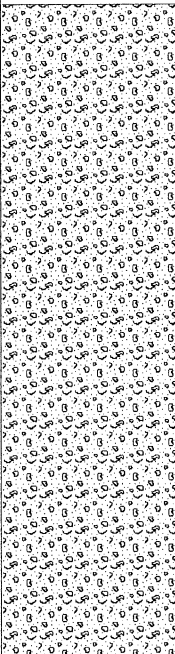

Bathymetric Elevation (feet, NAVD '88): 124.80
Northing: 786852.4
Easting: 1985364.0
Total Depth (feet): 2.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	2.0/2.0	NR	[Symbol]	0-2.0 ft: brown, silt and clay (saprolite).	0-2.0 ft: no TLM odor, no visual TLM, minor amounts of light gray sheen noted as digging
2				Maximum Depth: 2.0 feet	
3				Notes: 1. Coring located in unnamed tributary (UT) #1. 2. NR - Not recorded since wading in water and moisture would negatively impact PID. 3. The coring was field located and location and elevation determined from bathymetric survey map.	

Sediment Coring: AB1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: note #1
Easting: note #1
Total Depth (feet): 1.0
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
	0.85/1.0	0.2		0-0.9 ft: brown grading to gray, medium to very coarse sand and fine to coarse gravels. - larger gravels at 0.75-0.90.	0-1.0 ft: no TLM odor, no visual TLM
1				0.9-1.0 ft: gray, silt and fine to medium sand, some mica.	
				Total Depth: 1.0 feet. Notes: 1. The alluvial fan area north of the confluence of the Congaree River and Unnamed Tributary #1, and the coring location were not surveyed. Therefore an elevation and location were not defined. The approximate location of the coring on the alluvial fan is shown on the coring location figure. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (85%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AB2

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: note #1
Easting: note #1
Total Depth (feet): 1.0
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
				0-0.25 ft: brown, fine to medium sand.	0-0.25 ft: no TLM odor, no visual TLM
				0.25-0.55 ft: gray, silt with some fine sand.	0.25-0.55 ft: slight to moderate TLM odor, no visual TLM
	0.8/1.0	11.5		0.55-1.0 ft: gray, medium to coarse sand and fine gravels, trace silt.	0.55-0.8 ft: indication of TLM odor was not recorded but based on visual observation likely existed, minor occurrence of TLM blebs
1				Total Depth: 1.0 feet. Notes: 1. The alluvial fan area north of the confluence of the Congaree River and Unnamed Tributary #1, and the coring location were not surveyed. Therefore an elevation and location were not defined. The approximate location of the coring on the alluvial fan is shown on the coring location figure. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (80%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AB3

Client: SCANA Services, Inc.

Site Location:

Date Started:

Date Completed:

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1

Northing: note #1

Easting: note #1

Total Depth (feet): 2.3

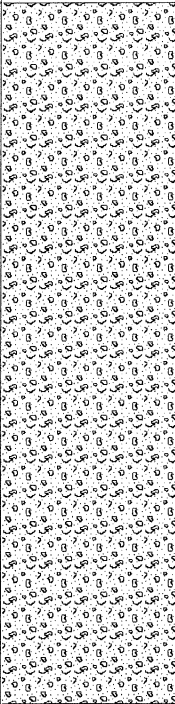
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
0.6		3.4	(Symbol: small 'B' characters)	0-2.3 ft: brown to gray, medium to very coarse sand and fine to coarse gravels. - fine to coarse gravels and color change to gray at 0.6 feet	0-1.2 ft: no TLM odor, no visual TLM
1.2	1.1/2.3		(Symbol: small 'B' characters)		
2.3		10.1	(Symbol: small 'B' characters)		1.2-2.3 ft: slight to moderate TLM odor, minor occurrence (<5%) of TLM blebs
3.0				Total Depth: 2.3 feet. Notes: 1. The alluvial fan area north of the confluence of the Congaree River and Unnamed Tributary #1, and the coring location were not surveyed. Therefore an elevation and location were not defined. The approximate location of the coring on the alluvial fan is shown on the coring location figure. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 49%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AB4

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: note #1
Easting: note #1
Total Depth (feet): 0.9
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
	0.9/0.9	0		0-0.9 ft: brown, medium to coarse sand and fine to coarse gravels.	0-0.9 ft: no TLM odor, no visual TLM
1				Total Depth: 0.9 feet. Note: 1. The alluvial fan area north of the confluence of the Congaree River and the Unnamed Tributary #1, and the coring location were not surveyed. Therefore an elevation and location were not defined. The approximate location of the coring on the alluvial fan is shown on the coring location figure.	

Sediment Coring: AB5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: note #1
Easting: note #1
Total Depth (feet): no recovery
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface Boulders were present at and in the near vicinity of AB5 and therefore, samples of the sediment could not be obtained.	
1				Note: 1. The alluvial fan area north of the confluence of the Congaree River and Unnamed Tributary #1, and the coring location were not surveyed. Therefore, an elevation and location were not defined. The approximate location of the coring is shown on the coring location figure.	

Sediment Coring: AB6/I2

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): 116.00
Northing: 786858.7
Easting: 1985114.2
Total Depth (feet): 1.5
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
	0.95/1.5	0.2		0-0.85 ft: brown to black, medium to very coarse sand and fine to coarse gravels.	0-0.5 ft: no TLM odor, no visual TLM
1		0.7		0.85-1.5 ft: gray, fine to medium sand with some silt and gravels.	0.5-0.8 ft: TLM odor was not noted, stained black and sheen, no real apparent TLM noted but rather staining and sheen
2				Total Depth : 1.5 feet. Notes: 1. For lithologies and TLM observations, depths adjusted based on recovery. 2. Recovery was limited (approximately 68%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	0.8-1.5 ft: no TLM odor, no visual TLM

Sediment Coring: G1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): (see note #1)
Northing: 786977.8
Easting: 1985141.3
Total Depth (feet): 1.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.5/1.5	NR		0-1.5 ft: gray, silt and clay with some fine sand.	0-1.5 ft: no TLM odor, no visual TLM
1					
2				Maximum Depth: 1.5 feet. Note: 1. Located on the shoreline and survey did not extend to this location. 2. NR-Not recorded since wading in water and moisture would negatively impact PID.	

Sediment Coring: H1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

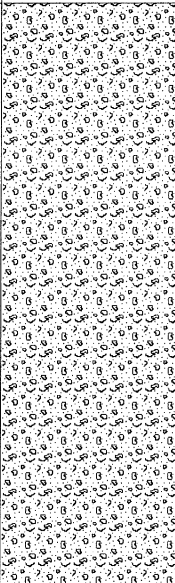
Bathymetric Elevation (feet, NAVD '88): 115.52
Northing: 786970.9
Easting: 1985122.5
Total Depth (feet): 1.1
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.1/1.1	NR	0-0.4 ft: brown, medium to very coarse sand and fine gravels.	0.4-1.1 ft: brown, gray, silt and fine to medium sand, mica.	0-1.1 ft: no TLM odor, no visual TLM
1				Maximum Depth: 1.1 feet. Note: 1. The coring was field located on the basemap and the northing and easting was determined from "the basemap paper space." 2. Depths are approximate. 3. NR-Not recorded since wading in river and moisture would negatively impact PID. 4. Elevation from survey laser level shot since bathymetric survey did not extend to this location.	

Sediment Coring: I1

Client: SCANA Services, Inc.
Site Location:
Date Started:
Date Completed:
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 114.27
Northing: 786957.3
Easting: 1985088.8
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: brown, medium to very coarse sand and fine to coarse gravels.	0-0.5 ft: sensory observations not recorded but was likely no TLM odor, no visual TLM
				Maximum Depth: 0.5 feet. Note: 1. NR- Not recorded since wading in river and moisture would negatively impact PID. 2. Elevation from survey laser level shot since bathymetric survey did not extend to this location.	
1					

Sediment Coring: J1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

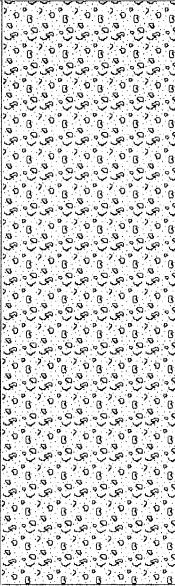
Bathymetric Elevation (feet, NAVD '88): 114.64
Northing: 786947.5
Easting: 1985004.9
Total Depth (feet): 1.25
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.4 ft: brown, medium to very coarse sand and fine to coarse gravels, mica.	0-0.4 ft: no TLM odor, no visual TLM
	1.25/1.25	NR		0.4-1.25 ft: gray, silt and fine sand, trace gravels, mica.	0.4-1.25 ft: no TLM odor, no visual TLM
1					
				Maximum Depth: 1.25 feet. Note: 1. Depth intervals approximate. 2. NR-Not recorded since wading in river and moisture would negatively impact PID. 3. Elevation from survey laser level shot since bathymetric survey did not extend to this location.	
2					

Sediment Coring: K1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 112.54
Northing: 186917.1
Easting: 1984985.3
Total Depth (feet): 0.25
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0	0.25/0.25	NR		Bathymetric Surface 0-0.25 ft: brown, medium to very coarse sand with trace of fine gravels. -at bottom: dark gray, silt with some wood fragments.	0-0.25 ft: no TLM odor, no visual TLM
				Maximum Depth: 0.25 feet. Note: 1. NR-Not recorded since wading in river and moisture would negatively impact PID. 2. Elevation from survey laser level shot since bathymetric survey did not extend to this location.	

Sediment Coring: L1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 113.12
Northing: 786899.5
Easting: 1984938.5
Total Depth (feet): 0.25
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.25/0.25	NR		0-0.25 ft: brown, sand, and some gravels.	0-0.25 ft: no TLM odor, no visual TLM
				Maximum Depth: 0.25 feet. Note: 1. NR-Not recorded since wading in river and moisture could negatively impact PID. 2. Elevation from suvey laser level shot since bathymetric survey did not extend to this location.	

Sediment Coring: M1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 113.98
Northing: 786882.0
Easting: 1984891.7
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
			[Dotted Pattern]	0-0.5 ft: brown, medium sand.	0-0.5 ft: no TLM odor, no visual TLM
	1.0/1.0	NR	[Vertical Lines Pattern]	0.5-1.0 ft: gray, silt with wood fragments.	0.5-1.0 ft: no TLM odor, no visual TLM
1				Maximum Depth: 1.0 feet. Note: 1. NR-Not recorded since wading in river and moisture could negatively impact PID. 2. Elevation from survey laser level shot since bathymetric survey did not extend to this location.	

Sediment Coring: N1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

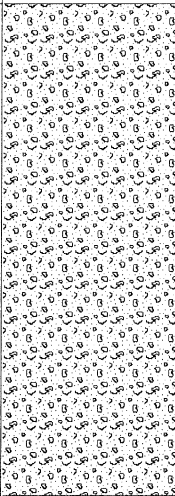
Bathymetric Elevation (feet, NAVD '88): 113.82
Northing: 786846.4
Easting: 19848844.9
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: brown, very coarse sand with some gravels.	0-0.5 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.5 feet. Note: 1. NR-Not recorded since wading in river and moisture could negatively impact PID. 2. Elevation from survey laser level shot since bathymetric survey did not extend to this location.	

Sediment Coring: O1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 114.04
Northing: 786846.8
Easting: 1984798.0
Total Depth (feet): 0.42
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.42/0.42	NR		0-0.42 ft: brown, coarse sand, trace to some gravels.	0-0.42 ft: no TLM odor, no visual TLM
				Maximum Depth: 0.42 feet. Note: 1. NR-Not recorded since wading in river and moisture could negatively impact PID. 2. Elevation from survey laser level shot since bathymetric survey did not extend to this location.	
1					

Sediment Coring: K2

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

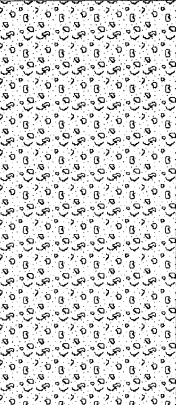
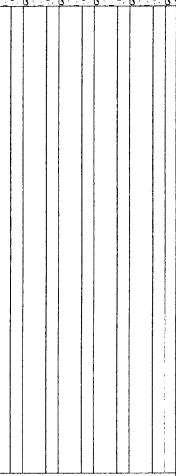
Bathymetric Elevation (feet, NAVD '88): 114.30
Northing: 786823.5
Easting: 1985020.4
Total Depth (feet): 0.6
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.6/0.6	NR		0-0.45 ft: brown, medium to very coarse sand and fine to coarse gravel.	0-0.6 ft: no TLM odor, no visual TLM
				0.45-0.6 ft: brown, medium to very coarse sand and fine to coarse gravels, some weathered schist.	
1				Maximum Depth: 0.6 feet. Notes: 1. NR- Not recorded due to PID malfunctioning. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: M2

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 112.70
Northing: 786787.5
Easting: 1984929.0
Total Depth (feet): 0.75
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.75/0.75	NR		0-0.35 ft: brown, medium to very coarse sand and fine gravels.	0-0.75 ft: no TLM odor, no visual TLM
				0.35-0.75 ft: dark gray, silt to weathered angular schist.	
1				Maximum Depth: 0.75 feet. Notes: 1. NR- Not recorded due to PID malfunctioning. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: N2

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 113.00
Northing: 786765.6
Easting: 1984878.5
Total Depth (feet): 0.8
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
	0.8/0.8	NR		0-0.8 ft: brown, medium to very coarse sand and fine to coarse gravels. -at 0.4-0.8 feet: trace of silt.	0-0.8 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.8 feet. Notes: 1. NR- Not recorded due to PID malfunctioning. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: O2

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 6, 2010
Date Completed: October 6, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 112.80
Northing: 786747.9
Easting: 1984830.7
Total Depth (feet): 1.4
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.4/1.4	NR		0-1.4 ft: brown, medium to very coarse sand and fine to coarse gravel. -silt content increasing from ~0.7 to 1.4 feet to trace to some .	0-1.4 ft: no TLM odor, no visual TLM
1					
				Maximum Depth: 1.4 feet. Notes: 1. NR- Not recorded due to PID malfunctioning. 2. Core elevation based on bathymetric survey map.	
2					

Soil Boring: J3

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 28, 2011
Date Completed: July 28, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 130.00
Northing: 786769.6
Easting: 1985087.3
Total Depth (Ft.): 15.0
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
0-3	3.1/5.0	0		0-3.5 ft: brown, clay with some silt, dry.	
3.5-5				3.5-10 ft: brown, very fine to medium sand and silt, dry.	
5-5.5				- 5.0-5.5 ft: trace clay layers, dry to moist	
5.5-10	2.5/5.0	NR			0-15 ft: no TLM odor, no visual TLM
10-12.5				10.0-12.5 ft: brown, fine to medium sand, trace to some silt, moist.	
12.5-13.8	2.6/5.0			12.5-13.8 ft: tan, fine to coarse sand, trace gravels, moist to wet.	
13.8-15.0				13.8-15.0 ft: gray, fine to very coarse sand, trace to some fine to medium gravels and trace silt, wet.	
15.0				Total Depth: 15.0 feet.	
15.0-20				Notes: 1. Elevation is based on bathymetric survey map and located to closest contour line. 2. NR- Not recorded due to PID malfunctioning.	

Sediment Coring: K3

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

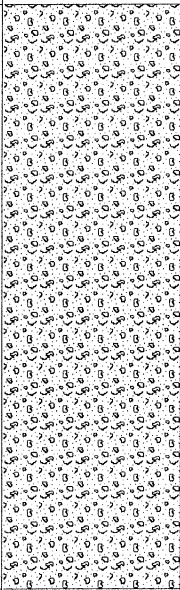
Bathymetric Elevation (feet, NAVD '88): 115.70
Northing: 786735.2
Easting: 1985060.4
Total Depth (feet): 1.0
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.9/1.0	8.0		0-1.0 ft: gray, medium to very coarse sand and fine to coarse gravels.	0-0.3 ft: no TLM odor, no visual TLM 0.3-1.0 ft: moderate TLM odor, intermittent TLM blebs (less than 5% of interval)
1				Refusal: 1.0 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was 90% and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: L3

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 114.80
Northing: 786735.3
Easting: 1985035.1
Total Depth (feet): 0.25
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.25/0.25	NR		0-0.25 ft: brown, sand and gravels.	0-0.25 ft: no TLM odor, no visual TLM
				Maximum Depth: 0.25 feet. Notes: 1. NR-Not recorded since wading in river and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: M3

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 114.20
Northing: 786705.0
Easting: 1984974.5
Total Depth (feet): 0.25
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.25/0.25	NR		0-0.25 ft: brown, fine sand with some gravel.	0-0.25 ft: no TLM odor, no visual TLM
				Refusal: 0.25 feet. Notes: 1. NR- Not recorded since wading in river and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: N3

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

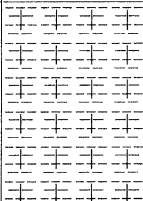
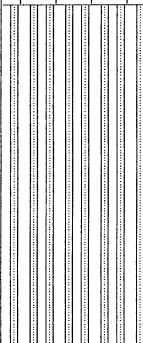
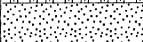
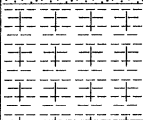
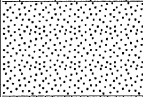

Bathymetric Elevation (feet, NAVD '88): 113.50
Northing: 786680.7
Easting: 1984924.0
Total Depth (feet): 0.20
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.2/0.2	NR		0-0.2 ft: brown, fine to coarse sand, with some gravel.	0-0.2 ft: no TLM odor, no visual TLM
				Maximum Depth: 0.2 feet. Notes: 1. NR-Not recorded since wading in river and moisture would negatively impact PID. 2. Core elevations based on bathymetric survey map.	

Soil Boring: K4

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 28, 2011
Date Completed: July 28, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

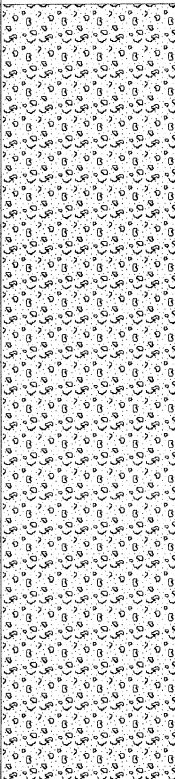
Ground Elevation (feet, NAVD '88): 128.00
Northing: 786668.5
Easting: 1985087.3
Total Depth (Ft.): 14.0
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
0-3.5	3.4/5.0			0-3.5 ft: brown, clay with trace silt.	
3.5-9.3				3.5-9.3 ft: brown-orange, very fine to fine sand and silt, dry.	
9.3-10.0		NR		9.3-10.0 ft: tan, fine to medium sand, dry.	0-14 ft: no TLM odor, no visual TLM
10.0-12.0	2.8/5.0			10.0-12.0 ft: brown, clay with some silt, moist.	
12.0-13.6				12.0-13.6 ft: tan to light orange, fine to medium sand, moist to wet.	
13.6-14.0	2.0/4.0			13.6-14.0 ft: gray, silt and very fine sand, micaceous, wet.	
14.0				Total Depth: 14.0 feet.	
15-20				Notes: 1. Elevation is based on bathymetric survey map and located to closest contour line. 2. NR- Not recorded due to PID malfunctioning.	

Sediment Coring: L4

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2011
Date Completed: October 7, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): 115.10
Northing: 786626.1
Easting: 1985060.8
Total Depth (feet): 1.0
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.8/1.0	0		0-1.0 ft: brown, fine to very coarse sand and fine to coarse gravel.	0-1.0 ft: no TLM odor, no visual TLM
1				Refusal: 1.0 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (80%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: M4

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): 114.10
Northing: 786595.8
Easting: 1985004.7
Total Depth (feet): 1.5
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.5/1.5	14.6		0-1.5 ft: brown to gray, medium to very coarse sand and fine to coarse gravel.	0-0.6 ft: no TLM odor, no visual TLM 0.6-1.3 ft: slight to moderate TLM odor, no visual TLM 1.3-1.5 ft: moderate TLM odor, TLM blebs and sheen
		17.6		Refusal noted at 1.5 feet but had 1.7 feet recovery. Adjusted depths to refusal depth. Note: 1. Core elevation based on bathymetric survey map.	
2					

Sediment Coring: N4

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 112.50
Northing: 786595.8
Easting: 1984949.2
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	NR	0-1.0 ft: brown, sand with gravel.		0-0.75 ft: no TLM odor, no visual TLM 0.75-1.0 ft: slight TLM odor, TLM observed at 1.0 foot
1				Maximum Depth: 1.0 feet. Notes: 1. NR-Not recorded since wading in river and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: O4

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 4, 2010
Date Completed: October 4, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 110.80
Northing: 786546.1
Easting: 1984902.3
Total Depth (feet): 2.9
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.3 ft: large gravels.	0-0.3 ft: no TLM odor, no visual TLM
				0.3-0.8 ft: brown, medium to very coarse sand, fine to coarse gravels.	0.3-0.8 ft: no TLM odor, no visual TLM
1				0.8-2.9 ft: saprolite.	
	1.2/2.9	NR			0.8-3.0 ft: no TLM odor, no visual TLM
3				DPT Refusal: 2.9 feet.	
				Notes: 1. NR-Not Recorded 2. Core elevation based on bathymetric survey map. 3. For lithologies and TLM observations, depths adjusted based on recovery. 4. Recovery was limited (approximately 41%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Soil Boring: K5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 28, 2011
Date Completed: July 28, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

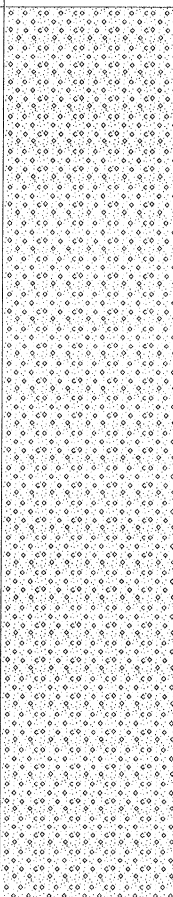
Ground Elevation (feet, NAVD '88): 124.00
Northing: 786547.2
Easting: 1985112.5
Total Depth (Ft.): 11.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations		
0				Ground Surface			
0-3.5	2.5/5.0	NR	[Symbol: Horizontal dashes]	0-3.5 ft: brown, clay with some silt, moist.	0-11.5 ft: no TLM odor, no visual TLM		
3.5-6.0			[Symbol: Vertical lines]	3.5-6.0 ft: brown, very fine to fine sand and silt, moist.			
6.0-9.25			[Symbol: Horizontal dashes]	6.0-9.25 ft: brown, clay, trace silt. moist to very moist.			
9.25-10.3	[Symbol: Stippled]		9.25-10.3 ft: tan, fine to medium sand, trace to some silt, wet.				
10.3-11.5	[Symbol: Cross-hatched]		10.3-11.5 ft: gray, silt, clay, very fine to fine sand, trace fine gravel, wet.				
12						Total Depth: 11.5 feet.	
13						Notes: 1. Elevation is based on bathymetric survey map and located to closest contour line. 2. NR- Not recorded due to PID malfunctioning.	
14							
15							

Sediment Coring: L5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): 115.80
Northing: 786535.1
Easting: 1985090.6
Total Depth (feet): 2.0
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.1/2.0	0.4		0-2.0 ft: brown to tan, fine to coarse sand, trace very coarse sand.	0-0.2 ft: no TLM odor, no visual TLM 0.2-0.4 ft: slight TLM odor, no visual TLM 0.4-2.0 ft: no TLM odor, no visual TLM
2				Refusal: 2.0 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (55%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: M5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): 116.20
Northing: 786510.9
Easting: 1985035.0
Total Depth (feet): 1.5
Drilling Method: Whacker/Macrocore

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.2/1.5	3.9		0-1.1 ft: brown, medium to very coarse sand and fine to coarse gravels.	0-1.5 ft: no TLM odor, no visual TLM
1				1.1-1.5 ft: dark gray, fine to coarse sand, trace gravels.	
2				Refusal: 1.5 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (80%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: N5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 1, 2010
Date Completed: October 1, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

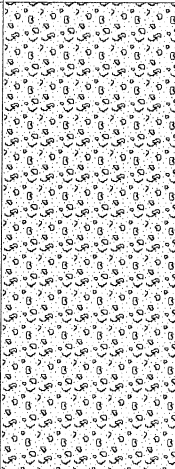
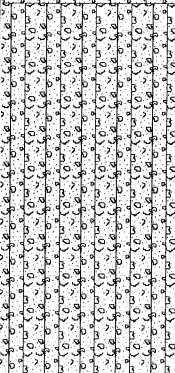
Bathymetric Elevation (feet, NAVD '88): 114.30
Northing: 786488.7
Easting: 1984983.0
Total Depth (feet): 4.0
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1				0-4.0 ft: gray to black, medium to very coarse sand and fine gravels.	0-0.5 ft: no TLM odor, no visual TLM 0.5-4.0 ft: moderate to strong TLM odor, weathered TLM, acting as a "binder" for sand grains and present in residual amounts. Also, lower viscosity and less weathered TLM noted in some layers.
2	1.85/4.0	8.4			
3					
4				DPT Refusal: 4.0 feet.	
5				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 46%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: O5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 1, 2010
Date Completed: October 1, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

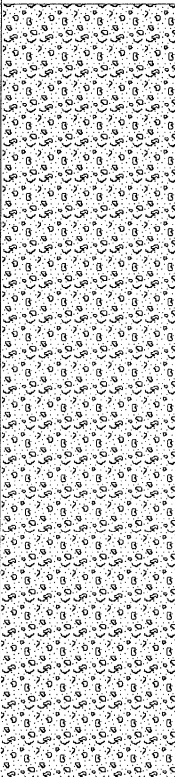
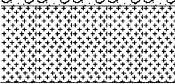
Bathymetric Elevation (feet, NAVD '88): 109.90
Northing: 786469.1
Easting: 1984934.7
Total Depth (feet): 1.8
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
0.7	0.7/1.8	36.0		0-1.0 ft: black, medium to very coarse sand and fine to coarse gravel.	0-0.3 ft: weathered, very viscous TLM throughout interval
1				1.0-1.8 ft: brown, silt, sand, and fine gravels.	0.3-1.0 ft: TLM blebs in interval, blebs found in approximately 25 to 30% of interval
2				DPT Refusal: 1.8 feet.	1.0-1.8 ft: moderate to strong TLM odor, minor amount of TLM blebs, where saturation in sample, TLM blebs appear to float
				Notes: 1. Core elevations based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 39%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: P5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 1, 2010
Date Completed: October 1, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.


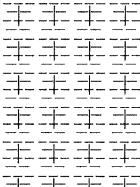


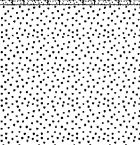

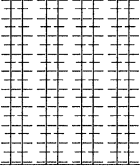


Bathymetric Elevation (feet, NAVD '88): 108.25
Northing: 786439.6
Easting: 1984906.9
Total Depth (feet): 1.1
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/1.1	0.2		0-1.0 ft: brown, medium to very coarse sand and fine to coarse gravels.	0-1.0 ft: no TLM odor, no visual TLM
1				1.0-1.1 ft: saprolite	1.0-1.1 ft: no TLM odor, no visual TLM
				DPT Refusal: 1.1 feet. Notes: 1. Core elevations based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 45%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Soil Boring: K6

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 28, 2011
Date Completed: July 28, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 126.00
Northing: 786466.4
Easting: 1985146.1
Total Depth (Ft.): 14.25
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
0-1				0-1.0 ft: brown, topsoil grading to very fine sand and silt, moist.	
1-4.3	3.0/5.0			1.0-4.3 ft: brown, clay with some silt, moist.	
4.3-5.0				4.3-5.0 ft: brown, silt and very fine to fine sand, moist.	
5.0-8.0		NR		5.0-8.0 ft: brown, silt, clay with some very fine to fine sand, mica, moist.	
8.0-10.5	2.8/5.0			8.0-10.5 ft: tan, fine to medium sand, very moist to wet.	
-8.0-8.5				-8.0-8.5 ft: some clay	
10.5-14.25				10.5-14.25 ft: gray to black, silt and clay with some mica, wood fragments, wet.	
-13.75-14.25	4.0/4.25			-13.75-14.25 ft: medium to very coarse sand with some fine to coarse gravels, wet.	
-14.25				-14.25 ft: granite fragments	
15				Total Depth: 14.25 feet.	
16				Notes:	
17				1. Elevation is based on bathymetric survey map and located to closest contour line.	
18				2. NR-Not recorded due to PID malfunctioning.	
19					0-14.25 ft: no TLM odor, no visual TLM
20					

Soil Boring: L6

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 1, 2012
Date Completed: February 1, 2012
Logged by: K. Jones
Drilled by: Athena Technologies, Inc.

Ground Elevation (feet, NAVD '88): 117.20
Northing: 786427.2
Easting: 1985118.8
Total Depth (Ft.): 5.9
Drilling Method: Vibra-core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
1		0		0-2.3 ft: brown to red to orange, very fine to fine sand, silt and clay, micaceous. -vegetative material (roots, leaves)	
2		0.6			0-3.5 ft: no TLM odor, no visual TLM
3	5.25/5.9	0.5		2.3-3.5 ft: brown to gray, fine to medium sand and silt, micaceous. -vegetative material -cobbles at 3.1 feet.	
4		2.5		3.5-4.8 ft: gray to dark gray, very fine to fine sand and silt, micaceous. -vegetative material, wood fragments	
5		12.7		4.8-5.6 ft: gray to tan, medium sand and trace of gravels, micaceous.	3.5-5.9 ft: very faint TLM odor, no visual TLM
6				5.6-5.9 ft: Dark brown to gray, very fine sand and silt, micaceous.	
7				Total Depth: 5.9 feet. Notes: 1. Boring elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjust based on recovery. 3. Recovery was limited (approximately 88%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	
8					

Sediment Coring: M6

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 30, 2010

Date Completed: September 30, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 114.00

Northing: 786417.1

Easting: 1985059.5

Total Depth (feet): 5.1

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
0-1	NR	1.3	◊	0-3.0 ft: gray, fine to coarse sand. -clinker noted at top of interval.	0-0.2 ft: no TLM odor, no visual TLM 0.2-0.8 ft: slight to moderate TLM odor, residual TLM and TLM stained grains 0.8-2.0 ft: slight to moderate TLM odor, TLM blebs to thin layering to staining in interval
1-2		1.8			
2-3		11.6			
3-4	1.2/2.1	28.2	◊	3.0-5.1 ft: gray to black, fine to coarse sand.	3.0-4.0 ft: moderate to strong TLM odor, thin layers and blebs of TLM 4.25-4.75 ft: moderate to strong TLM odor, weathered TLM staining grains 4.75-5.1 ft: moderate to strong TLM odor, thin layers of TLM and blebs
4-5					
5-6				DPT Refusal: 5.1 feet.	
6-7				Notes: 1. NR-Not recorded 2. Core elevation based on bathymetric survey map. 3. For lithologies and TLM observations, depths adjusted based on recovery. 4. Recovery was limited (not recorded for the first 3 foot run and 57% for 3.0-5.1 feet) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: N6

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 30, 2010

Date Completed: September 30, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 109.90

Northing: 786401.5

Easting: 1985023.1

Total Depth (feet): 1.0

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/1.0	NR		0-1.0 ft: brown to gray, fine to very coarse sand and fine gravels.	0-0.5 ft: no TLM odor, no visual TLM 0.5-1.0 ft: moderate to strong TLM odor, approximately 50% of interval had residual TLM, TLM floating in water contained in macrocore cap
1				DPT Refusal: 1.0 feet, rods were kicking out on rock.	
				Notes: 1. NR- Not recorded 2. Core elevation based on bathymetric survey map. 3. For lithologies and TLM observations, depths adjusted based on recovery. 4. Recovery was limited (50%) and vertical extent of TLM may or may not be reflective of depths or intervals noted.	

Sediment Coring: O6

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 30, 2010

Date Completed: September 30, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

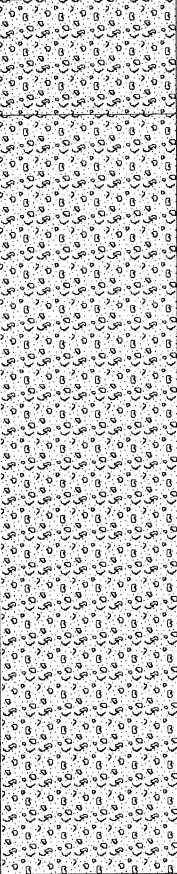
Bathymetric Elevation (feet, NAVD '88): 108.90

Northing: 786372.4

Easting: 1984983.6

Total Depth (feet): 2.25

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.3 ft: brown, medium to very coarse sand, fine gravels	0-0.3 ft: no TLM odor, no visual TLM
				0.30-2.25 ft: brown, medium to very coarse sand, gravels and cobbles	0.3-0.4 ft: weathered residual TLM
1	1.6/2.25	18.1			0.4-2.25 ft: TLM blebs to some residual development in layers throughout interval
2				DPT Refusal: 2.25 feet.	
3				Notes: 1. Core elevation based on bathymetric survey. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 71%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: P6

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 1, 2010
Date Completed: October 1, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 109.30
Northing: 786359.6
Easting: 1984930.1
Total Depth (feet): 0.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.45/0.5	0.1		0-0.5 ft: brown, medium to very coarse sand and fine to coarse gravels.	0-0.5 ft: no TLM odor, no visual TLM
1				DPT Refusal: 0.5 feet. Note: 1. Core elevation based on bathymetric survey map.	

Soil Boring: J7

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 27, 2011
Date Completed: July 27, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 132.00
Northing: 786385.5
Easting: 1985230.2
Total Depth (Ft.): 20.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
0.6				0-0.6 ft: brown. clay	
1				0.6-5.0 ft: brown, fine sand, trace clay layers, micaceous, moist.	
2	2.3/5.0	0			
3					
4					
5				5.0-10 ft: brown, fine sand, with trace to some clay and silt.	
6					
7	2.6/5.0	0		-9-10 ft: clay more prevalent	
8					
9					
10				10-12.8 ft: tan to brown, clay and silt and very fine to fine sand.	0-20.5 ft: no TLM odor, no visual TLM
11					
12	4.5/5.0	0		-wet at 12 feet.	
13				12.8-16.8 ft: brown to tan, very fine to fine sand, with trace silt, wet.	
14					
15				-15-16.8 ft: silt content from trace to some, wet	
16					
17	4.5/5.0	0		16.8-20.1 ft: gray, very fine sand and silt , trace clay, micaceous, wet.	
18					
19					
20		0		20.1-20.5 ft: gray, medium to very coarse sand and fine gravels.	
21					
22				-gravels are angular to subangular	
23				Total Depth: 20.5 feet.	
24				Note:	
25				1. Elevation is based on bathymetric survey map and located to closest contour line.	
26					

Soil Boring: K7

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 1, 2012
Date Completed: February 1, 2012
Logged by: K. Jones
Drilled by: Athena Technologies, Inc.

Ground Elevation (feet, NAVD '88): 119.10
Northing: 786341.2
Easting: 1985197.1
Total Depth (Ft.): 8.8
Drilling Method: Vibra-core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
0-0.8			[Cross-hatch symbol]	0-0.8 ft: brown to orange to red, clay and silt, micaceous.	
0.8-2.8			[Cross-hatch symbol]	-vegetative material (roots, leaves) 0.8-2.8 ft: brown to orange to red, very fine to fine sand, clay and silt, micaceous.	
2.8-5.0		0	[Dotted symbol]	-vegetative material noted in interval -3.25 to 3.7 ft: weathered mica fragment 2.8-5.0 ft: brown to tan, fine to medium sand with trace of clay and silt, micaceous.	0-6.7 ft: no TLM odor, no visual TLM
5.0-6.7	5.3/8.8	0.3	[Cross-hatch symbol]	5.0-6.7 ft: dark gray, very fine to fine sand, silt and clay, trace gravels, micaceous.	
6.7-8.75		6.2	[Cross-hatch symbol]	6.7-8.75 ft: dark gray to tan, fine to coarse sand, trace silt and clay, micaceous.	6.7-8.75 ft: very faint TLM odor, no visual TLM
8.75-8.8		0.5	[Dotted symbol]	8.75-8.8 ft: tan, gravels and fine to medium sand.	8.75-8.8 ft: no TLM odor, no visual TLM
				Total Depth: 8.8 feet.	
				Notes:	
				1. Boring elevation based on bathymetric survey map.	
				2. For lithologies and TLM observations, depth adjusted based on recovery.	
				3. Recovery was limited (approximately 60%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Soil Boring: L7

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 1, 2012
Date Completed: February 1, 2012
Logged by: K. Jones
Drilled by: Athena Technologies, Inc.

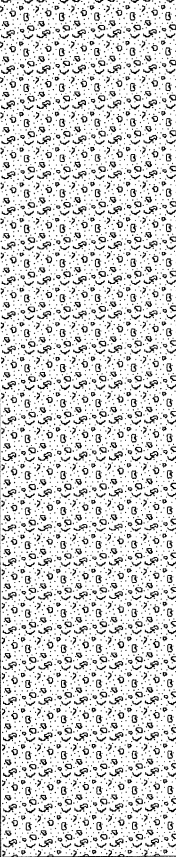
Ground Elevation (feet, NAVD '88): 117.30
Northing: 786349.8
Easting: 1985149.0
Total Depth (Ft.): 2.1
Drilling Method: Vibra-core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
1	1.55/2.1	0		0-2.1 ft: brown to red, fine to medium sand and gravels, micaceous. -vegetative material throughout - 2-2.1 ft: coarse gravels and cobbles	0-2.1 ft: no TLM odor, no visual TLM
2				Total Depth: 2.1 feet. Notes: 1. Boring elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 74%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: N7

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 1, 2010
Date Completed: October 1, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 109.90
Northing: 786305.1
Easting: 1985047.8
Total Depth (feet): 1.1
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/1.1	21.5		0-1.1 ft: medium to very coarse sand and fine gravel.	<p>0-0.5 ft: moderate to strong TLM odor, very viscous and weathered TLM binding grains together</p> <p>0.5-1.1 ft: moderate to strong TLM odor, TLM throughout interval and appears to be less viscous</p>
1				DPT Refusal: 1.1 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 64%) and vertical extent of TLM may or may not be reflective of depths or intervals noted.	

Sediment Coring: 07

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 30, 2010

Date Completed: September 30, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

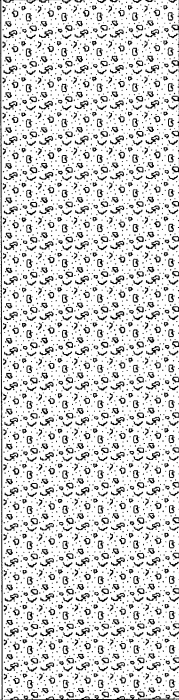
Bathymetric Elevation (feet, NAVD '88): 110.30

Northing: 786279.8

Easting: 1985010.7

Total Depth (feet): 0.6

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.45/0.6	0.1		0-0.6 ft: brown, fine to very coarse sand, fine to coarse gravels	0-0.6 ft: no TLM odor , no visual TLM in sample logged (see note #1)
1				DPT Refusal: 0.6 feet. Notes: 1. Three sample runs and logged third since it had the greatest recovery. Assessed others for sensory observations and noted very slight TLM odors at tip of sample and immediately upon retrieval. 2. Core elevation based on bathymetric survey map. 3. For lithologies and TLM observations, depths adjusted based on recovery. 4. Recovery was limited (75%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Soil Boring: K8

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 1, 2012
Date Completed: February 1, 2012
Logged by: K. Jones
Drilled by: Athena Technologies, Inc.

Ground Elevation (feet, NAVD '88): 118.50
Northing: 786257.7
Easting: 1985236.5
Total Depth (Ft.): 6.1
Drilling Method: Vibra-core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
0				0-0.2 ft: brown to gray to black, very fine to fine sand, silt and clay, micaceous.	0-0.2 ft: no TLM odor, no visual TLM
1				-vegetative material (i.e., roots, twigs)	
1		0		0.2-1.5 ft: brown to gray to black, very fine to fine sand, silt and clay, micaceous, moist.	
2				1.5-5.4 ft: brown to gray to black, very fine to medium sand, silt and clay, trace gravel, micaceous, wet.	
2		0.1		-vegetative material throughout interval -3.5 ft: large fragment of wood	
3	5.1/6.1				0.2-6.1 ft: very faint TLM odor, no visual TLM
4		0.8			
5		1.5			
6		0.1		5.4-6.1 ft: brown to gray to black, medium to coarse sand and coarse gravels and cobbles.	
7				Total Depth: 6.1 feet.	
				Notes: 1. Boring elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depth adjusted based on recovery. 3. Recovery was limited (approximately 84%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

APPENDIX F

LABORATORY ANALYTICAL REPORTS AND DATA EVALUATION MEMOS
(Please refer to CD in Appendix B)

Sediment Coring: N8

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 29, 2010

Date Completed: September 29, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

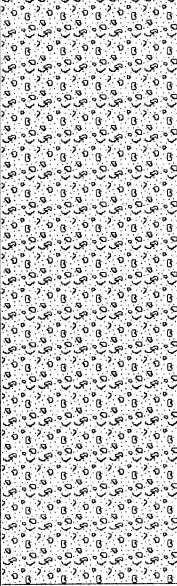
Bathymetric Elevation (feet, NAVD '88): 110.00

Northing: 786208.8

Easting: 1985080.8

Total Depth (feet): 0.5

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.45/0.50	0.3		0-0.50 ft: brown, fine to very coarse sand and gravel	0-0.5 ft: no TLM odor, no visual TLM
1				DPT Refusal: 0.5 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: O8

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 4, 2010
Date Completed: October 4, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 110.00
Northing: 786207.4
Easting: 1984991.8
Total Depth (feet): 1.25
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.85/1.25	0	0-0.9 ft: brown, medium to very coarse sand and fine gravel.		0-0.9 ft: no TLM odor, no visual TLM
1			0.9-1.25 ft: brown, silt and saprolite.		0.9-1.25 ft: no TLM odor, no visual TLM
				DPT Refusal: 1.25 feet.	
				Notes: 1. Coring elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (68%) and vertical extent of TLM may or may not be reflective of depths or intervals noted.	

Soil Boring: K9

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 1, 2012
Date Completed: February 1, 2012
Logged by: K. Jones
Drilled by: Athena Technologies, Inc.

Ground Elevation (feet, NAVD '88): 116.95
Northing: 786172.4
Easting: 1985275.9
Total Depth (Ft.): 7.3
Drilling Method: Vibra-core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
1		1.0		0-1.7 ft: brown to red to orange, very fine to fine sand, silt and clay, micaceous. -vegetative material	0-1.7ft: no TLM odor, no visual TLM
2		14.7		1.7-2.4 ft: dark gray to gray to tan, fine to medium sand, silt and clay, micaceous. -vegetative material	1.7-2.4 ft: slight TLM odor, no visual TLM
3				2.4-7.3 ft: dark brown to tan to gray, very fine to fine sand, silt and clay, micaceous, wood fragments.	
4	6.26/7.3	2.7		-5.9 ft: sediment changes to dark gray -6.9-7.3 ft: medium to fine sand	
5		3.0			2.4-7.3 ft: no TLM odor, no visual TLM
6		0.5			
7		0			
8				Total Depth: 7.3 feet.	
9				Notes: 1. Boring elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 86%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Soil Boring: J9

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 27, 2011
Date Completed: July 27, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 139.00
Northing: 786213.6
Easting: 1985331.2
Total Depth (Ft.): 23
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations	
0				Ground Surface		
1	4.3/5.0	0		0-1.4 ft: tan to light gray, clay and silt, trace mica, wet.	0-23 ft: no TLM odor, no visual TLM	
2				1.4-8 ft: brown, silt and very fine to fine sand, trace to some clay, moist.		
3						
4						
5	3.2/5.0	0		8.0-13.5 ft: brown, clay. with trace to some silt, moist.		
6						
7						
8						
9	3.9/5.0	NR		13.5-17.9 ft: brown, very fine to fine sand and silt, slight mica.		
10						
11						
12						
13	3.4/5.0	NR		-14 ft: wet		
14				-17.0-17.9 ft: several thin clay layers		
15						
16						
17	2.3/3.0	NR		17.9-20.0 ft: brown to light brown, very fine to medium sand with trace to some silt, mica, wet.		
18						
19						
20						
21				20.0-23.0 ft: light gray, fine to medium sand, trace silt, wet.		
22						
23						
24				Total Depth: 23 feet.		
25				Notes:		
26				1. Elevation is based on bathymetric survey map and located to closest contour line.		
27				2. NR-Not recorded due to PID malfunctioning.		

Sediment Coring: M9

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 29, 2010
Date Completed: September 29, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 107.50
Northing: 786131.0
Easting: 1985172.6
Total Depth (feet): 1.6
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
			[Symbol: Fine to coarse sand]	0-1.6 ft: dark tan to light gray, fine to coarse sand	0-1.6 ft: no TLM odor, no visual TLM
			[Symbol: Gravel layer]	0.1-0.2 ft: 1 foot thick gravel layer	
	1.6/1.6	0	[Symbol: Gravel layer]	1.5 ft: approximately 0.1 to 0.2 foot thick gravel layer.	
1				DPT Refusal: 1.6 feet.	
				Note: 1. Core elevation based on bathymetric surveys map.	
2					

Sediment Coring: N9

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 4, 2010
Date Completed: October 4, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 108.30
Northing: 786113.7
Easting: 1985127.4
Total Depth (feet): 0.75
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.55/0.75	5.6		0-0.75 ft: brown to black, medium to very coarse sand, fine gravel.	0-0.55 ft: no TLM odor, no visual TLM 0.55-0.75 ft: Residual TLM and staining noted in about 50% of the interval (see note #2)
1				DPT Refusal: 0.75 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. A second core was collected at this location and indicated TLM odors and visual was not present. 3. For lithologies and TLM observations, depths adjusted based on recovery. 4. Recovery was limited (approximately 73%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: O9

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 28, 2010

Date Completed: September 28, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 109.50

Northing: 786096.7

Easting: 1985081.1

Total Depth (feet): 1.1

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.8/1.1	0.1		0-0.9 ft: brown, fine to coarse sand.	0-0.9 ft: no TLM odor, no visual TLM
1				0.9-1.1 ft: olive green, silt and clay, trace of sand.	0.9-1.1 ft: no TLM odor, no visual TLM
2				DPT Refusal: 1.1 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 73%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Soil Boring: J10

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July, 27, 2011
Date Completed: July 27, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 134.00
Northing: 786102.4
Easting: 1985356.4
Total Depth (Ft.): 21.0
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
1				0-10.0 ft: brown, very fine to fine sand, silt and clay to trace clay, moist.	
2				-2.5 ft: coal fragment	
3	3.2/5.0	0			
4					
5					
6					
7	3.2/5.0	0			
8					
9					
10				10-15 ft: brown, silt and clay, trace of very fine sand, trace mica.	
11				- 14 ft: wet	
12	4.5/5.0	0			
13					
14					
15				15-19.1 ft: brown, clay with some silt, trace mica.	
16				-18.7 ft: turning gray	
17	4.1/5.0	0		-16.0-18.0 ft: peat-like material	
18					
19					
20				19.1-20.3 ft: gray, very fine to fine sand, silt and clay, micaceous, wet.	
21	0.5/0.5	0		20.3-21.0 ft: fine to coarse sand, some fine gravels and some fine silt, wet.	
22					
23					
24					
25					
26					
27					
				Total Depth: 21 feet	
				Note:	
				1. Elevation is based on bathymetric survey map and located to closest contour line.	

Soil Boring: K10

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: Februray 1,2012
Date Completed: February 1, 2012
Logged by: K. Jones
Drilled by: Athena Technologies, Inc.

Ground Elevation (feet, NAVD '88): 117.50
Northing: 786073.3
Easting: 1985321.7
Total Depth (Ft.): 7.7
Drilling Method: Vibra-core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
1		0.6		0-1.0 ft: brown to red to orange, very fine to fine sand, silt and clay, micaceous. -vegetative material	
2		0		1.0-6.6 ft: dark gray to gray to tan, fine to medium sand, silt and clay, micaceous. - vegetative material	
3		0			
4	6.9/7.7	0			0-7.7 ft: no TLM odor, no visual TLM
5		0			
6		0			
7		0		6.6-7.7 ft: gray to tan, medium to coarse sand. - vegetative material	
8				Total Depth: 7.7 feet.	
9				Notes: 1. Boring elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 90%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: L10

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 4, 2010
Date Completed: October 4, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

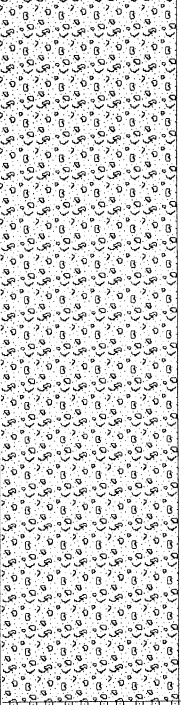
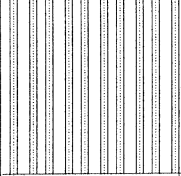
Bathymetric Elevation (feet, NAVD '88): 110.10
Northing: 786074.8
Easting: 1985258.3
Total Depth (feet): 4.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1		3.1		0-3.0 ft: brown, fine to coarse sand.	0-1.5 ft: no TLM odors, no visual TLM
2	1.6/3.0	7.4			1.5-3.0 ft: slight to moderate TLM odor. At 1.5 to 1.65 feet highly weathered TLM layer, staining and TLM binding grains
3		1.6			2.8-2.82 ft: thin, highly weathered TLM layer
4	1.1/1.5	NR		3.0-4.5 ft: gray, medium to coarse sand with gravels (at top)	3.5 ft: TLM blebs
5				DPT Refusal: 4.5 feet.	4.0-4.5 ft: TLM blebs with greater occurrence at 4.2 to 4.5 feet, blebs have a less viscous and more fluid like appearance, grains are stained.
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery in the 0 to 3 foot interval was limited (53%) and vertical extent of TLM may or may not be reflective of depths and intervals noted. 4. NR-Not recorded	

Sediment Coring: N10

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 4, 2010
Date Completed: October 4, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 105.43
Northing: 785998.2
Easting: 1985166.5
Total Depth (feet): 1.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
		0		0-1.2 ft: brown grading to gray, medium to very coarse sand, some fine gravels	0-1.2 ft: no TLM odor, no visual TLM
	1.4/1.5				
1		0			1.2-1.5 ft: dark gray, silt, sand and gravels.
2				DPT Refusal: 1.5 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was approximately 93% and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: O10

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 28, 2010
Date Completed: September 28, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 107.50
Northing: 785979.6
Easting: 1985120.8
Total Depth (feet): 2.9
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.0/2.9	0.2		0-2.9 ft: brown grading to brown gray, fine to coarse sand with some rounded gravels.	0-2.9 ft: no TLM odor, no visual TLM
2					
3				DPT Refusal: 2.9 feet.	
4				Notes: 1. Core elevation based on bathymetric survey map. 2. Represents sample from 4th core run since others had less to no recovery. 3. For lithologies and TLM observations, depths adjusted based on recovery. 4. Recovery was limited (approximately 34%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Soil Boring: J11

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 27, 2011
Date Completed: July 27, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 132.00
Northing: 786011.4
Easting: 1985381.6
Total Depth (Ft.): 21
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations			
0				Ground Surface				
1	3.5/5.0	NR		0-12.4 ft: brown, fine sand, silt and clay, moist.	0-21ft: no TLM odor, no visual TLM			
2								
3								
4								
5								
6	3.6/5.0			NR				0-21ft: no TLM odor, no visual TLM
7								
8								
9								
10								
11	3.8/5.0	NR					0-21ft: no TLM odor, no visual TLM	
12								
13								
14								
15								
16	5.0/6.0			0		12.4-13.9 ft: brown, clay with some silt, moist.		0-21ft: no TLM odor, no visual TLM
17								
18								
19								
20								
21	5.0/6.0	0				13.9-17.0 ft: brown to light gray, very fine sand and silt, moist to wet.	0-21ft: no TLM odor, no visual TLM	
22								
23								
24								
25								
26	5.0/6.0			0		-16.0 ft: wet		0-21ft: no TLM odor, no visual TLM
27								
28								
29								
30								
31	5.0/6.0	0				17-20.1 ft: gray, very fine to fine sand and silt, some to trace clay layers, some mica, wet.	0-21ft: no TLM odor, no visual TLM	
32								
33								
34								
35								
36	5.0/6.0			0		20.1-21.0 ft: gray, medium to very coarse sand and fine gravels, silt, wet.		0-21ft: no TLM odor, no visual TLM
37								
38								
39								
40								
41	5.0/6.0	0				Total Depth: 21.0 feet.	0-21ft: no TLM odor, no visual TLM	
42								
43								
44								
45								
46	5.0/6.0			0		Notes:		0-21ft: no TLM odor, no visual TLM
47								
48								
49								
50								
51	5.0/6.0	0				1. Elevation based on bathymetric survey map and located to closest contour line.	0-21ft: no TLM odor, no visual TLM	
52								
53								
54								
55								
56	5.0/6.0			0		2. NR- Not recorded due to PID malfunctioning.		0-21ft: no TLM odor, no visual TLM
57								
58								
59								
60								

Soil Boring: J11.5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 1, 2012
Date Completed: February 1, 2012
Logged by: K. Jones
Drilled by: Athena Technologies, Inc.

Ground Elevation (feet, NAVD '88): 116.85
Northing: 786040.66
Easting: 1985330.15
Total Depth (Ft.): 6.3
Drilling Method: Vibra-core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
0				0-0.1 ft: brown to orange to red, very fine sand, silt and clay, micaceous, vegetative material.	
1		0		0.1-1.4 ft: brown to orange to red, very fine sand, silt and clay, micaceous.	
2		0.6		1.4-5.8 ft: dark gray to brown, fine to medium sand, silt and clay, micaceous, -wood fragments throughout. -5.0 ft: large wood fragment	
3	5.25/6.3				0-6.3 ft: no TLM odor, no visual TLM
4		0.3			
5		0			
6		0		5.8-6.3 ft: dark gray to tan, fine to medium sand and silt, micaceous.	
7				Total Depth: 6.3 feet.	
8				Notes: 1. Boring elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 83%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: K11

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: October 5, 2010

Date Completed: October 5, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 110.60

Northing: 785990.1

Easting: 1985313.6

Total Depth (feet): 0.7

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	0.2		0-0.7 ft: dark gray, silt, fine to medium sand, with some gravels.	0-0.5 ft: no TLM odor, no visual TLM 0.5-0.6 ft: slight TLM odor, visual TLM staining to some separate TLM 0.6-0.7 ft: no TLM odor, no visual TLM (see note)
				DPT Refusal: 0.7 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. Multiple sample attempts. The 5th sample run had minimal evidence of TLM in sediment.	
1					

Sediment Coring: L11

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 28, 2010

Date Completed: September 28, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.




Bathymetric Elevation (feet, NAVD '88): 109.00

Northing: 785963.2

Easting: 1985289.2

Total Depth (feet): 1.0

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.8/1.0	63.1		0-0.05 ft: brown, fine to medium sand.	0-0.05 ft: no TLM odor, no visual TLM 0.05-1.0 ft: moderate to strong TLM odor, weathered TLM in interval and occurring as residual amounts, staining grains, and in some cases filling pore spaces 1.0 ft: rock fragments
				0.05-1.0 ft: black, fine to coarse sand. -grains are stained black.	
				1.0 ft: rock fragments	
1				DPT Refusal: 1.0 feet.	
				Notes: 1. Core elevations based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (80%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: M11

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 29, 2010

Date Completed: September 29, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

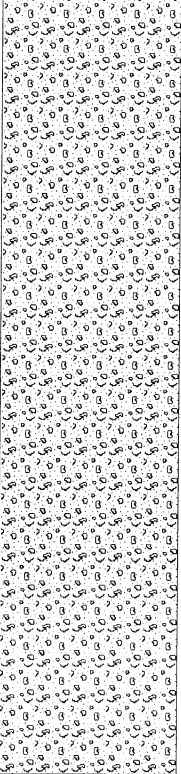
Bathymetric Elevation (feet, NAVD '88): 105.10

Northing: 785943.6

Easting: 1985239.3

Total Depth (feet): 0.8

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0	0.5/0.8	0		Bathymetric Surface 0-0.8 ft: tan to brown, medium to very coarse sand and gravel.	0-0.8 ft: no TLM odor, no visual TLM
1				DPT Refusal: 0.8 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 63%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: N11

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 30, 2010

Date Completed: September 30, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

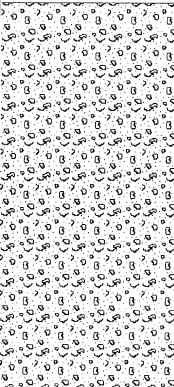
Bathymetric Elevation (feet, NAVD '88): 106.30

Northing: 785927.3

Easting: 1985199.3

Total Depth (feet): 0.33

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.33/0.33	NR		0-0.33 ft: brown, medium to coarse sand with some fine gravels.	0-0.33 ft: no TLM odor, no visual TLM
				DPT Refusal: 0.33 feet. Note: 1. PID was not recorded because PID was not working properly. 2. Core elevation based on bathymetric survey map.	
1					

Sediment Coring: O11

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: October 4, 2010

Date Completed: October 4, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

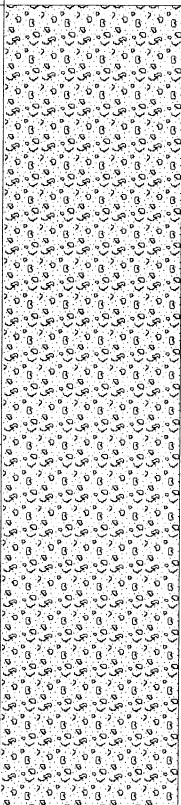
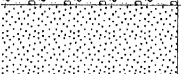
Bathymetric Elevation (feet, NAVD '88): 107.60

Northing: 785913.1

Easting: 1985147.1

Total Depth (feet): 6.0

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	0.75/3.0	0		0-5.5 ft: brown, medium to very coarse sand, fine gravels, some brachiopod shells	0-5.5 ft: no TLM odor, no visual TLM
2					
3					
4	1.3/3.0	0		5.5-6.0 ft: light gray, fine to medium sand with some silt and fine to coarse gravels.	5.5-6.0 ft: no TLM odor, no visual TLM
5					
6				DPT Refusal: 6.0 feet.	
7				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 25% and 43%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	
8					

Soil Boring: J12

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 27, 2011
Date Completed:
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 134.00
Northing: 785940.7
Easting: 1985457.3
Total Depth (Ft.): 21
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
1				0-9.0 ft: brown, layered fine to medium sand, to fine to medium sand and silt, moist.	
2	2.6/5.0				
3					
4					
5				9.0-10.0 ft: brown, clay and silt, moist.	
6					
7	3.0/5.0				
8				10.0-20.5 ft: brown, fine to medium sand to fine to medium sand with some silt, moist to wet. -14.5 ft: wet -15-20.5 ft: silt content decreasing to trace	0-21ft: no TLM odor, no visual TLM
9		NR			
10					
11	2.3/5.0				
12					
13				20.5-21.0 ft: gray, fine to medium sand, trace silt, wet, wood fragment.	
14					
15					
16	2.2/6.0				
17				Total Depth: 21.0 feet. Notes: 1. Elevation is based on bathymetric survey map and located to closest contour line. 2. NR-Not recorded due to PID malfunctioning.	
18					
19					
20					
21					
22					
23					
24					
25					
26					

Sediment Coring: L12

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 29, 2010

Date Completed: September 29, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

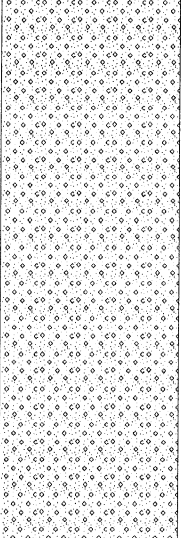
Bathymetric Elevation (feet, NAVD '88): 110.00

Northing: 785874.9

Easting: 1985317.9

Total Depth (feet): 0.7

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.65/0.70	0		0-0.7 ft: brown, fine to very coarse sand, some gravel and cobbles.	0-0.7 ft: no TLM odor, no visual TLM
1				DPT Refusal: 0.7 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: M12

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 29, 2010

Date Completed: September 29, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

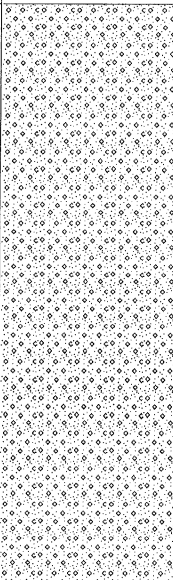
Bathymetric Elevation (feet, NAVD '88): 108.00

Northing: 785846.0

Easting: 1985276.2

Total Depth (feet): 0.5

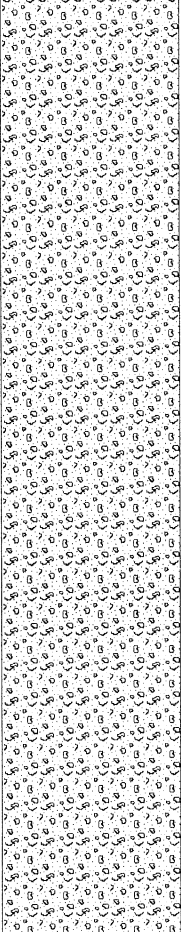
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	1.4		0-0.5 ft: gray, fine to very coarse sand, gravels and granite fragments.	0-0.5 ft: noted weathered TLM fragments and blebs on granite rock fragments and core liner
				DPT Refusal: 0.5 feet. Note: 1. Core elevation based on bathymetric survey map.	
1					

Sediment Coring: N12

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 30, 2010
Date Completed: September 30, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 105.00
Northing: 785833.5
Easting: 1985228.2
Total Depth (feet): 0.8
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.8/0.8	0.3		0-0.8 ft: brown, fine to very coarse sand, fine to coarse gravels, trace of silt.	0-0.8 ft: very slight TLM odor, no visual TLM (see note #2)
1				DPT Refusal: 0.8 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. Visual TLM was not noted within the sample matrix but was noted on the cutting shoe from the first core run.	

Sediment Coring: O12

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 28, 2010

Date Completed: September 28, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

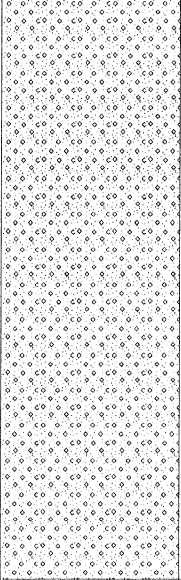
Bathymetric Elevation (feet, NAVD '88): 106.30

Northing: 785814.6

Easting: 1985185.7

Total Depth (feet): 1.5

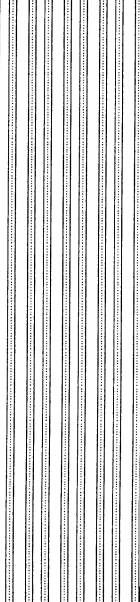
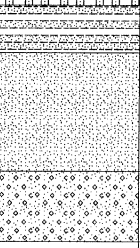
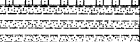
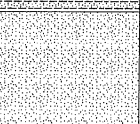
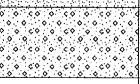
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.0/1.5	1.8		0-1.5 ft: brown, fine to coarse sand.	0-1.5 ft: no TLM odor, no visual TLM
				1.5 ft: large gravel fragment.	
2				DPT Refusal: 1.5 feet.	
3				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 67%) and vertical extent of TLM may or may not be reflective of depths or intervals noted.	

Soil Boring: J13

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 27, 2011
Date Completed: July 27, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 132.56
Northing: 785838.1
Easting: 1985481.4
Total Depth (Ft.): 19
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
0-1.0				0-1.0 ft: brown-black top soil.	
1-5.0	2.8/5.0			1.0-14.0 ft: brown, very fine to fine sand and silt to some silt, dry to moist.	
5.0-10.0	2.0/5.0	NR			
10.0-14.0	2.4/5.0				
14.0-15.0				14.0-15.0 ft: brown, very fine to fine sand and clay, moist to very moist.	
15.0-17.5	1.7/4.0			-clay is occurring as layers 15.0-17.5 ft: brown, very fine to fine sand, moist.	
17.5-19.0				17.5-19.0 ft: tan to light gray, medium to coarse sand, trace coarse gravels, wet.	
19.0				Total Depth: 19.0 feet.	
20-25				Notes: 1. Elevation and location is from survey. 2. NR- not recorded due to PID malfunctioning.	0-19 ft: no TLM odor, no visual TLM

Sediment Coring: L13

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 28, 2010
Date Completed: September 28, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

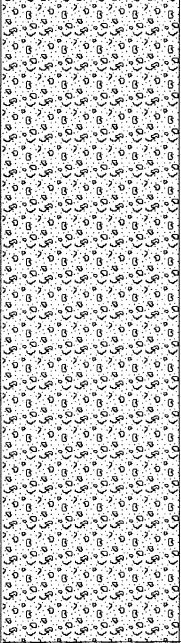

Bathymetric Elevation (feet, NAVD '88): 111.80
Northing: 785775.9
Easting: 1985362.0
Total Depth (feet): 0.40
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.4/0.4	1.6	•••••	0-0.4 ft: brown, medium to coarse sand, trace to some gravel.	0-0.2 ft: no TLM odor, no visual TLM 0.2-0.28 ft: very slight TLM odor, thin (approximately 0.08 feet) weathered TLM layer 0.28-0.4 ft: no TLM odor, no visual TLM
				DPT Refusal: 0.4 feet. Note: 1. Core elevation based on bathymetric survey map.	
1					

Sediment Coring: M13

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 30, 2010
Date Completed: September 30, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 108.20
Northing: 785760.1
Easting: 1985310.4
Total Depth (feet): 0.65
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.65/0.65	1.0		0-0.55 ft: black to brown, medium to very coarse sand and gravel	0-0.3 ft: slight TLM odor, weathered TLM staining grains and throughout interval
				0.55-0.65 ft: gray to red, silt, (likely saprolite)	0.3-0.55 ft: moderate TLM odor, bleb like TLM in interval
				DPT Refusal: 0.65 feet.	0.55-0.65 ft: no visual TLM, odor not recorded
1				Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: N13

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 28, 2010
Date Completed: September 28, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 105.50
Northing: 785743.1
Easting: 1985266.1
Total Depth (feet): 0.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.4/0.5	233		0-0.25 ft: brown, fine to coarse sand.	0-0.25 ft: slight TLM odor, no visual TLM
				0.25-0.5 ft: black, fine to coarse sand.	0.25-0.5 ft: visual weathered TLM throughout interval, grains are stained
				DPT Refusal: 0.5 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (80%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	
1					

Sediment Coring: O13

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 30, 2010

Date Completed: September 30, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

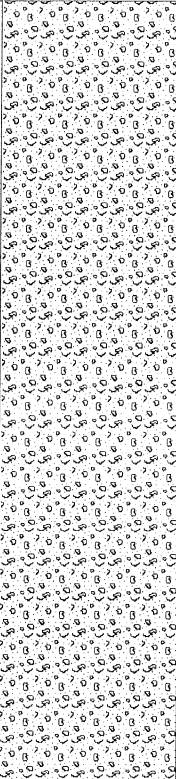
Bathymetric Elevation (feet, NAVD '88): 106.50

Northing: 785718.3

Easting: 1985215.3

Total Depth (feet): 1.0

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.95/1.0	0.1		0-1.0 ft: brown to tan, fine to very fine sand and some gravels. -rock fragments at tip.	0-1.0 ft: no TLM odor, no visual TLM
1				DPT Refusal: 1.0 feet. Note: 1. Core elevation based on bathymetric survey map.	

Soil Boring: I14

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 27, 2011
Date Completed: July 27, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 132.85
Northing: 785764.0
Easting: 1985534.2
Total Depth (Ft.): 22.0
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
1			[Stippled Pattern]	0-0.2 ft: topsoil	0-22 ft: no TLM odor, no visual TLM
2	2.6/5.0			0.2-13.8 ft: brown, fine sand with trace to some silt, dry.	
3					
4					
5					
6					
7	NR				
8					
9					
10					
11		NR			
12	2.5/5.0				
13					
14			[Horizontal Dashed Pattern]	13.8-16.75 ft: brown, clay, trace to some fine sand and silt, moist.	
15					
16			[Vertical Striped Pattern]	16.75-22.0 ft: gray, silt and very fine sand, trace clay, mica, wet.	
17	NR				
18					
19					
20				-17.5 ft: wet	
21	2.0/2.0				
22				Total Depth: 22 feet.	
23				Notes:	
24				1. Elevation and location is from survey.	
25				2. NR- Not recorded due to PID malfunctioning.	
26					

Sediment Coring: K14

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: September 29, 2010

Date Completed: September 29, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

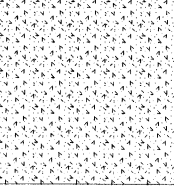
Bathymetric Elevation (feet, NAVD '88): 110.80

Northing: 785698.3

Easting: 1985439.0

Total Depth (feet): 0.16

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0	NR		0-0.16 ft: granite fragment	0-0.16 ft: no TLM odor, no visual TLM
				DPT Refusal: 0.16 feet. Notes: 1. NR-Not recorded 2. Core elevation based on bathymetric survey map.	
1					

Sediment Coring: L14

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 29, 2010
Date Completed: September 29, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Bathymetric Elevation (feet, NAVD '88): 110.10
Northing: 785682.7
Easting: 1985381.8
Total Depth (feet): 0.2
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0/0.2	NR		0-0.2 ft: no recovery due to presence of rocks	TLM noted on cutting shoe
				DPT Refusal: 0.2 feet. Notes: 1. NR-Not recorded 2. Core elevation based on bathymetric survey map.	
1					

Sediment Coring: M14

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 29, 2010
Date Completed: September 29, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

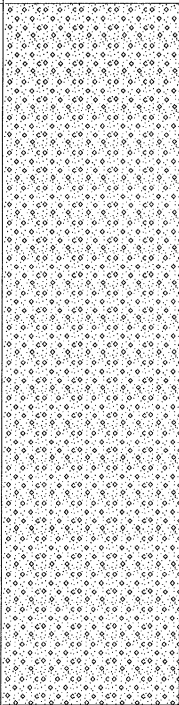
Bathymetric Elevation (feet, NAVD '88): 109.50
Northing: 785664.5
Easting: 1985350.7
Total Depth (feet): 0.8
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.4/0.8	0		0-0.8 ft: black, medium to coarse sand with some gravel.	0-0.8 ft: slight TLM odor, weathered TLM throughout interval recovered
1				DPT Refusal: 0.8 feet Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (50%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: N14

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 30, 2010
Date Completed: September 30, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 108.00
Northing: 785645.9
Easting: 1985295.3
Total Depth (feet): 0.6
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.6/0.6	0		0-0.6 ft: brown, fine to coarse sand.	0-0.6 ft: no TLM odor, no visual TLM (see note #2)
1				DPT Refusal: 0.6 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. N14 was re-cored on October 5, 2010 to gain sample volume for laboratory analyses. TLM was noted at approximately 0.6 feet, was approximately 0.01 to 0.02 feet thick and had very slight TLM odor. Based on observations, location O-14 was sampled for laboratory analyses.	

Sediment Coring: O14

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: October 5, 2010

Date Completed:

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

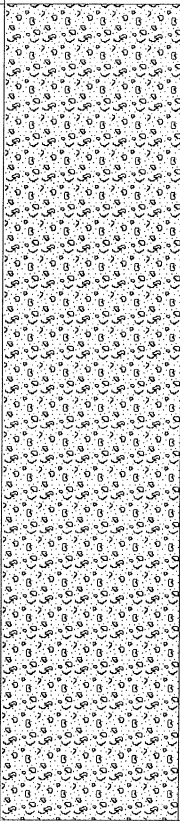
Bathymetric Elevation (feet, NAVD '88): 108.30

Northing: 785630.0

Easting: 1985254.7

Total Depth (feet): 0.7

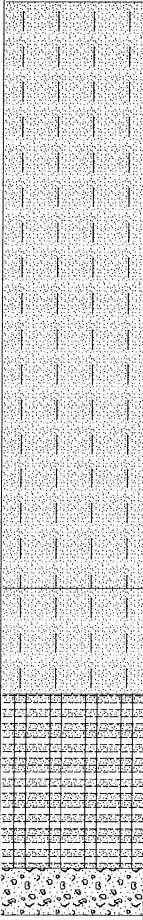
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	0.2		0-0.7 ft: brown, fine to very coarse sand and fine to coarse gravels.	0-0.7 ft: no TLM odor, no visual TLM (see note #2)
				Refusal: 0.7 feet.	
1				Notes: 1. Core elevation based on bathymetric survey map. 2. Total of three sample runs so adequate sample volume could be collected for analyses. Two of the three runs indicated absence of TLM and the third indicated one bleb on the acetate liner.	

Soil Boring: I15

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 27, 2011
Date Completed: July 27, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

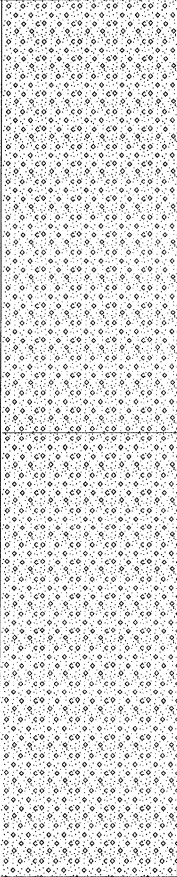
Ground Elevation (feet, NAVD '88): 131.33
Northing: 785669.0
Easting: 1985580.7
Total Depth (Ft.): 21
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
1				0-1.5 ft: brown to black topsoil	
2	2.8/5.0			1.5-14.0 ft: brown, very fine to fine sand with some silt, dry to moist.	
3				-7-8 ft: clay layer	
4				-10-14 ft: some clay occurring as layers	
5					
6					
7	3.2/5.0				
8					
9					
10					
11		NR			
12					
13	2.9/5.0				
14					
15				14.0-16.25 ft: tan, fine to medium sand, trace silt, moist to very moist.	
16				-15.0-16.25 ft: silt content increases to some	
17	3.1/5.0			16.25-20.0 ft: gray silt, clay and very fine to fine sand, mica, wet.	
18				-clay is layered and within matrix towards 20 feet.	
19				-19.5 ft: vegetative material.	
20					
21	1.0/1.0			20.0-21.0 ft: gray, medium to coarse sand, fine gravels, wet.	
22				Total Depth: 21 feet.	
23				Notes:	
24				1. Elevation and location is from survey.	
25				2.NR- Not recorded due to PID malfunctioning.	

Sediment Coring: K15

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 30, 2010
Date Completed: September 30, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

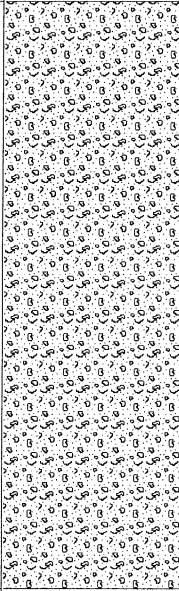
Bathymetric Elevation (feet, NAVD '88): 110.90
Northing: 785609.6
Easting: 1985478.1
Total Depth (feet): 0.75
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.2/0.75	1.2		0-0.37 ft: black to brown, medium to very coarse sand.	0-0.37 ft: slight TLM odor, weathered TLM throughout interval and staining grains
				0.37-0.75 ft: brown, medium to very coarse sand	0.37-0.75 ft: no TLM odor, no TLM visual
1				DPT Refusal: 0.75 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depth adjusted based on recovery. 3. Recovery was limited (27%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: L15

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 30, 2010
Date Completed: September 30, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

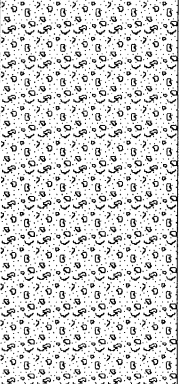
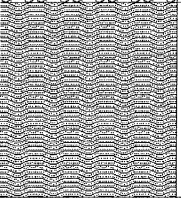
Bathymetric Elevation (feet, NAVD '88): 111.30
Northing: 785598.5
Easting: 1985422.6
Total Depth (feet): 0.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0	0.5/0.5	0		Bathymetric Surface 0-0.5 ft: brown, medium to very coarse sand with some silt and fine to coarse gravels.	0-0.5 ft: no TLM odor, no visual TLM
1				DPT Refusal: 0.5 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: M15

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: September 30, 2010
Date Completed: September 30, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 111.40
Northing: 785580.2
Easting: 1985384.2
Total Depth (feet): 0.75
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.55/0.75	0.6		0-0.50 ft: brown medium to very coarse sand and fine to coarse gravels.	0-0.5 ft: no TLM odor, no visual TLM (see note #3)
				0.5-0.75 ft: weathered granite with black and white silt, (likely saprolite).	0.5-0.75 ft: slight TLM odor, no visual TLM
1				DPT Refusal: 0.75 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 73%) and vertical extent of TLM may or may not be reflective of depths and intervals noted. 4. First run of M15 contained a piece of gravel with tar on it. Noted to be on top of the sample run or on the river bed surface.	

Soil Boring: H16

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July, 28, 2011
Date Completed: July 28, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

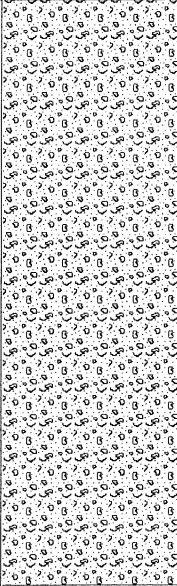
Ground Elevation (feet, NAVD '88): 132.91
Northing: 785587.6
Easting: 1985631.6
Total Depth (Ft.): 27.0
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Ground Surface	
1	2.5/5.0	NR		0-0.5 ft: topsoil, moist.	0-27 ft: no TLM odor, no visual TLM
2				0.5-8.75 ft: brown, very fine to fine sand, with trace to some silt, dry.	
3					
4					
5					
6					
7	3.0/5.0			8.75-15.0 ft: brown, clay with trace to some silt, moist.	
8					
9					
10					
11	3.4/5.0			-10-15 ft: silt content increases, trace very fine sand	
12				-14.25-14.75 ft: layers of tan, fine to medium sand	
13				-15 ft: wood fragments	
14					
15	1.6/5.0			15.0-22.0 ft: brown grading to tan, very fine to fine sand, moist.	
16					
17				-17.5 and 19.5 feet: 0.1 foot thick clay layers	
18				-21.5 ft: grading into silty, very fine to fine sand, moist to wet	
19					
20					
21	2.6/5.0			22.0-25.9 ft: gray to black, silt and clay, trace very fine sand, mica, wet, organic matter.	
22					
23				-25-25.9 ft: sand content increasing, wet	
24				-black color is from vegetative material	
25	2.0/2.0			25.9-27.0 ft: gray, medium to very coarse sand and fine gravels, wet.	
26					
27					
28				Total Depth: 27.0 feet.	
29				Notes:	
30				1. Elevation and location is from survey.	
31				1. NR- Not recorded due to PID malfunctioning.	
32					

Sediment Coring: J16

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 1, 2010
Date Completed: October 1, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.


Bathymetric Elevation (feet, NAVD '88): 106.00
Northing: 785528.9
Easting: 1985562.3
Total Depth (feet): 0.25
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0	0.25/0.25	1.6		Bathymetric Surface 0-0.25 ft: brown, medium to coarse sand and fine to coarse gravels.	0-0.25 ft: slight TLM odor, 5-10% of interval contains TLM blebs
				DPT Refusal: 0.25 feet. Note: 1. Core elevation based on bathymetric survey maps.	

Sediment Coring: K16

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 1, 2010
Date Completed: October 1, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.


Bathymetric Elevation (feet, NAVD '88): 107.20
Northing: 785514.3
Easting: 1985511.3
Total Depth (feet): 0.75
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.55/0.75	1.7		0-0.75 ft: tan, medium to very coarse sand, trace gravels.	0-0.25 ft: no TLM odor, no visual TLM 0.25-0.55 ft: TLM blebs in interval 0.55-0.75 ft: weathered TLM, very viscous, coating grains
1				DPT Refusal:0.75 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3.Recovery was limited (approximately 73%) and vertical extent of TLM may or may not be reflective of depths and intervals noted. 4. First core run also had TLM noted at the 0 to 0.2 foot and 0.2 to 1.0 foot intervals.	

Sediment Coring: L16

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 4, 2010
Date Completed: October 4, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 108.20
Northing: 785496.7
Easting: 1985451.6
Total Depth (feet): 1.1
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.85/1.1	66.5		0-1.1 ft: gray to black medium to coarse sand with some fine gravels at tip.	0-0.65 ft: weathered TLM and towards 0.5 feet weathering is less 0.65-1.1 ft: TLM present in residual amount (~80 to 90%) throughout interval and staining, more fluid-like appearance towards 1.0-1.1 ft and observed to float on water in core sample
1				DPT Refusal: 1.1 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (77%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: M16

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 4, 2010
Date Completed: October 4, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

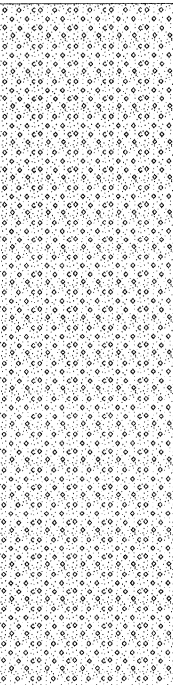
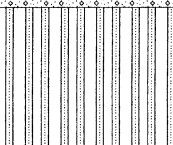
Bathymetric Elevation (feet, NAVD '88): 108.50
Northing: 785479.5
Easting: 1985419.6
Total Depth (feet): 1.0
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.8/1.0	NR (see note #1)		0-1.0 ft: tan, medium to very coarse sand, some fine gravels.	0-0.5 ft: moderate TLM odor, no visual TLM 0.5-1.0 ft: TLM occurrence increasing with depth. At 0.5 to 0.75 feet, TLM bleb like appearance. At 0.75 to 1.0 feet, highly weathered TLM (approximately 80-90% of interval), staining grains
1				DPT Refusal: 1.0 feet. Notes: 1. NR- Not recorded but first core run indicated a PID reading of 5.6 ppm. 2. First core run also indicated presence of TLM with notable exception found in the 0 to 0.25 foot interval. 3. For lithology and TLM observations, depth adjusted based on recovery. 4. Recovery limited (80%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: N16

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 4, 2010
Date Completed: October 4, 2010
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 108.70
Northing: 785461.3
Easting: 1985374.6
Total Depth (feet): 1.2
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.8/1.2	21.2		0-1.0 ft: brown to black, medium to very coarse sand, gravel at bottom.	0-0.45 ft: slight TLM odor, no visual TLM 0.45-0.70 ft: weathered TLM acting to bind grains together. At 0.55 to 0.70 feet, less viscous and less weathered and more flowable 0.70-1.20 ft: slight to moderate TLM odor, no to very minor blebs of TLM
1				1.0-1.2 ft: green gray, silt and sand, trace of gravel.	
				DPT Refusal: 1.2 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 69%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: O16

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: October 4, 2010

Date Completed: October 4, 2010

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.



Bathymetric Elevation (feet, NAVD '88): 108.30

Northing: 785446.4

Easting: 1985320.1

Total Depth (feet): 1.0

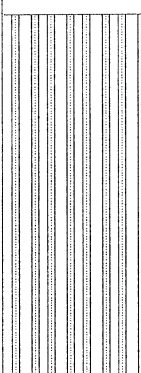
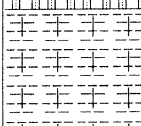
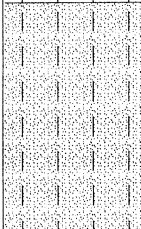


Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/1.0	0		0-0.4 ft: gravels	0-1.0 ft: no TLM odor, no visual TLM
				0.4-1.0 ft: brown, medium to very coarse sand, some fine gravels	
1				DPT Refusal: 1.0 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Second core run from O16 also indicated absence of TLM.	

Soil Boring: H17

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 28, 2011
Date Completed: July 28, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc.

Ground Elevation (feet, NAVD '88): 133.96
Northing: 785501.6
Easting: 1985683.6
Total Depth (Ft.): 27
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations		
0				Ground Surface			
1	2.9/5.0	NR		0-0.5 ft: dark brown, topsoil	0-27 ft: no TLM odor, no visual TLM		
2				0.5-11.5 ft: brown to tan, very fine to fine sand and silt, trace clay, dry.			
3							
4							
5							
6							
7	3.0/5.0						-5-10 ft: clay as layers
8							
9							
10							
11	3.5/5.0			11.5-15.0 ft: brown, clay with trace to some silt, moist, trace mica, wood frags.			
12							
13							
14							
15	1.1/5.0			15.0-22.0 ft: brown to tan, fine to medium sand, trace to some silt, moist.			
16							
17							
18							
19				-20-22 ft: mica, wet			
20	2.7/5.0			22.0-25.0 ft: gray to black, silt and grading with depth to fine to medium sand.			
21							
22							
23							
24				-black color is from vegetative material			
25	2.0/2.0			25.0-27.0 ft: gray, medium to coarse sand, wet.			
26							
27							
28				Total Depth: 27.0 feet.			
29				Notes:			
30				1. Elevation and location is from survey.			
31				1. NR-Not recorded due to PID malfunctioning.			
32							
33							
34							
35							

Sediment Coring: I17

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 112.0
Northing: 785447.2
Easting: 1985627.8
Total Depth (feet): 2.8
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
0	2.0/2.8	0		0-0.7 ft: dark gray, silt with some fine sand and clay, muscovite flakes.	0-0.5 ft: no TLM odor, no visual TLM
1				0.7-2.8 ft: dark gray, silt and clay, some muscovite flakes. -plant fragments throughout interval.	0.5-2.0 ft: slight TLM odor, no visual TLM
2					
3				DPT Refusal: 2.8 feet.	
4				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depth adjusted based on recovery. 3. Recovery was limited (approximately 71%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: J17

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 106.00
Northing: 785435.82
Easting: 1985594.63
Total Depth (feet): 1.4
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
0.85/1.4	0			0-1.4 ft: dark gray to black fine to medium sand.	0-1.4 ft: slight to moderate TLM odor, weathered TLM throughout interval, acting as a binder for grains
2				DPT Refusal: 1.4 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithology and TLM observations, depth adjusted based on recovery. 3. Recovery was limited (approximately 61%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: K17

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 105.50
Northing: 785420.98
Easting: 1985545.56
Total Depth (feet): 1.0
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/1.0	0	◻	0-0.8 ft: brown, fine to coarse sand.	0-0.8 ft: no TLM odor, no visual TLM
			◻	0.8-1.0 ft: black, fine to coarse sand.	0.8-1.0 ft: slight to moderate TLM odor, interval is stained black with visual TLM, acting as a binder with sand grains (see note #4)
1				DPT Refusal: 1.0 feet.	
				Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (50%) and vertical extent of TLM may or may not be reflective of depths and intervals noted. 4. Second core run indicated no TLM odor and no visual TLM.	
2					

Sediment Coring: L17

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started:
Date Completed:
Logged by: M. Ferlin
Drilled by: Geologic Exploration Inc.

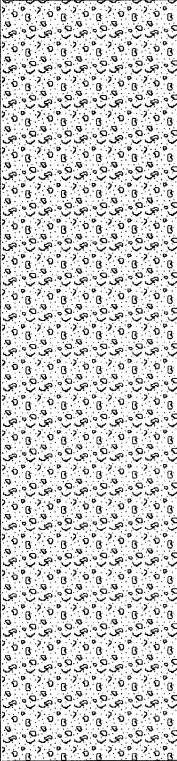
Bathymetric Elevation (feet, NAVD '88): 107.10
Northing: 785404.10
Easting: 1985500.77
Total Depth (feet): 1.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.8/1.5	0		0-1.5 ft: brown, medium to very coarse sand and trace to some fine to medium gravels. - silt content increasing at 1.3 to 1.5 feet.	0-1.5 ft: no TLM odor, no visual TLM
1					
2				DPT Refusal: 1.5 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depth adjusted based on recovery. 3. Recovery was limited (approximately 53%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: N17

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 109.20
Northing: 785367.34
Easting: 1985404.5
Total Depth (feet): 2.6
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.5/2.6	0		0-2.6 ft: brown, medium to very coarse sand, fine to coarse gravels.	0-2.6 ft: no TLM odor, no visual TLM
2					
3				DPT Refusal: 2.6 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depth adjusted based on recovery. 3. Recovery was limited (approximately 52%) and vertical extent of TLM may or may not be reflective of depths and intervals noted. 4. Two other cores were collected and TLM odor and visual was not noted.	
4					

Sediment Coring: O17

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 23, 2011
Date Completed: February 23, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 109.40
Northing: 785351.36
Easting: 1985361.41
Total Depth (feet): 1.4
Drilling Method: Direct Push Method

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.4/1.4	0		0-1.4 ft: brown, medium to very coarse sand with some fine to coarse gravels. -gravels more prevalent at tip.	0-1.4 ft: no TLM odor, no visual TLM
1					
2				DPT Refusal: 1.4 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depth adjusted based on recovery. 3. Recovery was limited (approximately 29%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: J18

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 22, 2011
Date Completed: February 22, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 108.10
Northing: 785346.34
Easting: 1985626.98
Total Depth (feet): 1.6
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
			[Symbol: Dotted pattern]	0-0.5 ft: brown, fine to coarse sand with some shells.	0-0.5 ft: no odor, no visual
	0.95/1.6	10.6	[Symbol: Dotted pattern]	0.5-1.6 ft: black, fine to coarse sand. -gravel at tip	0.5-1.6 ft: moderate TLM odor, highly weathered TLM occurs as coating on grains that act as binding, more prevalent with depth
1		27.5	[Symbol: Dotted pattern]		
2				Refusal: 1.6 feet. Notes: 1. Core elevations based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 59%) and vertical extent of TLM may or may not be reflective of depths and intervals noted. 4. Three cores recovered and logged third since it had the most recovery.	

Sediment Coring: K18

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: February 22, 2011

Date Completed: February 22, 2011

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 108.00

Northing: 785327.23

Easting: 1985578.24

Total Depth (feet): 0.25

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.2/0.25	0		0-0.25 ft: brown, fine to medium sand and fine to coarse gravels.	0-0.25 ft: slight TLM odor, couple of TLM "balls" noted on top of sample matrix
				Refusal: 0.25 feet. Notes: 1. Core elevations based on bathymetric survey map. 2. Two cores were collected. One core indicated visual TLM was not present and the other core (2nd) indicated visual TLM balls.	

Sediment Coring: L18

Client: SCANA Services, Inc.

Bathymetric Elevation (feet, NAVD '88): 109.10

Site Location:

Northing: 785308.64

Date Started:

Easting: 1985535.84

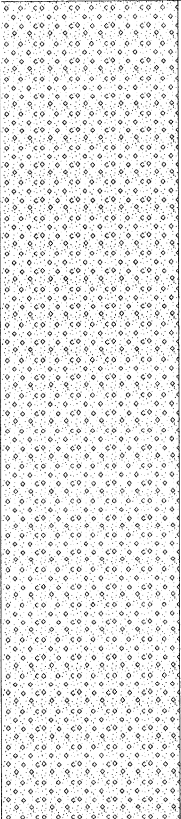
Date Completed:

Total Depth (feet): 0.35

Logged by: M. Ferlin

Drilling Method: Direct Push Technology

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.35/0.35	0		0-0.35 ft: brown, medium to coarse sand with trace gravels.	0-0.35 ft: no TLM odor, no visual TLM
				Refusal: 0.35 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: M18

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: February 22, 2011

Date Completed: February 22, 2011

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 108.90

Northing: 785286.06

Easting: 1985484.95

Total Depth (feet): 1.0

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	0		0-1.0 ft: brown, medium to very coarse sand, and fine to coarse gravels. -larger gravels more prevalent from 0-0.4 feet.	0-1.0 ft: no TLM odor, no visual TLM
1				Refusal: 1.0 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: N18

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 22, 2011
Date Completed: February 22, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 110.20
Northing: 785269.97
Easting: 1985435.99
Total Depth (feet): 0.75
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.65/0.75	0		0-0.75 ft: brown, medium to very coarse sand, trace fine gravels	0-0.75 ft: no TLM odor, no visual TLM
1				Refusal: 0.75 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery.	

Sediment Coring: O18

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: February 22, 2011

Date Completed: February 22, 2011

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

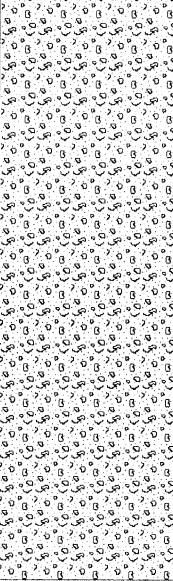
Bathymetric Elevation (feet, NAVD '88): 109.80

Northing: 785257.24

Easting: 1985396.72

Total Depth (feet): 0.5

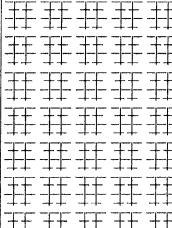

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0	0.5/0.5	0		Bathymetric Surface 0-0.5 ft: brown, medium to coarse sand and fine gravels.	0-0.5 ft: no TLM odor, no visual TLM
1				Refusal: 0.5 feet. Notes: 1. Core elevations based on bathymetric survey map. 2. Three cores were collected and each indicated no TLM odor and no visual TLM. 3. Total depth based on recovered amount which was 0.5 feet.	

Sediment Coring: P18

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 22, 2011
Date Completed: February 22, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 110.50
Northing: 785239.97
Easting: 1985347.01
Total Depth (feet): 1.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.4 ft: gray-green, clay with some silt, appears to be more saprolitic.	
	0.8/1.5	NR		0.4-1.5 ft: brown, medium to very coarse sand with some fine to medium gravels.	0-1.5 ft: no TLM odor, no visual TLM
1					
2				Refusal: 1.5 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 53%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: J19

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 22, 2011
Date Completed: February 22, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 111.70
Northing: 785247.97
Easting: 1985662.53
Total Depth (feet): 2.0
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.3 ft: gravel on surface then brown fine to coarse sand	
				0.3-0.5 ft: brown to light gray silt and clay.	
				0.5-0.6 ft: brown fine to coarse sand.	
				0.6-0.8 ft: brown to light gray silt and clay.	
1	1.25/2.0	0		0.8-2.0 ft: brown, fine to coarse sand with trace gravels. -vegetative matter (leaves) at bottom of interval.	0-1.75 ft: no odor, no visual
2		12.3			1.75-2.0 ft: slight to moderate TLM odor, stained black, trace of what appears to be blebs of TLM on leaves
3				Refusal: 2.0 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depth adjusted based on recovery. 3. Recovery was limited (approximately 63%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: K19

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 22, 2011
Date Completed: February 22, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

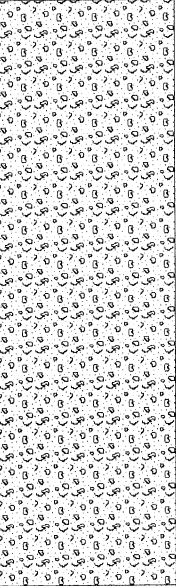
Bathymetric Elevation (feet, NAVD '88): 109.80
Northing: 785228.24
Easting: 1985621.59
Total Depth (feet): 0.6
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0	0.5/0.6	0		Bathymetric Surface 0-0.6 ft: brown, fine to very coarse sand and fine to coarse gravels.	0-0.6 ft: no TLM odor, no visual TLM
1				Refusal: 0.6 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: L19

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: February 22, 2011
Date Completed: February 22, 2011
Logged by: M. Ferlin
Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): 109.90
Northing: 785215.33
Easting: 1985569.42
Total Depth (feet): 0.5
Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.35/0.5	0		0-0.5 ft: brown, medium to very coarse sand, fine to very coarse gravels and cobbles.	0-0.5 ft: no TLM odor, no visual TLM (see note # 4)
1				Refusal: 0.5 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (70%) and vertical extent of TLM may or may not be reflective of depths and intervals noted. 4. Three cores collected. On second core, TLM bleb noted on a gravel and potentially on a large cobble.	

Sediment Coring: M19

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: February 22, 2011

Date Completed: February 22, 2011

Logged by: M. Ferlin

Drilled by: Geologic Exploration, Inc. and Athena Technologies, Inc.

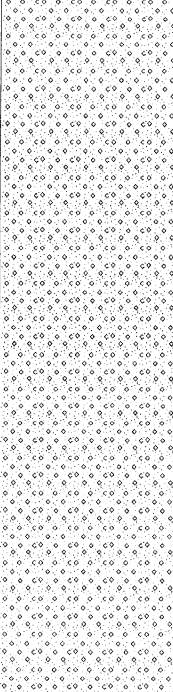
Bathymetric Elevation (feet, NAVD '88): 111.50

Northing: 785198.7

Easting: 1985526.12

Total Depth (feet): 0.3

Drilling Method: Direct Push Technology

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.3/0.3	0		0-0.3 ft: brown, fine to coarse sand.	0-0.3 ft: no TLM odor, no visual TLM
				Refusal: 0.3 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: a

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 113.70
Northing: 785241.7
Easting: 1985693.3
Total Depth (feet): 1.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.5/1.5			0-1.5 ft: brown to tan, fine to coarse sand and fine to coarse gravel	0-1.5 ft: no TLM odor, no visual TLM
1					
2				Maximum Depth: 1.5 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: b

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

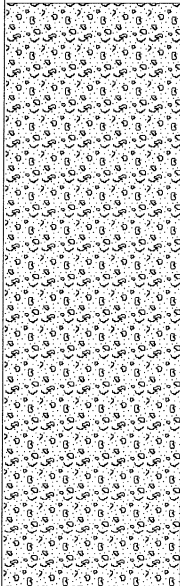
Bathymetric Elevation (feet, NAVD '88): 110.8
Northing: 785226.6
Easting: 1985656.3
Total Depth (feet): 1.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.5/1.5			Not recorded, though likely similar to Sediment Coring a.	
1					
				Maximum Depth: 1.5 feet.	
2				Note: 1. Core elevation based on bathymetric survey map.	
					0-1.5 ft: no TLM odor, no visual TLM

Sediment Coring: c

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 110.9
Northing: 785204.3
Easting: 1985600.4
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5			0-0.5 ft: brown, medium to very coarse sand and fine to coarse gravel.	0-0.5 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.5 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: d

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 110.5
Northing: 785185.5
Easting: 198555.3
Total Depth (feet): 0.3
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0	0.3/0.3			Bathymetric Surface	
				0-0.3 ft: brown, fine to very coarse sand and fine to coarse gravel.	
				-0.3- ft: gray, fine to coarse sand, trace silt	
				Maximum Depth: 0.3 feet.	0-0.25 ft: Fragment, faint TLM odor; very minor amount of highly weathered, black, friable asphaltic like TLM. Sand grains appeared to be bound by potential TLM. Interpreted to be representative of other weathered material (OWM).
				Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: e

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

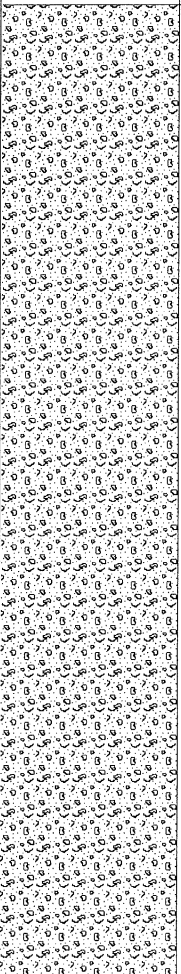
Bathymetric Elevation (feet, NAVD '88): 113.10
Northing: 784866.4
Easting: 1985693.8
Total Depth (feet): 0.75
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.75/0.75			0-0.75 ft: tan to brown, medium to very coarse sand and fine to coarse gravel.	0-0.75 ft: no TLM odor, dark gray cinder like material was present in very minor amounts
1				Maximum Depth: 0.75 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: f

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

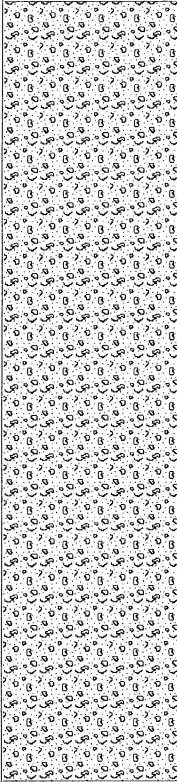
Bathymetric Elevation (feet, NAVD '88): 113.60
Northing: 784886.1
Easting: 1985745.1
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0			0-1.0 ft: brown to gray (with depth), medium to very coarse sand, fine to coarse gravel, some vegetative material.	0-1.0ft: no TLM odor, no visual TLM
1				Maximum Depth: 1.0 feet. Note: 1. Core elevation based on bathymetric survey.	

Sediment Coring: g

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

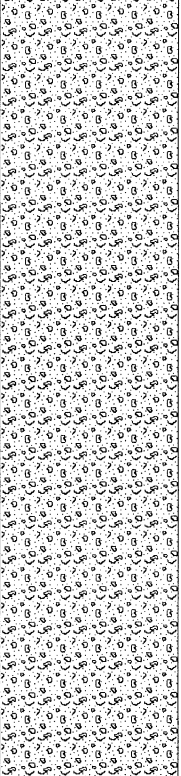
Bathymetric Elevation (feet, NAVD '88): 113.20
Northing: 784895.6
Easting: 1985768.3
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0			0-1.0 ft: brown, medium to very coarse sand with some fine to coarse gravels.	0-1.0 ft: Fragments interpreted to be representative of other weathered material (OWM), though present in very limited amounts, very faint TLM odor in fragment.
1				Maximum Depth: 1.0 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: h

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

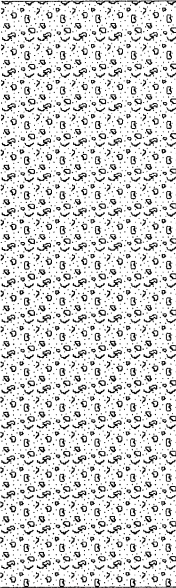
Bathymetric Elevation (feet, NAVD '88): 112.20
Northing: 784910.1
Easting: 1985805.9
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0			0-1.0 ft: brown to tan, medium to very coarse sand and fine to coarse gravels.	0-1.0 ft: Fragments interpreted to be representative of other weathered material (OWM), faint TLM odor, some were pliable.
1				Maximum Depth: 1.0 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: i

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 112.80
Northing: 784926.4
Easting: 1985847.7
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5			0-0.5 ft: brown to tan, medium to very coarse sand and fine to coarse gravel.	0-0.5 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.5 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: j

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: October 7, 2010
Date Completed: October 7, 2010
Logged by: M. Ferlin
Drilled by: Not Applicable

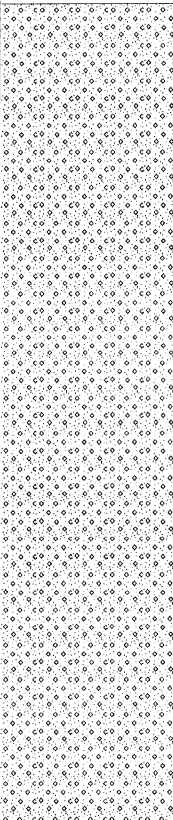
Bathymetric Elevation (feet, NAVD '88): see note #1
Northing: 784281.9
Easting: 1985970.2
Total Depth (feet): Not Recorded
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface brown to tan, medium to very coarse sand and fine gravels.	Cinders noted. Between boulders: very faint TLM odor, noted highly weathered TLM fragment that was approximately 0.75 feet long and 0.2 feet wide. The TLM fragment was brittle and when broken open, felt pliable. Sand grains in TLM fragment. Also noted some cinders.
1			Maximum Depth: Not recorded Note: 1. Due to boulders, this location could not be surveyed and therefore a bathymetric elevation is not provided.		

Sediment Coring: I20

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 21, 2011
Date Completed: July 21, 2011
Logged by: M. Ferlin
Drilled by:

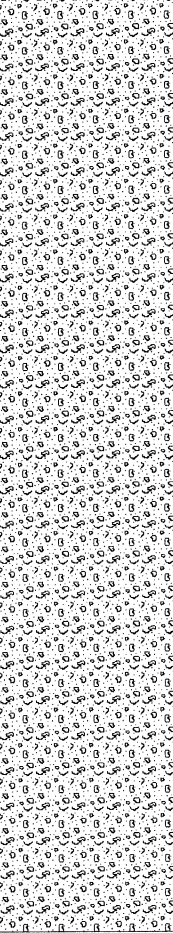
Bathymetric Elevation (feet, NAVD '88): 114.50
Northing: 785162.3
Easting: 1985734.8
Total Depth (feet): 0.7
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	0		0-0.7 ft: gray, medium to very coarse sand, fine to very coarse gravels.	0-0.7 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.7 feet. Note: 1. Core elevation based on bathymetric survey map.	

Sediment Coring: K20

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 21, 2011
Date Completed: July 21, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 113.20
Northing: 785132.0
Easting: 1985659.0
Total Depth (feet): 0.8
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.8/0.8	NR		0-0.8 ft: grading with depth brown to gray, fine to coarse sand and fine gravels, trace of silt, and some plant fragments.	0-0.4 ft: no TLM odor, no visual TLM except: very faint TLM odor at 0.4 feet and other weathered material (OWM) or TLM fragment (~3/4-inch in length) at 0.3 feet 0.4-0.8 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.8 feet. Notes: 1. NR-Not recorded since wading in river and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: L20

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 21, 2011
Date Completed: July 21, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 112.70
Northing: 785121.9
Easting: 1985616.9
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	NR		0-1.0 ft: brown, medium to very coarse sand, trace to some fine to coarse gravel, trace silt.	0-1.0 ft: no TLM odor, no visual TLM
1				Maximum Depth: 1.0 feet. Notes: 1. NR- Not recorded since wading in river and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: M20

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: July 21, 2011

Date Completed: July 21, 2011

Logged by: M. Ferlin

Drilled by: Not Applicable

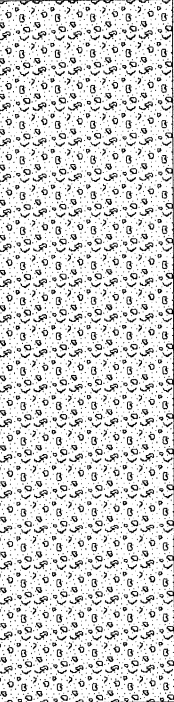
Bathymetric Elevation (feet, NAVD '88): 111.50

Northing: 785101.7

Easting: 1985558.0

Total Depth (feet): 0.6

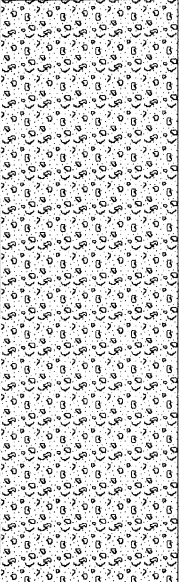
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.6/0.6	NR		0-0.6 ft: brown to gray to orange, medium to very coarse sand and fine to coarse gravels	0-0.6 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.6 feet. Notes: 1. NR-Not recorded since wading in river and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: N20

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 21, 2011
Date Completed: July 21, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 112.80
Northing: 785091.6
Easting: 1985499.0
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: brown, medium to coarse sand and fine gravels.	0-0.5 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.5 feet. Notes: 1. NR-Not recorded since wading in river and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: O20

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 21, 2011
Date Completed: July 21, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable


Bathymetric Elevation (feet, NAVD '88): 112.80
Northing: 785071.5
Easting: 1985473.8
Total Depth (feet): 0.6
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.6/0.6	NR		0-0.6 ft: brown, medium to very coarse sand, fine gravels.	0-0.6 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.6 feet. Notes: 1. NR-Not recorded since wading in river and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: J22

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

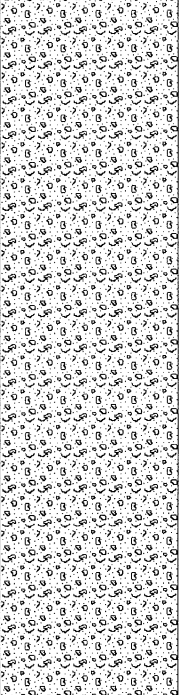
Bathymetric Elevation (feet, NAVD '88): 112.00
Northing: 784970.2
Easting: 1985768.4
Total Depth (feet): 0.6
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.6/0.6	NR		0-0.6 ft: gray to tan, fine to coarse sand with trace to some fine gravels. -areas of gray are likely silt and plant fragments.	0-0.6 ft: no TLM odor, no visual TLM. One fragment of TLM and one fragment of other weathered material (OWM) at depth of 0.2 to 0.3 feet. Neither fragment had an odor.
1				Maximum Depth: 0.6 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: L22

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

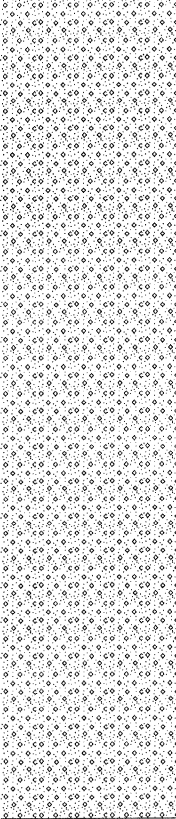
Bathymetric Elevation (feet, NAVD '88): 113.80
Northing: 784940.0
Easting: 1985667.3
Total Depth (feet): 0.9
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.9/0.9	NR		0-0.9 ft: brown, medium to very coarse sand, fine to coarse gravel, some plant fragments. -0.9 feet: gray and silt content increasing	0-0.9 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.9 feet. Notes: 1. NR- Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: N22

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed:
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 112.70
Northing: 784899.6
Easting: 1985583.1
Total Depth (feet): 0.7
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	NR		0-0.7 ft: brown, medium to very coarse sand, fine to coarse gravels, some cobbles.	0-0.7 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.7 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: H24

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 114.20
Northing: 784818.6
Easting: 1985919.8
Total Depth (feet): 0.7
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	NR		0-0.7 ft: gray, very fine sand and silt, micaceous and vegetative material.	0-0.7 ft: potentially very slight TLM odor, no visual TLM. Specific depth of TLM odor is not defined and may be less than noted
1				Maximum Depth: 0.7 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: J24

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

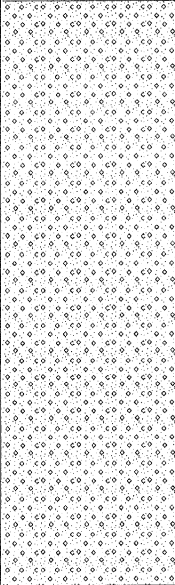
Bathymetric Elevation (feet, NAVD '88): 112.60
Northing: 784788.3
Easting: 1985835.6
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: brown, medium to very coarse sand, fine to coarse gravels, cobbles, plant fragments.	0-0.5 ft: no TLM odor, no visual TLM. One other weathered material (OWM) fragment noted and approximately 3-inches in diameter
1				Maximum Depth: 0.5 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: L24

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 112.40
Northing: 784758.0
Easting: 1985751.4
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: brown to gray, medium to very coarse sand and some fine gravels, wood fragments.	0-0.5 ft: discontinuous and pliable (i.e. highly weathered) TLM fragment that had a slight to moderate odor encountered in a shovel sample. Other samples yielded no TLM odors and no visual TLM
1				Maximum Depth: 0.5 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: N24

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: July 20, 2011

Date Completed: July 20, 2011

Logged by: M. Ferlin

Drilled by: Not Applicable

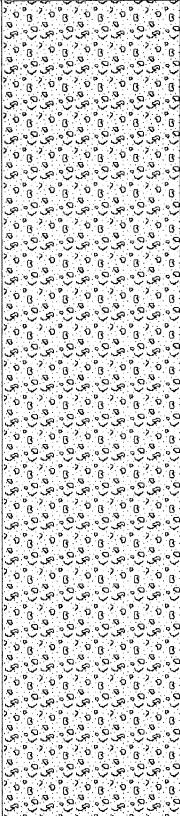
Bathymetric Elevation (feet, NAVD '88): 112.90

Northing: 784747.9

Easting: 1985684.1

Total Depth (feet): 0.7

Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	NR		0-0.7 ft: brown, medium to very coarse sand and fine to very coarse gravel, cobbles, slight mica.	0-0.7 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.7 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: H26

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 114.50
Northing: 784636.6
Easting: 1985995.5
Total Depth (feet): 1.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.8/1.5	NR		0-1.5 ft: gray, silt and very fine sand, micaceous, vegetative matter.	0-1.5 ft: no TLM odor, no visual TLM
1					
2				Maximum Depth: 1.5 feet, Notes: 1. NR-not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map. 3. For lithologies and TLM observations, depths adjusted based on recovery. 4. Recovery was limited (approximately 53%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: J26

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: July 20, 2011

Date Completed: July 20, 2011

Logged by: M. Ferlin

Drilled by: Not Applicable

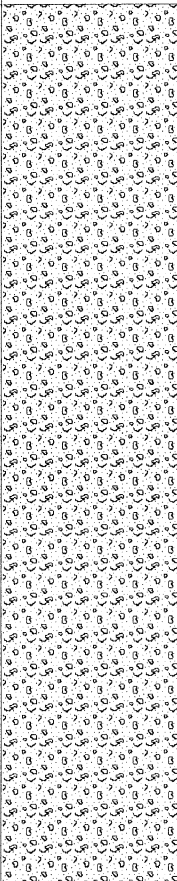
Bathymetric Elevation (feet, NAVD '88): 112.50

Northing: 784596.2

Easting: 1985902.9

Total Depth (feet): 0.75

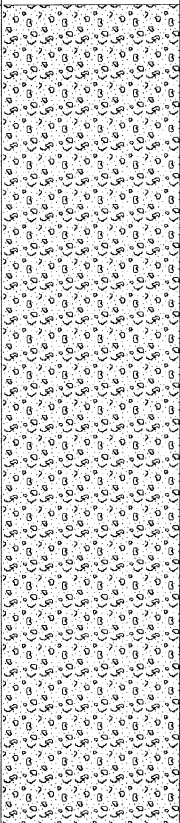
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.75/0.75	NR		0-0.75 ft: brown, medium to very coarse sand and fine to coarse gravels, some cobbles. -0.75 feet: more orange and silty	0-0.75 ft: no TLM odors, no visual TLM. Noted one clinker while inspecting samples.
1				Maximum Depth: 0.75 feet. Notes: 1. NR-Not recorded since PID malfunctioned and was likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: L26

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

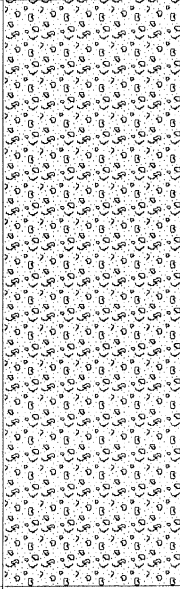
Bathymetric Elevation (feet, NAVD '88): 112.80
Northing: 784576.1
Easting: 1985827.1
Total Depth (feet): 0.7
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	NR		0-0.7 ft: brown, medium to very coarse sand and fine to coarse gravel.	0-0.7 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.7 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey maps.	

Sediment Coring: N26

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 113.70
Northing: 784525.6
Easting: 1985726.1
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: brown, medium to very coarse sand, and fine to very coarse gravels, some cobbles.	0-0.5 ft: no TLM odor, no TLM visual
1				Maximum Depth: 0.5 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: H28

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): (see note #2)
Northing: 784505.2
Easting: 1986062.8
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	NR		0-1.0 ft: gray, silt and very fine sand, micaceous, some vegetative matter.	0-1.0 ft: no TLM odor, no visual TLM
1				Maximum Depth: 1.0 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Due to boulders, the 28 line could not be surveyed and therefore a bathymetric elevation is not provided.	

Sediment Coring: J28

Client: SCANA Services, Inc.

Site Location:

Date Started: July 20, 2011

Date Completed: July 20, 2011

Logged by: M. Ferlin

Drilled by: Not Applicable

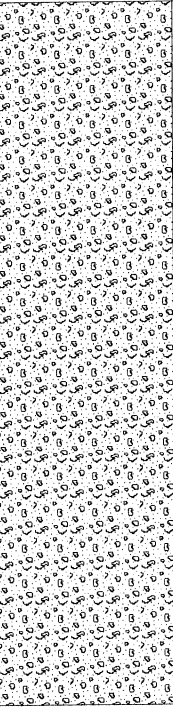
Bathymetric Elevation (feet, NAVD '88): (see note #2)

Northing: 784424.4

Easting: 1985978.6

Total Depth (feet): 0.6

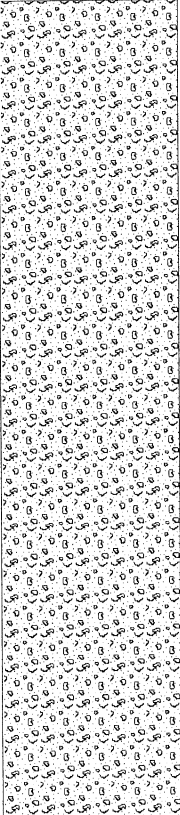
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.6/0.6	NR		0-0.6 ft: brown, medium to very coarse sand, fine to very coarse gravel, trace cobbles.	0-0.6 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.6 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Due to boulders, the 28 line could not be surveyed and therefore a bathymetric elevation is not provided.	

Sediment Coring: L28

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M.Ferlin
Drilled by: Not Applicable


Bathymetric Elevation (feet, NAVD '88): (see note #2)
Northing: 784384.0
Easting: 1985886.0
Total Depth (feet): 0.7
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	NR		0-0.7 ft: brown, medium to very coarse sand, medium to very coarse gravels, some cobbles.	0-0.7 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.7 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likley from water and humidity. 2. Due to boulders, the 28 line could not be surveyed and therefore a bathymetric elevation is not provided.	

Sediment Coring: N28

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): (see note #2)
Northing: 784363.8
Easting: 1985776.5
Total Depth (feet): 0.7
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	NR		0-0.7 ft: brown to gray, medium to very coarse sand and fine to coarse gravels, trace cobbles, some mica	0-0.7 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.7 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Due to boulders, the 28 line could not be surveyed and therefore a bathymetric elevation is not provided.	

Sediment Coring: 130

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): (see note #3)
Northing: 784262.6
Easting: 1986146.9
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	NR		0-1.0 ft: gray, very fine to fine sand and silt, micaceous, vegetative material.	0-0.5 ft: very slight TLM odor, no visual TLM 0.5-1.0 ft: potentially very slight TLM odor, no visual TLM
1				Maximum Depth: 1.0 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map. 3. Located outside survey and for purposes of identifying an elevation is assumed to be 114.00 feet since downstream of other locations along the rivers edge.	

Sediment Coring: J30

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 109.70
Northing: 784212.1
Easting: 1986012.2
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	NR		0-1.0 ft: gray, medium to very coarse sand, micaceous.	0-1.0 ft: no TLM odor, no visual TLM
1				Maximum Depth: 1.0 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	1.0 ft: potentially very faint TLM odor, no visual TLM

Sediment Coring: L30

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

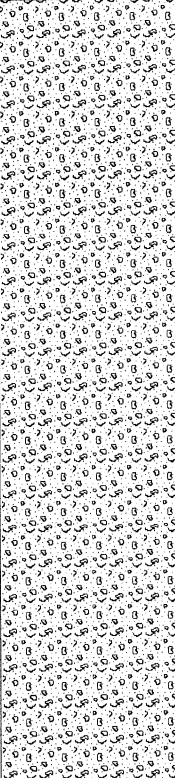
Bathymetric Elevation (feet, NAVD '88): 108.50
Northing: 784191.9
Easting: 1985953.2
Total Depth (feet): 0.7
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.7/0.7	NR		0-0.7 ft: brown, medium to very coarse sand, fine to very coarse gravel.	0-0.7 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.7 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: N30

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 111.10
Northing: 784151.5
Easting: 1985860.6
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	NR		0-1.0 ft: brown to tan, medium to very coarse sand and fine to very coarse gravels.	0-1.0 ft: no TLM odor, no visual TLM. Noted two fragments that resembled cinders and clinkers and a third that appeared to be other weathered material (OWM).
1				Maximum Depth: 1.0 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: I32

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 111.20
Northing: 784055.7
Easting: 1986168.8
Total Depth (feet): 1.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.5 ft: very coarse gravels to fine boulders	
	1.5/1.5	0		0.5-1.5 ft: gray, very fine sand and silt with mica.	0-1.5 ft: no TLM odor, no visual TLM
1					
				Maximum Depth: 1.5 feet.	
				Notes: 1. Core elevation based on extrapolation of contour lines on the bathymetric survey map and therefore is approximate. 2. The coring was located under Blossom Street Bridge and the GPS could not connect with the satellites. Therefore, the northing and easting were determined from the bathymetric survey map.	
2					

Sediment Coring: J32

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

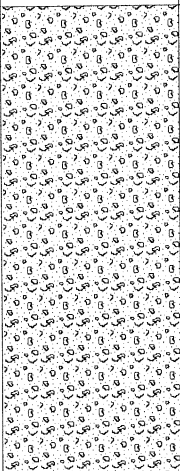
Bathymetric Elevation (feet, NAVD '88): 110.00
Northing: 784038.1
Easting: 1986119.1
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0	0.5/0.5	0		Bathymetric Surface 0-0.5 ft: brown to gray, very fine to medium sand, some vegetative material.	0-0.5 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.5 feet. Notes: 1. Core elevation based on bathymetric survey map. 2. The coring was located under Blossom Street Bridge and the GPS could not connect with the satellites. Therefore, the northing and easting were determined from the bathymetric survey map.	

Sediment Coring: L32

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

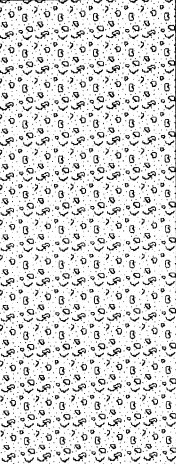
Bathymetric Elevation (feet, NAVD '88): 110.40
Northing: 784004.1
Easting: 1986024.3
Total Depth (feet): 0.4
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.4/0.4	NR		0-0.4 ft: brown, medium to coarse sand, trace gravels.	0-0.4 ft: no TLM odor, no visual TLM
				Maximum Depth: 0.4 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map. 3. The coring was located under the Blossom Street Bridge and the GPS could not connect to the satellites. Therefore, the northing and easting were determined from the bathymetric survey map.	
1					

Sediment Coring: N32

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not Applicabel

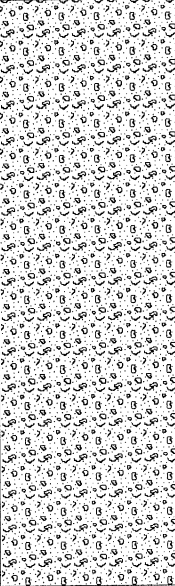
Bathymetric Elevation (feet, NAVD '88): 109.20
Northing: 783970.0
Easting: 1985930.8
Total Depth (feet): 0.4
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.4/0.4	NR		0-0.41 ft: brown, medium to very coarse sand and fine to coarse gravels.	0-0.4 ft: no TLM odor, no visual TLM
				Maximum Depth: 0.4 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map. 3. The coring was located under the Blossom Street Bridge and the GPS could not connect with the satellites. Therefore, the northing and easting were determined from the bathymetric survey map.	
1					

Sediment Coring: P32

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 20, 2011
Date Completed: July 20, 2011
Logged by: M. Ferlin
Drilled by: Not applicable

Bathymetric Elevation (feet, NAVD '88): 110.60
Northing: 783939.4
Easting: 1985838.2
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0	0.5/0.5	NR		Bathymetric Surface 0-0.5 ft: brown, medium to very coarse sand and fine to coarse gravels.	0-0.5 ft: no TLM odor, no visual TLM 0.2-0.3 ft: several TLM fragments ranging in size from approximately 1/4 to 1/2-inch in diameter. Likely transported downriver.
1				Maximum Depth: 0.5 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on bathymetric survey map. 3. The coring was located under the Blossom Street Bridge and the GPS could not connect with the satellites. Therefore, the northing and easting were determined from the bathymetric survey map.	

Sediment Coring: R32

Client: SCANA Services, Inc.

Site Location:

Date Started:

Date Completed:

Logged by: M. Ferlin

Drilled by: Not Applicable

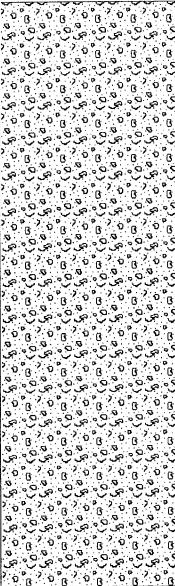
Bathymetric Elevation (feet, NAVD '88): 110.20

Northing: 783955.9

Easting: 1985738.8

Total Depth (feet): 0.75

Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.75/0.75	NR		0-0.75 ft: brown, medium to very coarse sand, fine to coarse gravels.	0-0.75 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.75 feet. Notes: 1. NR-Not recorded since PID malfunctioned and likely from water and humidity. 2. Core elevation based on extrapolation of contour lines on the bathymetric survey map and therefore is approximate. 3. The coring was located under the Blossom Street Bridge and the GPS could not connect with the satellites. Therefore, the northing and easting were determined from the bathymetric survey map.	

Sediment Coring: J34

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: July 19, 2011

Date Completed: July 19, 2011

Logged by: M. Ferlin

Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 110.20

Northing: 783838.1

Easting: 1986079.4

Total Depth (feet): 0.4

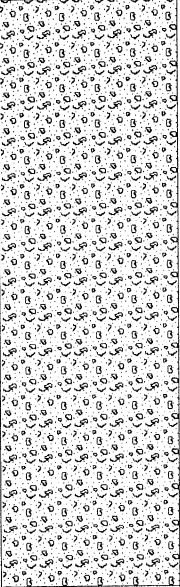
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.4/0.4	NR		0-0.4 ft: brown to gray, silt and fine sand.	0-0.33 ft: no TLM odor, no visual TLM 0.33-0.4 ft: very faint TLM odor, no visual TLM
				Maximum Depth: 0.4 feet Notes: 1. NR - not recorded since wading in water and moisture would negatively impact PID. 2. Horizontal coordinates are the same as L34 though J34 was located along river bank. 3. Assumed total depth since notes do not clearly define maximum depth. 4. Core elevation based on extrapolation of contour lines on the bathymetric survey map and therefore is approximate.	
1					

Sediment Coring: L34

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 19, 2011
Date Completed: July 19, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 110.30
Northing: 783838.1
Easting: 1986079.4
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: tan-brown, medium to coarse sand, fine to coarse gravel.	0-0.2 ft: no TLM odors, no visual TLM 0.2 ft: odors not recorded but likely existed, some TLM globules ~ 1/2 inch in diameter and sheen 0.25-0.5 ft: moderate to strong TLM odor, weathered TLM
1				Maximum Depth: 0.5 feet. Notes: 1. NR - not recorded since wading in water and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map. 3. Horizontal coordinates are the same as J34 though J34 was located along the river's edge and L34 was located in the river.	

Sediment Coring: L34 1/2

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 19, 2011
Date Completed: July 19, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 110.60
Northing: 783848.2
Easting: 1986138.3
Total Depth (feet): See notes
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				See notes below	
				Notes: 1. Location investigated for sole purpose of assessing horizontal extent of TLM and therefore depths were not recorded. 2. Core elevation based on bathymetric survey map.	Visual presence of TLM was noted closer to L34; other locations in vicinity of L34 1/2 did not indicate visual TLM.
1					

Sediment Coring: N34

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 19, 2011
Date Completed: July 19, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 109.30
Northing: 783777.5
Easting: 1985995.1
Total Depth (feet): 0.9
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.9/0.9	NR	0-0.9 ft: brown to tan, medium to very coarse sand, fine to coarse gravels.		0-0.5 ft: no TLM odor, no visual TLM 0.5 -0.8 ft: odors not recorded and likely were odors, highly weathered TLM 0.8-0.9 ft: not recorded
1				Maximum Depth: 0.9 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: P34

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 19, 2011
Date Completed: July 19, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 110.70
Northing: 783737.1
Easting: 1985902.5
Total Depth (feet): 1.1
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1,1/1.1	NR		0-1.1 ft: tan to orange, medium to very coarse sand and fine to coarse gravels.	0-1.1 ft: no TLM odor, no visual TLM Very weathered TLM fragments noted and was not within sample matrix
1				Maximum Depth: 1.1 feet. Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: L36

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 19, 2011
Date Completed: July 19, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

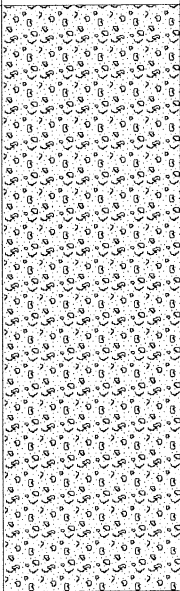
Bathymetric Elevation (feet, NAVD '88): 110.00
Northing: 783625.8
Easting: 1986214.0
Total Depth (feet): 3.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	3.0/3.0	NR		0-3.0 ft: gray, silt and fine sand, micaceous, vegetative material.	0-3.0 ft: no TLM odor, no visual TLM
2					
3				Maximum Depth: 3.0 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. Core elevation based on extrapolation of contour lines on the bathymetric survey map and therefore is approximate.	

Sediment Coring: N36

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 19, 2011
Date Completed: July 19, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 110.80
Northing: 783605.7
Easting: 1986054.0
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: tan, fine to very coarse sand, gravels and cobbles.	0-0.5 ft: no TLM odor, very weathered TLM but depth and thickness were not noted.
1				Maximum Depth: 0.5 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map.	

Sediment Coring: N36 1/2

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 19, 2011
Date Completed: July 19, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

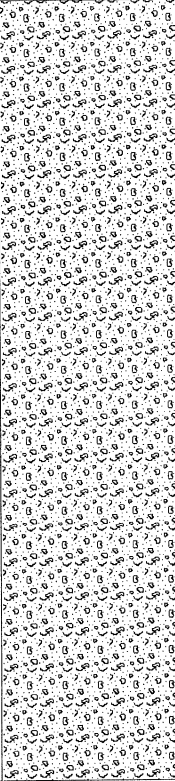
Bathymetric Elevation (feet, NAVD '88): 110.10
Northing: 783605.7
Easting: 1986045.6
Total Depth (feet): ~0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	0-0.2 ft: no TLM odor, no visual TLM
					0.2-0.5 ft: slight to moderate TLM odor, very viscous and weathered TLM, contains sand grains
				Maximum Depth: ~0.5 feet Notes: 1. Lithology was not recorded since intent of this location was to assess presence or absence of TLM. 2. Total depth refers to bottom depth of TLM noted. 3. Core elevation based on bathymetric survey map.	
1					

Sediment Coring: P36

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 19, 2011
Date Completed: July 19, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

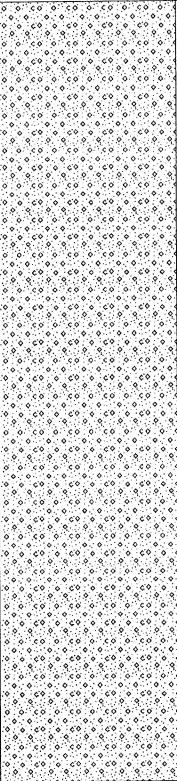
Bathymetric Elevation (feet, NAVD '88): 110.10
Northing: 783545.1
Easting: 1985978.2
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	Not noted	NR		Brown, fine to very coarse sand, trace silt and gravels.	0-1.0 ft: no TLM odor, no visual TLM
1				Notes: 1. NR- Not recorded since wading in water and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map. 3. Depth was not noted. 4. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: R36

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 19, 2011
Date Completed: July 19, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): 108.00
Northing: 783535.0
Easting: 1985877.2
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	Not noted	NR		Tan to orange, fine to coarse sand.	0-1.0 ft: no TLM odor, no visual TLM
1				Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. Core elevation based on bathymetric survey map. 3. Depth was not noted. 4. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: T43

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 782835.1
Easting: 1985989.0
Total Depth (feet): 0.3
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	No recovery, TLM was not noted on core barrel
	0.0/0.3				
				Total Depth: 0.3 feet Note: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: V43

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

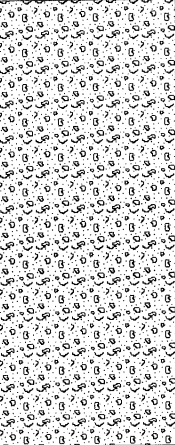
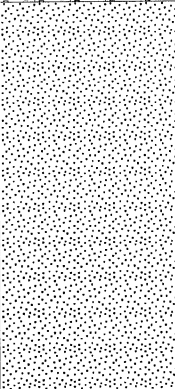
Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 782822.0
Easting: 1985908.0
Total Depth (feet): 0.7
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.4/0.7	0		0-0.7 ft: brown, medium to very coarse sand and fine to medium gravels	0-0.7 ft: No TLM odor, no visual TLM
1				Total Depth: 0.7 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 64%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: X43

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 782831.6
Easting: 1985825.8
Total Depth (feet): 1.5
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.1/1.5	0		0-0.8 ft. brown, medium to very coarse sand and fine to coarse gravels	0-1.5 ft: No TLM odor, no visual TLM
1				0.8-1.5 ft. brown, medium to very coarse sand	
2				Total Depth: 1.5 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 75%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: Z43

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 782814.2
Easting: 1985715.0
Total Depth (feet): 2.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-1.1 ft: dark brown grading to brown, medium to very coarse sand and fine to coarse gravels 0-0.2 ft: roots and trace silt	0-2.0 ft: no TLM odor, no visual TLM
1	1.6/2.0	0		1.1-2.0 ft: brown, medium to very coarse sand and few fine gravels	
2				Total Depth: 2.0 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 80%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AD49

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 782228.1
Easting: 1985741.4
Total Depth (feet): 2.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.8 ft: dark brown to brown, medium to very coarse sand and fine to medium gravels	0-2.0 ft: No TLM odor, no visual TLM
1	1.5/2.0	0		0.8-2.0 ft: orange-brown, medium to very coarse sand, few gravels	
2				Total Depth: 2.0 feet	
				Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 75%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AF49

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

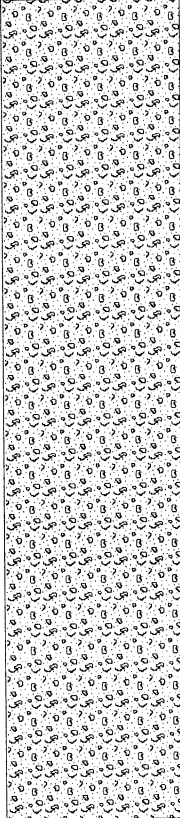
Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 782230.9
Easting: 1985645.5
Total Depth (feet): 4.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1		0		0-1.5 ft: dark brown to brown, medium to very coarse sand and fine to medium gravels	0-4.0 ft: no TLM odor, no visual TLM
2	3.1/4.0	0		1.5-4.0 ft: brown, medium to very coarse sand and few gravels	
3					
4				Total Depth: 4.0 feet	
5				Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 78%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: Y57

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 781624.7
Easting: 1986201.0
Total Depth (feet): 0.7
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.7	0		0-0.7 ft: brown grading brown-gray, fine to very coarse sand and some fine to very coarse gravels 0-0.1 ft: silt and vegetative material	0-0.7 ft: no TLM odor, no visual TLM
1				Total Depth: 0.7 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 71%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AA57

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 781590.2
Easting: 1986104.8
Total Depth (feet): 0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	Core barrel could not be advanced and therefore no recovery. TLM was not noted on core barrel
	0.0/0.0				
1				Total Depth: 0 feet Note: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: AC57

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 781554.8
Easting: 1986011.2
Total Depth (feet): 0.2
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	No recovery, TLM was not noted on core barrel
	0.0/0.2				
				Total Depth: 0.2 feet Note: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: AE57

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 781503.1
Easting: 1985894.6
Total Depth (feet): 1.3
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.3	0	[Dotted Pattern]	0-1.3 ft: brown, medium to very coarse sand and few fine gravels 0.6 ft: vegetative material	0-1.3 ft: no TLM odor, no visual TLM
1				Total Depth: 1.3 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 77 %) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AJ57

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 781428.3
Easting: 1985709.8
Total Depth (feet): 2.1
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
		0		0-0.5 ft: brown, medium to coarse sand with trace fine gravels	0-2.1 ft: no TLM odor, no visual TLM
		0		0.5-2.1 ft: orange-brown, medium to coarse sand with trace to some fine to medium gravels	
1	1.6/2.1	0			
2		0			
				Total Depth: 2.1 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 76%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	
3					

Sediment Coring: AL57

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

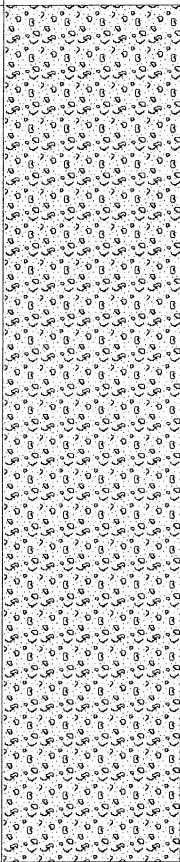
Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 781398.2
Easting: 1985610.6
Total Depth (feet): 1.7
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.2/1.7	0		0-1.7 ft: brown, medium to very coarse sand 0-0.4 ft: trace fine to medium gravels noted in this interval 1.4-1.7 ft: trace fine to medium gravels noted in this interval	0.-1.7 ft: no TLM odor, no visual TLM
1					
2				Total Depth: 1.7 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 71 %) and vertical extent may or may not be reflective of depths and intervals noted.	

Sediment Coring: AE64

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 11, 2012
Date Completed: January 11, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780800.0
Easting: 1986201.4
Total Depth (feet): 1.1
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.85/1.1	0		0-1.1 ft: tan gray, medium to very coarse sand and fine to medium gravels, trace shells at top of interval	0-1.1 ft: faint odor (undefined) that did not smell like TLM or of river, no visual TLM
1				Total Depth: 1.1 feet	
				Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 77%) and vertical extent of TLM may or may not be reflective of depth and intervals noted.	

Sediment Coring: AG64

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780778.5
Easting: 1986106.7
Total Depth (feet): 1.2
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.2	0	•••••	0-1.2 ft: brown-gray, medium to very coarse sand, trace fine gravels - gravels more prevalent towards 1.2 feet	0-1.2 ft: no TLM odor, no visual TLM. Noted two TLM fragments at approximately 1.1 feet with one fragment ~1/8" to 1/4" in diameter and the second fragment ~3/4" to 1" in diameter. The larger fragment had a slight TLM odor.
1				Total Depth: 1.2 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 83%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AI64

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

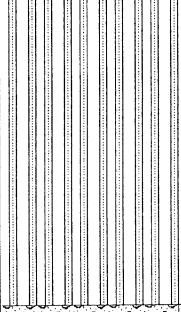
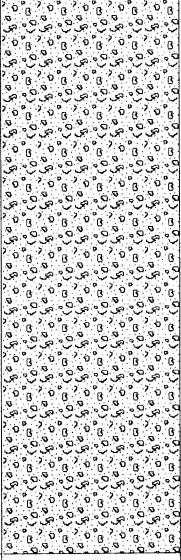
Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780871.9
Easting: 1985951.5
Total Depth (feet): 2.6
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
0.5		0.1	•••••	0-2.3 ft: brown, medium to very coarse sand with trace to some fine gravels, a few shells	0-2.6 ft: no TLM odor, no visual TLM
1.5	2.0/2.6	0.1	•••••		1.3 ft: potential TLM fragment
2.5			•••••	2.3-2.6 ft: brown-gray, medium to very coarse sand, few fine gravels	
3.0				Total Depth: 2.6 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 77%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AK64

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780845.6
Easting: 1985868.1
Total Depth (feet): 1.7
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.6 ft: brown, medium to coarse sand, some silt, trace mica, vegetative material	0-1.7 ft: no TLM odor, no visual TLM 0.1 ft: one clinker
1	1.4/1.7	0		0.6-1.7 ft: brown, medium to very coarse sand and some fine gravels	
2				Total Depth: 1.7 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 82%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AM64

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780719.9
Easting: 1985810.3
Total Depth (feet): 1.9
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.4/1.9	0	0	0-1.9 ft: dark brown, medium to very coarse sand and fine to medium gravels	0-1.9 ft: no TLM odor, no visual TLM
2				Total Depth: 1.9 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 74%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AO64

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 12, 2012
Date Completed: January 12, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

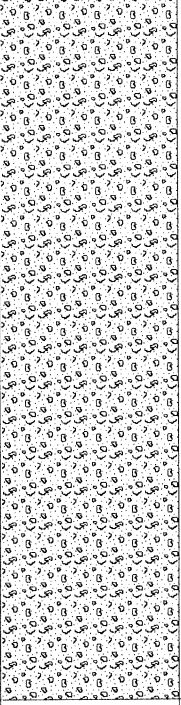
Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780701.8
Easting: 1985711.3
Total Depth (feet): 2.1
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.6/2.1	0		0-1.8 ft: brown-orange, medium to very coarse sand and fine to medium gravels, coarser gravels at 0 to 0.5 feet	0-2.1 ft: no TLM odor, no visual TLM
2				1.8-2.1 ft: light gray, medium to coarse sand, trace very coarse sand and few gravels	
3				Total Depth: 2.1 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 76%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AK70

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

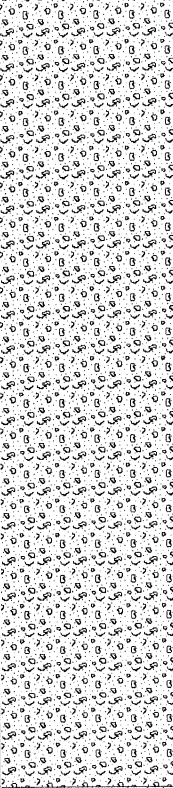

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780252.1
Easting: 1986054.8
Total Depth (feet): 0.6
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.6	0		0-0.6 ft: brown, medium to very coarse sand and fine to coarse gravels 0.4 to 0.6 ft: coarse to very coarse gravels noted in this interval	0-0.6 ft: no TLM odor, no visual TLM
1				Total Depth: 0.6 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 83%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AM70

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780199.0
Easting: 1985974.1
Total Depth (feet): 3.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1		0		0-2.7 ft: brown, medium to very coarse sand with some fine to medium gravels	0-3.0 ft: no TLM odor, no visual TLM
2	2.0/3.0	0			
3				2.7-3.0 ft: brown, medium to very coarse sand, trace fine gravels	
4				Total Depth: 3.0 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 67%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AO70

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

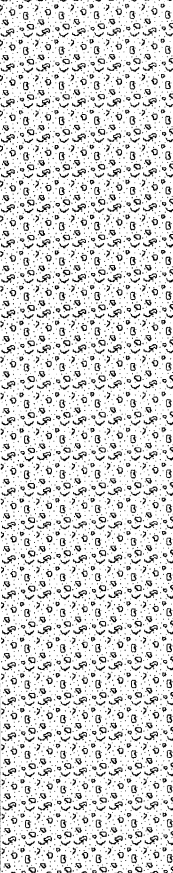
Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780141.4
Easting: 1985892.0
Total Depth (feet): 1.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.75/1.0	0.1		0-1.0 ft: brown, medium to very coarse sand and fine to coarse gravels 0-0.2 ft: gravel is more prevalent in this interval 0.9-1.0 ft: trace gravel noted in this interval	0-1.0 ft: no TLM odor, no visual TLM
1				Total Depth: 1 foot Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 75%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AQ70

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 780088.1
Easting: 1985810.6
Total Depth (feet): 0.75
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.6/0.75	0		0-0.75 ft: brown, medium to very coarse sand and fine to coarse gravels 0-0.25 ft: wood fragments	0-0.75 ft: no TLM odor, no visual TLM
1				Total Depth: 0.75 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (approximately 80%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AG80

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 779455.1
Easting: 1986577.9
Total Depth (feet): 4.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1				0-3.4 ft: brown-gray, medium to very coarse sand with some fine gravels, trace medium gravels	0-4.0 ft: no TLM odor, no visual TLM
2	1.4/4.0	0			
3					
4				3.4-4.0 ft: brown-gray, fine to medium sand, trace silt	
5				Total Depth: 4.0 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (35%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: A180

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 779393.9
Easting: 1986501.6
Total Depth (feet): 1.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.6/1.0	0	[Dotted Pattern]	0-1.0 ft: brown, medium to coarse sand 0-0.2 ft: fine to coarse gravels noted in this interval	0-1.0 ft: no TLM odor, no visual TLM
1				Total Depth: 1.0 foot Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (60%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AK80

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 779355.5
Easting: 1986418.9
Total Depth (feet): 2.5
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.6/2.5	0		0-1.4 ft: brown, medium to very coarse sand, trace to some fine gravels, shell fragments	0-2.5 ft: no TLM odor, no visual TLM
2				1.4-2.0 ft: tan-brown, medium to coarse sand, trace very coarse sand	
3				2.0-2.5 ft: tan-brown, medium to coarse sand and fine to medium gravels	
				Total Depth: 2.5 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (64%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AM80

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 779272.2
Easting: 1986338.3
Total Depth (feet): 3.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1		0		0-1.5 ft: brown, medium to very coarse sand, and fine to medium gravels	0-3.0 ft: no TLM odor, no visual TLM
2	2.1/3.0	0		1.5-3.0 ft: brown, medium to very coarse sand, trace gravels	
3				Total Depth: 3.0 feet	
4				Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For lithologies and TLM observations, depths adjusted based on recovery. 3. Recovery was limited (70%) and vertical extent of TLM may or may not be reflective of depths and intervals noted.	

Sediment Coring: AO80

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athen Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 779210.4
Easting: 1986260.0
Total Depth (feet): 0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.0/0.0				No recovery. TLM was not noted on core barrel
1					
				Note: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: AD87.5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 778814.1
Easting: 1986967.7
Total Depth (feet): 1.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	No recovery, TLM was not noted on the core barrel
	0.0/1.0				
1				Total Depth: 1.0 foot Note: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: AF87.5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 778749.0
Easting: 1986900.8
Total Depth (feet): 1.0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	No recovery, TLM was not noted on core barrel
	0.0/1.0				
1				Total Depth: 1.0 foot Note: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: AH87.5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies, Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 778678.1
Easting: 1986822.1
Total Depth (feet): 1.6
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	No recovery, TLM was not noted on core barrel
1	0.0/1.6				
2				Total Depth: 1.0 foot Note: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: AJ87.5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: January 10, 2012
Date Completed: January 10, 2012
Logged by: M. Ferlin
Drilled by: Athena Technologies Inc.

Bathymetric Elevation (feet, NAVD '88): note #1
Northing: 778610.8
Easting: 1986749.4
Total Depth (feet): 0
Drilling Method: Vibra-Core

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	No recovery, TLM was not noted on core barrel
	0.0/0.0				
1				Total Depth: 0 feet Notes: 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: CR1

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 782645.7
Easting: 1985590.5
Total Depth (feet): 1.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.5/1.5	NR		0-1.5 ft: tan, medium to coarse sand with trace of fine gravel.	0-1.5 ft: no TLM odor, no visual TLM
1					
2				Maximum Depth: 1.5 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR2/CR28

Client: SCANA Services, Inc.

Site Location: Columbia, SC

Date Started: July 21, 2011 and August 10, 2011

Date Completed: July 21, 2011 and August 10, 2011

Logged by: M. Ferlin

Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2

Northing: 781877.6

Easting: 1985716.4

Total Depth (feet): Not noted

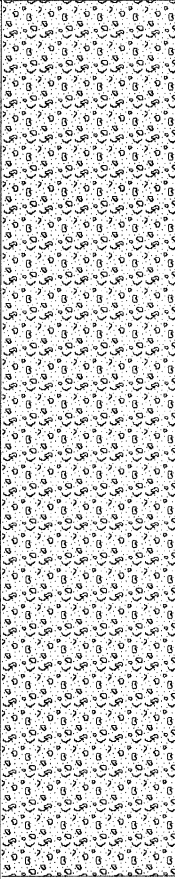
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				<p>Notes:</p> <ol style="list-style-type: none"> 1. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 2. Intended to provide TLM observation findings at this location. 3. Noted above water and did not determine thickness. 	<p>Discontinuous solidified TLM approximately 10 foot long and 3 foot wide, slight to moderate TLM odor.</p>
1					

Sediment Coring: CR3

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 781503.6
Easting: 1985707.8
Total Depth (feet): 1.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	1.5/1.5	NR		0-1.5 ft: medium to very coarse sand, fine to very coarse gravels.	0-1.5 ft: no TLM odor, no visual TLM
2				Maximum Depth: 1.5 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR4

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 781362.1
Easting: 1985632.0
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	NR		0-0.1 ft: gravels and cobbles. 0.1-1.0 ft: brown, medium to coarse sand, and very fine gravels.	0-1.0 ft: no TLM odor, no visual TLM
1				Maximum Depth: 1.0 foot Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR5

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780886.9
Easting: 1986238.0
Total Depth (feet): 2.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
1	2.5/2.5	NR		0-2.5 ft: dark gray, silt and very fine sand, micaceous, some vegetative material.	0-2.5 ft: no TLM odor, no visual TLM
2					
3				Maximum Depth: 2.5 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR6

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

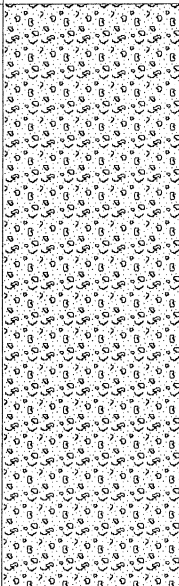
Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780897.0
Easting: 1986120.1
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	Not noted	NR		Brown, fine to coarse sand, trace of fine gravels. - gray at bottom.	No TLM odor, no visual TLM, one clinker noted
1				Maximum Depth: Not noted Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Depth is not noted. 4. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: CR7

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

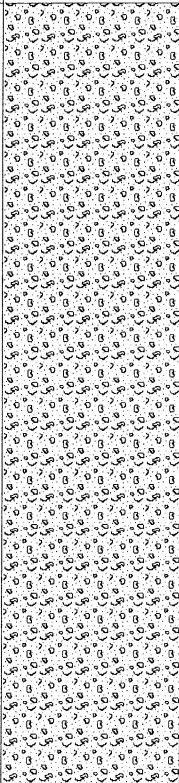
Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780897.1
Easting: 1986002.3
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: brown to gray, medium to coarse sand, trace to some fine to coarse gravels.	0-0.5 ft: no TLM odor, no visual TLM, noted one each of a clinker, cinder, and coal fragment
1				Maximum Depth: 0.5 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR8

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780917.3
Easting: 1985884.4
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	NR		0-1.0 ft: brown, fine to very coarse sand, fine to coarse gravels.	0-1.0 ft: no TLM odor, no visual TLM, one asphaltic like fragment noted
1				Maximum Depth: 1.0 foot Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR9

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780877.0
Easting: 1985699.1
Total Depth (feet): 0.75
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.75/0.75	NR		0-0.25 ft: cobbles 0.25-0.75 ft: brown, medium to very coarse sand, and fine to very coarse gravels.	0-0.75 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.75 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR10

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780846.7
Easting: 1985614.9
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	1.0/1.0	NR		0-1.0 ft: dark gray, silt and very fine sand, micaceous, plant and vegetative material.	0-0.5 ft: no TLM odor, no visual TLM 0.5-1.0 ft: very faint to faint TLM to diesel like odor ("sweet" like odor), no visual TLM
1				Maximum depth: 1.0 foot Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR11

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 779977.4
Easting: 1985774.5
Total Depth (feet): 1.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
				0-0.4 ft: gray, silt to very fine sand, micaceous, vegetative matter.	0-0.4 ft: no TLM odor, no visual TLM
	1.5/1.5	NR		0.4-1.5 ft: gray, silt, medium to coarse sand and very fine to medium gravels, glass shard, decaying matter.	
1					0.4-1.5 ft: no TLM odor, no visual TLM
				Maximum Depth: 1.5 feet	
2				Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR12

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

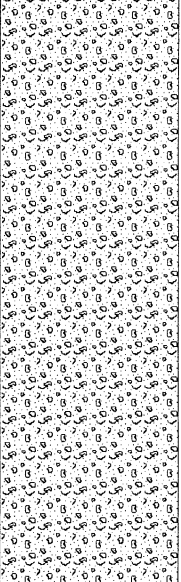
Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780219.8
Easting: 1986204.0
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface Gray, silt and very fine sand, micaceous, vegetative material.	
	Not noted	NR			0-1.0 ft: no TLM odor, no visual TLM
1				Maximum Depth: Not noted Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Depth is not noted. 4. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: CR13

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

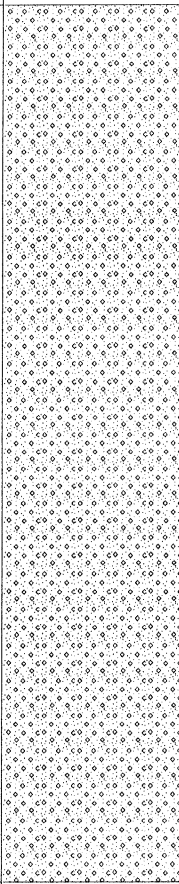
Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780624.2
Easting: 1986052.7
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.5/0.5	NR		0-0.5 ft: brown, medium to very coarse sand, fine gravels.	0-0.5 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.5 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR14

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

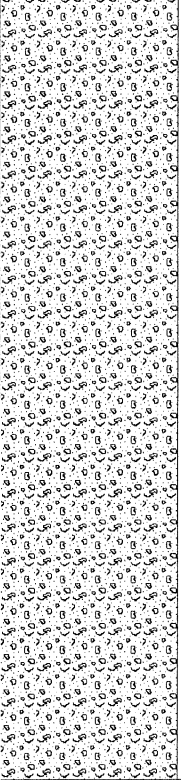
Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780715.1
Easting: 1986120.1
Total Depth (feet): 0.75
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	0.75/0.75	NR		0-0.75 ft: brown to gray, fine to coarse sand.	0-0.75 ft: no TLM odor, no visual TLM
1				Maximum Depth: 0.75 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed below the 37 line and therefore an elevation cannot be provided.	

Sediment Coring: CR15

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 780735.4
Easting: 1986002.2
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	Not noted	NR		Brown-orange, fine to coarse sand, trace gravels.	No TLM odor, no visual TLM. Also, brick found with unknown black coating.
1				Maximum Depth: Not noted Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Depth was not noted. 4. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: CR16

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable


Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 781604.5
Easting: 1986095.2
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	Not noted	NR		Gray, silt, fine to coarse sand and fine gravels, vegetative matter, mica.	No TLM odor, no visual TLM
1				Maximum Depth: Not noted Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Depth was not noted. 4. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: CR17

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 782120.0
Easting: 1986061.8
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
	Not noted	NR		Brown-orange, fine to coarse sand.	No TLM odor, no visual TLM
1				Maximum Depth: Not noted Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Depth was not noted. 4. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: CR18

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 782170.5
Easting: 1986053.4
Total Depth (feet): 1.0
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	Discontinuous deposition of highly weathered TLM approximately 20 feet long and 20 feet wide (width is discontinuous) and approximately 1 foot thick
	1.0/1.0	NR			
1				Maximum Depth: 1.0 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed below the 37 line and therefore an elevation cannot be provided. 3. Intended to provide TLM observation findings at this location.	

Sediment Coring: CR19

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 782200.8
Easting: 1986070.2
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0		NR		Bathymetric Surface	Area of TLM deposition and dimensions were not recorded.
1				Maximum Depth: Not noted Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Intended to provide TLM observation findings at this location.	

Sediment Coring: CR20

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 782221.0
Easting: 1986053.4
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0		NR		Bathymetric Surface	Area of TLM deposition with approximate dimensions of 30 feet long, 10 feet wide, and 0.5 feet thick.
1				Maximum Depth: 0.5 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and an elevation cannot be provided. 3. Intended to provide TLM observation findings at this location.	

Sediment Coring: CR21

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 782251.4
Easting: 1986036.6
Total Depth (feet): 0.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0		NR		Bathymetric Surface	Area of TLM deposition with approximate dimensions of 15 feet long, 5 feet wide, and 0.5 feet thick
1				Maximum Depth: 0.5 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Intended to provided TLM observation findings at this location.	

Sediment Coring: CR22

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 782291.8
Easting: 1986045.0
Total Depth (feet): 1.5
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	Area of TLM deposition with approximate dimensions of 30 feet long, 8 feet wide, and 1.5 feet thick
1		NR			
2				Maximum Depth: 1.5 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Intended to provide TLM observation findings at this location.	

Sediment Coring: CR23

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: August 10, 2011
Date Completed: August 10, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 782483.8
Easting: 1986062.0
Total Depth (feet): 0.2
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0		NR		Bathymetric Surface	Area of TLM deposition with approximate dimensions of 8 feet long, 3 feet wide, and 0.2 feet thick
				Maximum Depth: 0.2 feet Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Intended to provide TLM observation findings at this location.	

Sediment Coring: CR24

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 21, 2011
Date Completed: July 21, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 783353.1
Easting: 1985784.5
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	No TLM odor, no visual TLM
1		NR		Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed below the 37 line and therefore an elevation cannot be provided. 3. Intended to provide TLM observation findings at this location. 4. Depth was not noted. 5. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: CR25

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 21, 2011
Date Completed: July 21, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 782362.6
Easting: 1985935.5
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0		NR		Bathymetric Surface	No TLM odor, no visual TLM, TLM fragments (size and number not noted)
1				Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Intended to provide TLM observation findings at this location. 4. Depth was not noted. 5. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: CR26

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 21, 2011
Date Completed: July 21, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 781079.0
Easting: 1986010.8
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	
		NR			No TLM odor, no visual TLM
1				Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed below the 37 line and therefore an elevation cannot be provided. 3. Intended to provide TLM observation findings at this location. 4. Depth was not noted. 5. For illustrative purposes, a one-foot depth is shown.	

Sediment Coring: CR27

Client: SCANA Services, Inc.
Site Location: Columbia, SC
Date Started: July 21, 2011
Date Completed: July 21, 2011
Logged by: M. Ferlin
Drilled by: Not Applicable

Bathymetric Elevation (feet, NAVD '88): note #2
Northing: 781958.2
Easting: 1986120.6
Total Depth (feet): Not noted
Drilling Method: Hand dug

Depth (feet)	Recovery (feet/feet)	PID Screen (ppm)	Symbol	Lithologic Description	Observations
0				Bathymetric Surface	No TLM odor, no visual TLM, several TLM fragments at a depth of 0.3 feet
		NR			
1				Notes: 1. NR - Not recorded since wading in water and moisture would negatively impact PID. 2. The river was not surveyed for bathymetry below the 37 line and therefore an elevation cannot be provided. 3. Intended to provide TLM observation findings at this location. 4. Depth was not noted. 5. For illustrative purposes, a one-foot depth is shown.	

APPENDIX C

MANIFESTS

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number
2. Page 1 of 1
3. Emergency Response Phone: 803-957-9175
4. Waste Tracking Number: 31806

5. Generator's Name and Mailing Address: **SCANA**
 c/o MTR 1800 Commerce Circle
 Trafford, PA 15085
 Generator's Site Address (if different than mailing address): **SCE&G**
 Congaree River
 Columbia, SC
 Generator's Phone: (412) 825-9950

6. Transporter 1 Company Name: **A&D Environmental Services (SC), LLC**
 U.S. EPA ID Number: **SCD987508331**

7. Transporter 2 Company Name: _____
 U.S. EPA ID Number: _____

8. Designated Facility Name and Site Address: **VLS/RIS**
 305 South Main Street
 Mauldin, SC
 Facility's Phone: 854-952-8503
 U.S. EPA ID Number: **SCR000762468**

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit WL/Vol.
	No.	Type		
1. NON-HAZARDOUS NON-REGULATED MATERIAL Soil Sediment Profile #13776	2	DM		
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information
EMERGENCY CONTACT: A&D Environmental Services 803-957-9175 JOB #17440

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.

Generator's/Offor's Printed/Typed Name: **Robert Heale**
 Signature: _____
 Month Day Year: 10 | 3 | 11

15. International Shipments Import to U.S. Export from U.S.
 Port of entry/exit: _____
 Date leaving U.S.: _____

16. Transporter Acknowledgment of Receipt of Materials
 Transporter 1 Printed/Typed Name: **Andrew Hickman**
 Signature: _____
 Month Day Year: 10 | 3 | 11
 Transporter 2 Printed/Typed Name: _____
 Signature: _____
 Month Day Year: _____

17. Discrepancy
 17a. Discrepancy Indication Space Quantity Type Residue Partial Rejection Full Rejection
 Manifest Reference Number: _____

17b. Alternate Facility (or Generator) _____
 U.S. EPA ID Number: _____
 Facility's Phone: _____
 17c. Signature of Alternate Facility (or Generator) _____
 Month Day Year: _____

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
 Printed/Typed Name: **R. BK**
 Signature: _____
 Month Day Year: 11 | 29 | 11

GENERATOR
INT'L
TRANSPORTER
DESIGNATED FACILITY

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone 1 803-957-9175	4. Waste Tracking Number 31329	
	5. Generator's Name and Mailing Address SCANA c/o MTR 1600 Commerce Circle Trafford, PA 15085		Generator's Site Address (if different than mailing address) SCE&G Congaree River Columbia, SC		
Generator's Phone: (412) 829-9650					
6. Transporter 1 Company Name A&D Environmental Services (SC), LLC			U.S. EPA ID Number SCD987598331		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address VLS/RS 305 South Main Street Mauldin, SC			U.S. EPA ID Number SCR000762468		
Facility's Phone: 864-962-9953					
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
		No.	Type		
1. NON-HAZARDOUS NON-REGULATED MATERIAL Soil Sediment Profile #13776		4	DM	400	lbs 400
2. NON-HAZARDOUS NON-REGULATED MATERIAL Purge, Well Development & Decon Water Profiles #13777		1	DM	400	lbs 400
3.					
4.					
13. Special Handling Instructions and Additional Information EMERGENCY CONTACT: A&D Environmental Services 803-957-9175 JOB #15703					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and governmental regulations.					
Generator's/Offeror's Printed/Typed Name Gordon O'Toole / for Bob Apple		Signature <i>Gordon J O'Toole</i>		Month 6	Day 24
				Year 11	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____					
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name Steven Flinchum		Signature <i>Steven Flinchum</i>		Month 6	Day 24
Transporter 2 Printed/Typed Name		Signature		Year 11	
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number: _____					
17b. Alternate Facility (or Generator)				U.S. EPA ID Number	
Facility's Phone: _____					
17c. Signature of Alternate Facility (or Generator)				Month	Day
				Year	
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name MARTY ESTAL		Signature <i>Marty Estal</i>		Month 8	Day 13
				Year 11	

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

APPENDIX D

SUMMARY OF SEDIMENT AND SOIL ANALYTICAL RESULTS BY PHASES

TABLE D-1

SUMMARY OF SEDIMENT AND SOIL ANALYTICAL RESULTS: PRELIMINARY PHASE

Congaree River Sediments
Columbia, South Carolina

General Area Source (Line) Location of Sample Date Sampled Sample Interval (feet brb) ⁽¹⁾	Preliminary - Near the Alluvial Fan and Sand Bar						
	SCE&G S-1	SCE&G S-1 Dup	SCDHEC S-1	SCE&G S-2	SCDHEC S-2	SCE&G S-3	SCDHEC S-3
	6/28/2010	6/28/2010	6/28/2010	6/28/2010	6/28/2010	6/28/2010	6/28/2010
	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Parameters							
Volatiles (mg/Kg)							
1,2,4-Trimethylbenzene	90.2 B ⁽³⁾	52 B	NA ⁽⁵⁾	4.31 B	NA	49.9 B	NA
1,3,5-Trimethylbenzene	28.8 B	16.6 B	NA	1.84 B	NA	16 B	NA
Benzene	43.9 B	22.1 B	16	1.22 B	0.97	17 B	8
Ethylbenzene	214 B	124 B	150	6.64 B	10	113 B	90
Isopropylbenzene	22.2	12.8	14	1.25	2.2	12.5	8
p-Isopropyltoluene	11.7	6.78	NA	0.965	NA	6.67	NA
Styrene	11.7 B	4.04 B	5.7 U ⁽⁶⁾	0.807 B	0.35 U	9.44 B	3.2 U
Toluene	6.43 B	1.47 B	5.7 U	0.555 B	0.35 U	4.33 B	3.2 U
Total Xylenes	124.3 B	74.5 B	79	2.773	4.1	26.42	19
Semi-Volatiles (mg/Kg)							
1-Methylnaphthalene	1,170 E ⁽⁴⁾ B	666 B	NA	134 B	NA	792 B	NA
2-Methylnaphthalene	1,870 EB	1,070 EB	1,700	231 B	400	1,320 EB	1,200
Acenaphthene	644	371	730	194	380	642	740
Acenaphthylene	146	72	170	10.5	44 U	85.8	100
Anthracene	385	222	450	142	300	355	430
Benz(a)anthracene	270	154	340	40.2	130	207	290
Benzo(a)pyrene	320 B	179 B	380	60 B	130	232 B	310
Benzo(b)fluoranthene	123 B	70.9 B	220	29.1 B	110	92.3 B	180
Benzo(g,h,i)perylene	159 B	89.5 B	140 U	27.1 B	47	115 B	110
Benzo(j,k)fluoranthene ⁽⁷⁾	153 B	84.8 B	140 U	38 B	44 U	117 B	94
Biphenyl	302 B	172 B	300	33.3 B	64	209 B	220
Chrysene	287	163	340	54.1	110	216	280
Dibenz(a,h)anthracene	47	26.1	140 U	7.8	44 U	33	82 U
Fluoranthene	417	244	530	145	320	350	480
Fluorene	405	229	490	98.8	220	336	420
Indeno(1,2,3-cd)pyrene	116	65.1	140 U	23.6	44 U	84.6	82 U
Naphthalene	3,710 EB	2,140 EB	3,100	291 B	470	2,240 EB	2,000
Phenanthrene	1,510 E	869	1,600	365	710	1,250 E	1,400
Pyrene	737 B	432 B	900	178 B	380	607 B	800
Totals (mg/Kg)⁽⁹⁾							
Total BTEX	389	222	245	11.2	15.1	160.8	117.0
Total PAH ⁽¹⁰⁾	9,429	5,411	9,250	1,704	3,307	6,963	7,634

Notes:

- (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
(2) Depth of sample is not known
(3) B - Analyte detected in the blank.
(4) E - Estimate, result detected above calibration range.
(5) NA - Not analyzed
(6) U - Indicates that the constituent was not detected at the reported detection limit.
(7) Delineation samples were analyzed for benzo(k)fluoranthene only.
(8) J - Indicates an estimated value.
(9) Total BTEX and total PAH includes only detected results and PAHs are those analyzed during the delineation phases.
(10) Includes only those PAH compounds comprising the semi-volatiles.

TABLE D-2

SUMMARY OF SEDIMENT AND SOIL ANALYTICAL RESULTS - PHASE I

Congaree River Sediments
Columbia, South Carolina

Area	From Gervais Street Bridge to Boulder Field					From Sand Bar to Near the Confluence with Unnamed Tributary #2 (UT #2)			
	1 Line			2 Line	3 Line	5 Line	8 Line	11 Line	14 Line
Line Location of Sample	I1	K1	M1	O2	L3	P5	O8	O11	O14
Sample Identification									
Date Sampled	10/6/2010	10/6/2010	10/6/2010	10/6/2010	10/7/2010	10/4/2010	10/04/2010	10/4/2010	10/5/2010
Sample Interval (feet brb) ⁽¹⁾	0 - 0.5	0 - 0.25	0 - 1.0	0 - 0.5	0 - 0.25	0 - 1.1	0 - 1.1	0 - 6	0 - 0.7
Parameters									
Volatiles (mg/Kg)									
Benzene	0.005 U ⁽³⁾	0.005 U	0.005 U	0.0046 U	0.0048 U	0.0054 U	0.0049 U	0.0052 U	0.0048 U
Ethylbenzene	0.005 U	0.005 U	0.005 U	0.0046 U	0.0048 U	0.0054 U	0.0049 U	0.0052 U	0.0055
Toluene	0.005 U	0.005 U	0.005 U	0.0046 U	0.0048 U	0.0054 U	0.0049 U	0.0052 U	0.0048 U
Total Xylenes	0.005 U	0.005 U	0.005 U	0.0046 U	0.0048 U	0.0054 U	0.0049 U	0.0052 U	0.0057
Semi-Volatiles (mg/Kg)									
Acenaphthene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U	0.36 U	0.35 U	0.36 U	0.35 U
Acenaphthylene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U	0.36 U	0.35 U	0.36 U	0.35 U
Anthracene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U	0.36 U	0.35 U	0.36 U	0.35 U
Benzo(a)anthracene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U	0.36 U	0.35 U	0.36 U	0.35 U
Benzo(a)pyrene	0.41 U	0.39 U	0.41 U	0.37 U	0.91	0.36 U	0.35 U	0.36 U	0.35 U
Benzo(b)fluoranthene	0.41 U	0.39 U	0.41 U	0.37 U	0.92	0.36 U	0.35 U	0.36 U	0.35 U
Benzo(g,h,i)perylene	0.41 U	0.39 U	0.41 U	0.37 U	0.60	0.36 U	0.35 U	0.36 U	0.35 U
Benzo(k)fluoranthene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U	0.36 U	0.35 U	0.36 U	0.35 U
Chrysene	0.41 U	0.39 U	0.41 U	0.37 U	0.67	0.36 U	0.35 U	0.36 U	0.35 U
Dibenz(a,h)anthracene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U	0.36 U	0.35 U	0.36 U	0.35 U
Fluoranthene	0.41 U	0.39 U	0.41 U	0.37 U	0.95	0.36 U	0.35 U	0.36 U	0.35 U
Fluorene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U	0.36 U	0.35 U	0.36 U	0.35 U
Indeno(1,2,3-cd)pyrene	0.41 U	0.39 U	0.41 U	0.37 U	0.45	0.36 U	0.35 U	0.36 U	0.35 U
Naphthalene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U	0.36 U	0.35 U	0.36 U	0.35 U
Phenanthrene	0.41 U	0.39 U	0.41 U	0.37 U	0.39 U	0.36 U	0.35 U	0.36 U	0.35 U
Pyrene	0.41 U	0.39 U	0.41 U	0.37 U	1.10	0.36 U	0.35 U	0.36 U	0.35 U
Totals (mg/Kg)⁽²⁾									
Total BTEX	0.005 U	0.005 U	0.005 U	0.0046 U	0.0048 U	0.0054 U	0.0049 U	0.0052 U	0.0112
Total PAH	0.41 U	0.39 U	0.41 U	0.37 U	5.6	0.36 U	0.35 U	0.36 U	0.35 U

Notes:

1. TLM - tar like material
2. The laboratory reported some results between the method detection limit (MDL) and reporting limit (RL). For purposes of this reporting, the results are shown at the RL.
3. (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
4. (2) Total BTEX and total PAH includes only detected results.
5. (3) U Indicates the constituent was not detected at the reported detection limit.

TABLE D-3

SUMMARY OF SEDIMENT AND SOIL ANALYTICAL RESULTS - PHASE II

Congaree River Sediments
Columbia, South Carolina

Area	From Sand Bar to Near the Confluence with Unnamed Tributary #2 (UT #2)				
Line Location of Sample	17 Line		19 Line		
Sample Identification	O17	I17	J19	K19	L19
Date Sampled	2/23/2011	2/23/2011	2/22/2011	2/22/2011	2/22/2011
Sample Interval (feet brb) ⁽¹⁾	0 - 1.4	0 - 2.8	0 - 2.0	0 - 0.6	0 - 0.5
Parameters					
Volatiles (mg/Kg)					
Benzene	0.0055 U ⁽³⁾	0.0084 U	0.037	0.0052 U	0.0051 U
Ethylbenzene	0.0055 U	0.0084 U	2.2	0.0052 U	0.0051 U
Toluene	0.0055 U	0.0084 U	0.0081	0.0052 U	0.0051 U
Total Xylenes	0.0055 U	0.058	0.19	0.0052 U	0.0051 U
Semi-Volatiles (mg/Kg)					
Acenaphthene	0.37 U	59	58	0.89	0.37 U
Acenaphthylene	0.37 U	4.7	4.5	0.41	0.37 U
Anthracene	0.37 U	65	41	1.8	0.37 U
Benzo(a)anthracene	0.37 U	28	29	1.9	0.37 U
Benzo(a)pyrene	0.37 U	27	34	1.9	0.37 U
Benzo(b)fluoranthene	0.37 U	17	18	1.4	0.37 U
Benzo(g,h,i)perylene	0.37 U	7.4	9.5	0.65	0.37 U
Benzo(k)fluoranthene	0.37 U	6.6	0.42 UJ ⁽⁴⁾	0.54	0.37 U
Chrysene	0.37 U	26	34	2.1	0.37 U
Dibenz(a,h)anthracene	0.37 U	1.8	2.4	0.42	0.37 U
Fluoranthene	0.37 U	76	51	3.6	0.45
Fluorene	0.37 U	37	35	0.81	0.37 U
Indeno(1,2,3-cd)pyrene	0.37 U	6.8	7.2	0.5	0.37 U
Naphthalene	0.37 U	0.79	82	0.34 U	0.37 U
Phenanthrene	0.37 U	170	150	4.8	0.94
Pyrene	0.37 U	97	92	5.8	0.75
Totals (mg/Kg)⁽²⁾					
Total BTEX	0.0055 U	0.058	2.4	0.0052 U	0.0051 U
Total PAH	0.37 U	630.1	647.6	27.5	2.1

Notes:

1. TLM - tar like material
2. The laboratory reported some results between the method detection limit (MDL) and reporting limit (RL). For purposes of this reporting, the results are shown at the RL.
3. (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
4. (2) Total BTEX and total PAH includes only detected results.
5. (3) U Indicates the constituent was not detected at the reported detection limit.
6. (4) UJ Indicates that the constituent was not detected and the result was qualified as estimated due to a dilution of the sample.

TABLE D-4

SUMMARY OF SEDIMENT AND SOIL ANALYTICAL RESULTS - PHASE III

Congaree River Sediments
Columbia, South Carolina

Area	South of UT #2 to South of the Blossom Street Bridge									
	20 Line			24 Line		30 Line		36 Line		
Line Location of Sample	I20	K20	M20	H24	L24	I30	L30	N36	N36.5	P36
Sample Identification										
Date Sampled	7/21/2011	7/21/2011	7/21/2011	7/20/2011	7/20/2011	7/20/2011	7/20/2011	7/19/2011	7/19/2011	7/19/11
Sample Interval (feet brb) ⁽¹⁾	0 - 0.6	0 - 0.7	0 - 0.8	0 - 0.7	0 - 0.5	0 - 1.0	0 - 0.7	0 - 0.5	0 - 0.5	0 - 0.5
Parameters										
Volatiles (mg/Kg)										
Benzene	0.005 U ⁽³⁾	0.005 U	0.005 U	0.005 U	0.009	0.006 U	0.005 U	0.005 U	0.067 J	0.004 U
Ethylbenzene	0.005 U	0.005 U	0.005 U	0.005 U	0.062	0.006 U	0.005 U	0.005 U	4.7	0.004 U
Toluene	0.005 U	0.005 U	0.005 U	0.005 U	0.009	0.006 U	0.005 U	0.005 U	0.19 J	0.004 U
Total Xylenes	0.005 U	0.005 U	0.005 U	0.005 U	0.026	0.006 U	0.005 U	0.005 U	1.7	0.004 U
Semi-Volatiles (mg/Kg)										
Acenaphthene	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	3.10	660	0.38 U
Acenaphthylene	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	0.94 J ⁽⁴⁾	1.6 UJ	0.38 U
Anthracene	0.38 U	0.40 U	0.39 U	0.41 U	0.43	0.47 U	0.36 U	6.20	460	0.38 U
Benzo(a)anthracene	0.39	0.83	0.39 U	0.57	1.10	0.47	0.36 U	7.70	370	0.38 U
Benzo(a)pyrene	0.38 U	0.92	0.39 U	0.71	1.30	0.59	0.36 U	8.20	390	0.38 U
Benzo(b)fluoranthene	0.63	0.74	0.39 U	0.92	1.30	0.85	0.36 U	7.90	320	0.38 U
Benzo(g,h,i)perylene	0.38 U	0.40 U	0.39 U	0.41 U	0.61	0.47 U	0.36 U	3.20	150	0.38 U
Benzo(k)fluoranthene	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	0.40 UJ ⁽⁵⁾	3.4 UJ	0.38 U
Chrysene	0.42	0.77	0.39 U	0.72	1.30	0.64	0.36 U	8.60	360	0.38 U
Dibenz(a,h)anthracene	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	0.40 UJ	33 J	0.38 U
Fluoranthene	0.77	1.20	0.39 U	1.00	1.60	0.90	0.36 U	13.00	590	0.38 U
Fluorene	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.36 U	3.70	450	0.38 U
Indeno(1,2,3-cd)pyrene	0.38 U	0.40 U	0.39 U	0.41 U	0.46	0.47 U	0.36 U	2.50	97	0.38 U
Naphthalene	0.38 U	0.40 U	0.39 U	0.41 U	0.43 U	0.47 U	0.48	0.40 UJ	690	0.38 U
Phenanthrene	0.49	0.49	0.39 U	0.65	1.70	0.71	0.36 U	19.00	1,800	0.38 U
Pyrene	0.77	1.70	0.39 U	1.40	3.00	1.10	0.36 U	23.00	1,000	0.38 U
Totals (mg/Kg)⁽²⁾										
Total BTEX	0.005 U	0.005 U	0.005 U	0.005 U	0.11	0.006 U	0.005 U	0.005 U	6.7	0.004 U
Total PAH	3.5	6.7	0.39 U	6.0	12.8	5.3	0.48	107	7,370	0.38 U

Notes:

1. TLM - tar like material
2. The laboratory reported some results between the method detection limit (MDL) and reporting limit (RL). For purposes of this reporting, the results are shown at the RL.
3. (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
4. (2) Total BTEX and total PAH includes only detected results.
5. (3) U Indicates the constituent was not detected at the reported detection limit.
6. (4) J Indicates that the constituent was detected at a concentration between the the diluted method detection limit and the diluted reporting limit.
7. (5) UJ Indicates that the constituent was not detected and the result was qualified as estimated due to a dilution of the sample.

TABLE D-4 (Cont.)

SUMMARY OF SEDIMENT AND SOIL ANALYTICAL RESULTS - PHASE III

Congaree River Sediments
Columbia, South Carolina

Area	Top of Congaree River Bank from Sand Bar to Near UT #2				
Line Location of Sample	4 Line	8 Line	11 Line	14 Line	17 Line
Sample Identification	K4	J8	J11	I14	H17
Date Sampled	7/28/2011	7/27/2011	7/27/2011	7/27/2011	7/28/2011
Sample Interval (feet brb) ⁽¹⁾	12 - 14	20 - 23	17 - 21	17.5 - 22	22 - 26
Parameters					
Volatiles (mg/Kg)					
Benzene	0.006 U ⁽³⁾	0.005 U	0.006 U	0.006 U	0.006 U
Ethylbenzene	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U
Toluene	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U
Total Xylenes	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U
Semi-Volatiles (mg/Kg)					
Acenaphthene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Acenaphthylene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Anthracene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(a)anthracene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(a)pyrene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(b)fluoranthene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(g,h,i)perylene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Benzo(k)fluoranthene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Chrysene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Dibenz(a,h)anthracene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Fluoranthene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Fluorene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Indeno(1,2,3-cd)pyrene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Naphthalene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Phenanthrene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Pyrene	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U
Totals (mg/Kg)⁽²⁾					
Total BTEX	0.006 U	0.005 U	0.006 U	0.006 U	0.006 U
Total PAH	0.38 U	0.37 U	0.51 U	0.46 U	0.44 U

Notes:

1. TLM - tar like material
2. The laboratory reported some results between the method detection limit (MDL) and reporting limit (RL). For purposes of this reporting, the results are shown at the RL.
3. (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
4. (2) Total BTEX and total PAH includes only detected results.
5. (3) U Indicates the constituent was not detected at the reported detection limit.

TABLE D-5

SUMMARY OF SEDIMENT AND SOIL ANALYTICAL RESULTS - PHASE IV

Congaree River Sediments
Columbia, South Carolina

Area	South of Blossom Street Bridge to South of Railroad Trestles			
Line Location of Sample	Random			
Sample Identification	CR1	CR4	CR7	CR9
Date Sampled	8/10/2011	8/10/2011	8/10/2011	8/10/2011
Sample Interval (feet brb) ⁽¹⁾	0 - 1.5	0 - 1.0	0 - 0.5	0 - 0.75
Parameters				
Volatiles (mg/Kg)				
Benzene	0.008 U ⁽³⁾	0.009 U	0.008 U	0.009 U
Ethylbenzene	0.008 U	0.009 U	0.008 U	0.009 U
Toluene	0.008 U	0.009 U	0.008 U	0.009 U
Total Xylenes	0.008 U	0.009 U	0.008 U	0.009 U
Semi-Volatiles (mg/Kg)				
Acenaphthene	0.40 U	0.40 U	0.40 U	0.37 U
Acenaphthylene	0.40 U	0.40 U	0.40 U	0.37 U
Anthracene	0.40 U	0.40 U	0.40 U	0.37 U
Benzo(a)anthracene	0.40 U	0.40 U	0.40 U	0.37 U
Benzo(a)pyrene	0.40 U	0.40 U	0.40 U	0.37 U
Benzo(b)fluoranthene	0.41	0.40 U	0.40 U	0.37 U
Benzo(g,h,i)perylene	0.40 U	0.40 U	0.40 U	0.37 U
Benzo(k)fluoranthene	0.40 U	0.40 U	0.40 U	0.37 U
Chrysene	0.40 U	0.40 U	0.40 U	0.37 U
Dibenz(a,h)anthracene	0.40 U	0.40 U	0.40 U	0.37 U
Fluoranthene	0.64	0.40 U	0.40 U	0.37 U
Fluorene	0.40 U	0.40 U	0.40 U	0.37 U
Indeno(1,2,3-cd)pyrene	0.40 U	0.40 U	0.40 U	0.37 U
Naphthalene	0.40 U	0.40 U	0.40 U	0.37 U
Phenanthrene	0.40 U	0.40 U	0.40 U	0.37 U
Pyrene	0.48	0.40 U	0.40 U	0.37 U
Totals (mg/Kg)⁽²⁾				
Total BTEX	0.008 U	0.009 U	0.008 U	0.009 U
Total PAH	1.5	0.40 U	0.40 U	0.37 U

Notes:

1. TLM - tar like material
2. The laboratory reported some results between the method detection limit (MDL) and reporting limit (RL).
For purposes of this reporting, the results are shown at the RL.
3. (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
4. (2) Total BTEX and total PAH includes only detected results.
5. (3) U Indicates the constituent was not detected at the reported detection limit.

TABLE D-6

SUMMARY OF SEDIMENT AND SOIL ANALYTICAL RESULTS - PHASE V

Congaree River Sediments
Columbia, South Carolina

Area	South of Blossom Street Bridge to South of Railroad Trestles				Shoreline Alluvial Fan Area		
Line Location of Sample	57 Line	70 Line	70 Line	80 Line	7 Line	8 Line	11 Line
Sample Identification	Y57	AM70	AQ70	AK80	L7	K8	J11.5
Date Sampled	1/12/2012	1/10/2012	1/20/2012	1/10/2012	2/1/2012	2/1/2012	2/1/2012
Sample Interval (feet brb) ⁽¹⁾	0 - 0.7	0 - 3.0	0 - 0.75	0 - 2.5	0 - 1.55	0 - 5.1	0 - 5.25
Parameters							
Volatiles (mg/Kg)							
Benzene	0.0052 U ⁽³⁾	0.0054 U	0.0051 U	0.0056 U	0.0076 U	0.0060 U	0.0097 U
Ethylbenzene	0.0052 U	0.0054 U	0.0051 U	0.0056 U	0.0076 U	0.0060 U	0.0097 U
Toluene	0.0052 U	0.0054 U	0.0051 U	0.0056 U	0.0076 U	0.0060 U	0.0097 U
Total Xylenes	0.0052 U	0.0054 U	0.0051 U	0.0056 U	0.0076 U	0.0060 U	0.0097 U
Semi-Volatiles (mg/Kg)							
Acenaphthene	0.36 U	0.37 U	0.35 U	0.36 U	0.41 U	3.7	0.52 U
Acenaphthylene	0.36 U	0.37 U	0.35 U	0.36 U	0.41 U	0.89	0.52 U
Anthracene	0.36 U	0.37 U	0.35 U	0.36 U	0.41 U	1.2	0.52 U
Benzo(a)anthracene	0.36 U	0.37 U	0.35 U	0.36 U	0.68	4.3	0.56
Benzo(a)pyrene	0.36 U	0.37 U	0.35 U	0.36 U	0.86	4.7	1.0
Benzo(b)fluoranthene	0.36 U	0.37 U	0.35 U	0.36 U	0.79	4.2	0.97
Benzo(g,h,i)perylene	0.36 U	0.37 U	0.35 U	0.36 U	0.50	1.9	0.60
Benzo(k)fluoranthene	0.36 U	0.37 U	0.35 U	0.36 U	0.41 U	1.6	0.52 U
Chrysene	0.36 U	0.37 U	0.35 U	0.36 U	0.70	4.0	0.52 U
Dibenz(a,h)anthracene	0.36 U	0.37 U	0.35 U	0.36 U	0.41 U	0.44	0.52 U
Fluoranthene	0.36	0.37 U	0.35 U	0.36 U	0.95	8.2	0.52 U
Fluorene	0.36 U	0.37 U	0.35 U	0.36 U	0.41 U	2.4	0.52 U
Indeno(1,2,3-cd)pyrene	0.36 U	0.37 U	0.35 U	0.36 U	0.41 U	1.5	0.52 U
Naphthalene	0.36 U	0.37 U	0.35 U	0.36 U	0.41 U	0.41 U	0.52 U
Phenanthrene	0.36 U	0.37 U	0.35 U	0.36 U	0.41 U	9.8	0.52 U
Pyrene	0.62	0.37 U	0.35 U	0.36 U	1.4	9.1	0.65
Totals (mg/Kg)⁽²⁾							
Total BTEX	0.0052 U	0.0054 U	0.0051 U	0.0056 U	0.0076 U	0.0060 U	0.0097 U
Total PAH	1.0	0.37 U	0.35 U	0.36 U	5.88	57.93	3.78

Notes:

1. TLM - tar like material
2. The laboratory reported some results between the method detection limit (MDL) and reporting limit (RL). For purposes of this reporting, the results are shown at the RL.
3. (1) brb - below river bottom. Interval is based on depth from top of sediment to refusal.
4. (2) Total BTEX and total PAH includes only detected results.
5. (3) U Indicates the constituent was not detected at the reported detection limit.

APPENDIX E

CONCEPTUAL TLM DEPOSITIONAL MODEL

APPENDIX E

CONCEPTUAL TLM DEPOSITIONAL MODEL

CHARACTERISTICS OF THE SURFACE WATER BODIES

Congaree River

The Congaree River bottom likely developed on resistant geologic media and given the geologic setting is likely granite and/or in some places saprolite. Based on exposures (e.g., boulder field) in the Congaree River, it is likely that the granite surface is irregular and subsequently varying sediment thickness is expected. The dominant sediment types in the “main” Congaree River channel are sands, gravels, cobbles, boulders, and is expected given the higher current velocity. Along the Congaree River shoreline, finer grained particles, such as silt and very fine sands were encountered and would be expected since this is an area of lower current velocity. In general, the unconsolidated sediment thickness was limited and the presence of a resistive layer (granite, saprolite, boulders, etc.) prevented coring deep with the majority of the cores advanced to a depth of approximately 1-foot (+/-). Of the 77 locations cored (with direct push technology [DPT]), only one core could be advanced to a depth of 6 feet, and seven cores could be advanced to a depth ranging from 3 to 5 feet.

The Congaree River depth is a function of the bathymetric surface. Excluding the river stretch from the boulder field north, three bathymetric lows and three bathymetric highs have been identified and are shown on Figure 1 and includes:

- Bathymetric lows: approximate 5 to 6.5 lines, approximate 9.25 to 13.75 lines, and approximate 16 to 18 lines; and
- Bathymetric highs: approximate 6.5 to 9.25 lines, approximate 13.75 to 16 lines, and approximate 18 to 20 lines.

The present day bathymetric surface down river of the boulder field to approximately the 7 Line and along the shoreline may have been altered by anthropogenic activities. Soil borings drilled on the Senate Street extension alluvial fan suggests the alluvial fan existed at the time of tar like material (TLM) deposition. The depositional history (natural or anthropogenic) of the sandbar is not known and if anthropogenic, the period of development and intended function is not known. During low Congaree River levels, TLM was noted on the northern side of the sandbar suggesting that the sandbar was present prior to the time of deposition.

The bathymetric highs represent resistive granite outcrops and/or granite boulder assemblages and is analogous to the boulder field except the bathymetric highs are submerged. When the Congaree River level is low (river gauge level of about 2.5 feet), a bathymetric high near the 7 line can be seen. The bathymetric high surface is expected to be irregular with varying sediment thickness. The bathymetric lows represent Congaree River stretches where the granite was less resistant and therefore, more prone to erosive action. At one location (P5), saprolite was noted and therefore, leads to the potential that saprolite may exist under some stretches of the Congaree River and is overlain by coarser grained sediments. Saprolite was observed in the unnamed tributary and will be discussed below.

The highest current velocities are expected at Congaree River stretches with the highest bathymetric surfaces since increased velocity would be required to move the same unit volume of water when compared to the lower bathymetric areas. During base flow conditions, surface water flow is expected to be laminar, whereas turbulent flow would be expected during storm events or periods of increased precipitation. These two flows and speculated influence on TLM transport and deposition will be discussed later.

Unnamed Tributary #1

Unnamed Tributary (UT) #1 is found in a cut that was likely formed by the erosive action of surface water flow in UT #1. Erosion is responsible for the downcutting and upstream progradation. The tributary bottom is relatively flat from the mouth (with the Congaree River) to approximately UT5 at which point the tributary bottom begins to steepen. At UT5, saprolite was encountered and likely represents a more resistive layer but since comprised of clay is expected to further erode with time. Downstream of UT5, sands, silts, and gravels were encountered and likely represent depositional material from UT #1 and/or the Congaree River. It is unknown whether the saprolite has been completely eroded or just covered downstream of UT5. In addition, and near the mouth of UT #1, boulders were noted and may be indicative of the granite bedrock surface or represents depositional features.

The highest current velocities are found at the steep stretches of the UT #1 from UT5 upstream to near the falls. Lower current velocity occurs below UT5 where the tributary bottom widens and is less shallow.

TLM VERTICAL PROFILE AND PROCESSES

The discussion focuses only on TLM in the Congaree River since TLM was not noted in UT #1, other than minor blebs on the water surface while investigating location UT4.

TLM Vertical Profile

The very coarse nature and limited sediment thickness generally prohibited recovering core length that consistently and unequivocally defined the sediment and TLM stratification. At many locations, multiple cores were driven in an attempt to maximize recovery. Sufficient recovery was obtained in some cores that permits developing the following generalized stratification sequence:

- Unimpacted sediments overlying visually continuous TLM;
- Distinct visually continuous TLM layer that was generally highly weathered with embedded sediment particles; and
- Below the visually continuous TLM layer, decrease in TLM that could range from thin distinct visually continuous TLM layers, to blebs, to TLM absence.

To illustrate stratification, the following observations from N16 are provided:

- 0 to 0.35 feet (below river bottom [brb]): Medium to very coarse sand. Visually continuous TLM was absent;

- 0.35 to 0.55 feet brb: Medium to very coarse sand, grading to gravel. Visually continuous and highly weathered TLM at 0.35 to 0.45 feet brb, grading into a less weathered TLM layer at 0.45 to 0.55 feet brb; and
- 0.55 to 0.80 feet brb: Medium to very coarse sand and gravel grading to finer grained sand and silt, trace gravel. Visually continuous TLM is not noted, however very minor amounts of TLM blebs are noted.

TLM Vertical Migration Hypothesis

The ability of TLM to vertically migrate in the Congaree River unconsolidated sediments uses concepts of dense non-aqueous phase liquid (DNAPL) migration in porous media (i.e., groundwater system). A DNAPL is a liquid whose specific gravity (or density) is greater than and is generally immiscible in water. When placed in water, a DNAPL will sink and form a distinct layer. The DNAPL analogy is used since the visually continuous TLM is believed to have originated as coal tar from the Huger Street former manufactured gas plant (MGP) site. Coal tar has a specific gravity greater than water.

DNAPL will migrate vertically in porous media when sufficient DNAPL volume exists to provide a driving head adequate to overcome pore entry pressures of the geologic media. Vertical DNAPL migration is impeded or stopped when DNAPL volume is reduced or the pore entry pressures exceed the DNAPL head. Coarser grained geologic media, such as sands and gravels, exhibit lower pore entry pressures whereas silts and clays have higher pore entry pressures. The higher pore entry pressures of silts and clays typically result in DNAPL being impeded through these finer grained sediments (e.g., shoreline). The same concepts apply to TLM vertical migration in the Congaree River and the following provides an example of the concept.

TLM when released was believed to have characteristics similar to coal tar, which includes a density greater than water and a low viscosity (i.e., not weathered). TLM input to the Congaree River likely occurred intermittently and may have been distributed over a broad area, versus an input that was continuous and location specific. Given the assumed intermittent input and broad distribution, the TLM volume deposited on a unit area basis was likely minimal, manifesting in reduced TLM driving head, and therefore, limiting TLM vertical migration. However, the coarse grained sediments comprising the Congaree River bottom likely have lower pore entry pressures and therefore, some vertical migration would be expected. Visual observation from coring N16 (discussed above) provides a good example of this concept. The aforementioned concept is more applicable to laminar flow than turbulent flow. As will be discussed, the higher current velocities associated with turbulent flow are not conducive for TLM deposition.

The Congaree River shoreline sediments are predominantly silts and clay. The silts and clay have higher pore entry pressures (than sands and gravels) and as a result, may have minimized TLM migration into these sediments.

TLM INPUTS TO THE CONGAREE RIVER

The UT #1 input scenario originates TLM from the Huger Street MGP site. It is believed that TLM was introduced into UT #1 and then flowed downstream and discharged to the Congaree River at the

confluence. Once TLM entered the Congaree River, the river current acted as the transport mechanism and deposition occurred when TLM mass exceeded the water's buoyancy capacity. For purposes of the model, buoyancy is a function of the Congaree River current velocity with higher velocity able to maintain TLM in suspension longer than at lower velocities. River water density (temperature), entrained sediment during turbulent flow are also factors acting on TLM suspension.

SIMPLIFIED DESCRIPTIVE TLM DEPOSITIONAL MODEL – LAMINAR FLOW

Assumptions

The following establishes the base assumptions for the laminar flow descriptive TLM depositional model:

- The TLM originated as coal tar from the Huger Street former MGP site and entered UT #1;
- The UT #1 current velocity and depth was sufficient to maintain TLM in suspension, was transported via surface water flow to the Congaree River, and entered the Congaree River at the confluence near the 2 line;
- The TLM had specific gravity greater than water, was immiscible, and for that reason maintained as a separate phase; and
- The TLM input volume is unknown and frequency is believed to be intermittent.

Congaree River: 2 to 3 Lines

TLM was input to the Congaree River at the confluence with UT #1. Lateral TLM movement from UT #1 and into the Congaree River was likely impeded by the Congaree River current that formed a hydraulic barrier confining TLM to the eastern shoreline. The suspended TLM was then directed down river. While traveling along this flow path, TLM began to fall out of suspension as evidenced by the presence of some TLM found along the eastern shoreline. Furthermore, it is possible that TLM flowed through a portion of the boulder field since observations from the July 2010 reconnaissance suggested the possible presence of TLM indicators (e.g., limited faint grey sheens, very faint odors, etc.). The general absence of TLM in the boulder field could be associated with the Congaree River flow patterns and/or influences of the Congaree River bathymetry, velocity, and scouring and is discussed later.

Congaree River: 4 to 5 Lines

The first notable deposition of visually continuous TLM occurs near the 4 line, which is south of the northern boulder field. The current velocity near the 4 line wanes with respect to those up river (1 to 4 lines). A sandbar exists near shore and between the 4 and 5 lines and is assumed to be present at the time TLM was deposited. The net affect of the waning current velocity and sandbar includes commencement of TLM deposition, a localized barrier to down river TLM movement, and deflection of surface water flow to the southwest and towards the middle of the Congaree River where higher current velocities were encountered that acted as a hydraulic barrier. The hydraulic barrier would have the positive benefit of terminating westerly TLM movement but conversely would act as a TLM transport mechanism. Based on coring observations along the 4 and 5 lines, it appears the hydraulic barrier occurs in the general vicinity of the O to P lines.

With respect to the sandbar, if this feature was not present during TLM deposition, TLM would be distributed down river and along the shoreline in the general vicinity of the boat launch area and would be

found under the sandbar. Due to the coarse grained material and manual drilling technique (gas powered jackhammer [Whacker BH24] with macrocore barrel), drilling depth (1.5 feet - location M5) was limited and therefore, sediments representative of the Congaree River bottom could not be collected.

Bathymetry and Obtuse Settling

The potential influences of bathymetry and obtuse TLM settling is introduced prior to discussing TLM deposition below the 5 line. The original model speculated TLM deposition would be prevalent in low bathymetric (or deep water) areas since current velocity wanes and TLM would settle vertically because its specific gravity is greater than water. The hypothesis appears to have been met at the 16 to 18 lines, but fails at the 9.25 to 13.75 lines and consequently leads to a modified model (Figure 1). The modified model more closely evaluates the role of bathymetry and obtuse settling on TLM deposition.

Starting near the 5 line, three bathymetric lows and three bathymetric highs were identified. The bathymetric highs and lows are believed to have the following characteristics and influences on TLM deposition:

- Bathymetric highs: surface water cross sectional area is reduced requiring increased current velocity to move a unit volume of water. These areas are more prone to scouring than deposition; and
- Bathymetric lows: surface water cross sectional area is reduced requiring decreased current velocity to move a unit volume of water. These areas are more prone to deposition than scouring.

TLM is denser than and immiscible in water and therefore would sink vertically in the absence of a current. A current would help maintain TLM in suspension (i.e., buoyancy) and would also act as the transporting force. Under the laminar flow assumption, it is expected that TLM settling will occur, but the settling would occur obtuse surface water flow to account for current velocity. The conceptualized obtuse settling is shown on Figure 2. It should be noted that other variables such as the temperature and viscosity of the surface water and TLM, as well as TLM dilution, physical separation etc., would also have to be considered and is beyond the scope of the simplified TLM depositional model.

Congaree River: 5 to 18 Lines

The current velocity in the middle of the Congaree River appears to have formed a hydraulic barrier confining TLM deposition to the east of the N Line starting near the 7 Line and extending down river to the 16 Line (Figure 1). Down river from the 16 Line, the western limits of TLM inflects and is ultimately defined by the M Line in the general vicinity of the 18 to 21 lines. The presence of the island appears to bifurcate the Congaree River flow with that volume of surface water that historically had the higher probability of containing suspended TLM directed to the east of the island.

Figure 2 is a cross section that shows bathymetry and the assumed horizontal surface water flowpaths. The assumed horizontal flowpaths are intended to provide a relative perspective of current velocity with closer spaced flow lines at bathymetric highs indicative of higher current velocity and the further spaced flow lines at bathymetric lows indicative of lower current velocity. Vertically, higher flow velocities are expected closer to the surface and lower flow velocities are expected near the surface water/river bottom interface. Therefore, the probability of maintaining TLM in suspension is greatest in the upper to mid-

water column levels at the bathymetric highs, and the highest probability of TLM settling occurs at the bottom of the water column at the bathymetric lows.

Pulling together the aforementioned concepts, the descriptive TLM depositional model is presented and is believed to be applicable from the "5" Line down river to approximately the "18" Line. While TLM is being transported, the combined opposing forces of density and buoyancy (attributed to current velocity) are interacting. Density is assumed to remain constant whereas current velocity induced buoyancy effects changes with distance and depth due to the bathymetric surface. At bathymetric highs, TLM deposition is not expected since current velocity may be sufficient to maintain TLM in suspension and/or could act to scour TLM. At the bathymetric lows, the current velocity (horizontal and vertical) acting as the buoyant force, decreases and TLM settling obtuse to surface water flow commences. TLM deposition on the down-river side of the bathymetric lows and upsloping sides of the bathymetric highs is believed to occur because of:

- The relative current velocities with respect to the bathymetric highs and lows and the subsequent ability and inability to maintain TLM in suspension;
- The rising bathymetry (upslope side of the bathymetric highs) has the effect of concentrating the obtusely settling TLM, promotes TLM settling since current velocity is decreased because the velocity must overcome resistance (near the river bottom/surface water interface) and gravity, and
- Using analogous liquid separation concepts, the rising bathymetry acts as an inclined separator.

Using TLM observations only at the 9.25 to 13.75 lines, it appears bathymetry can influence TLM deposition approximately 300 feet up river from a bathymetric high. The lateral extent of the bathymetric low at the 16 to 18 lines is less than that at the 9.25 to 13.75 lines, and therefore, cannot be used to confirm the up river distance.

The general absence of TLM on the down river side of the bathymetric high is expected since the majority of the TLM would have settled out on the up river side and the current velocity may be sufficient to maintain buoyancy. That portion of TLM that is suspended will then be transported down river with settling occurring obtuse to surface water flow as described above.

Congaree River: 18 to 20 Lines

The 18 to 20 Lines is an area that represent a transition from deposition to non-deposition and is based on TLM observations along the 19 Line and subsequent reconnaissance and investigation observations. Evidence of TLM blebs were noted along the 19 Line and visually continuous TLM was absent. It is believed that the up river physical features promoted TLM settling and limited suspended TLM was available for deposition at this stretch of the Congaree River. In addition, the higher bathymetric surface (and shallower water) increased current velocity, which would be less favorable for TLM deposition and more favorable to scouring. Other weathered material (OWM) was found near the 19 line and generally behind boulders where current velocity would be diminished.

SIMPLIFIED DESCRIPTIVE TLM DEPOSITIONAL MODEL – TURBULENT FLOW

The following presents the simplified descriptive TLM depositional model for turbulent flow. It is believed that turbulent flow in UT #1 is more influenced by localized storm events and of shorter duration since the drainage area of UT #1 is smaller than the Congaree River. The drainage area of the Congaree River is larger, influenced more by regional meteorological events, and subsequently turbulent flow can likely differ from that noted in UT #1. Intuitively, the probability of turbulent flow to occur would be greatest during the winter and spring months and/or during increased precipitation associated with summertime thunderstorms, mega storms, remnants of hurricanes, etc.

During turbulent flow, the physical character of the surface water would differ from that described for laminar flow. Turbulent flow is typically associated with higher current velocities and increased volumetric flow. Turbulent flow typically manifests as ripples, waves, eddies, etc. on the water surface and is dependent on the bathymetric surface. The higher current velocity associated with turbulent flow, would have the ability to scour the riverbed and entrain sediment particles in suspension or contribute to particle saltation (moving/bouncing along the river bottom). The net result is surface water density and viscosity increases due to the increased suspended particle load.

When TLM is introduced into turbulent water, a number of interactions/processes are expected to occur. The current velocity would be sufficiently high to effectively increase TLM buoyancy and therefore, keep TLM in suspension. The relative density difference between TLM and the surface water would decrease and help to maintain TLM in suspension. The increased volumetric flow would have the effect of diluting and separating TLM. The net effect is TLM suspension will dominate over deposition and TLM would be transported down river until current velocity waned sufficiently to promote settling and deposition. Because of the aforementioned, it is expected TLM deposition would be spatially limited with minimal vertical development and when found, would occur sporadically.

Particle suspension and saltation represents two “processes” that may contribute to TLM deposition. TLM has the unique characteristic of being highly adhesive when contacted. When the suspended or saltated particles contacted TLM, it is possible that a thin TLM layer coated the particles. As current velocity wanes, the TLM coated particles can drop from suspension (or could no longer be moved) and deposited on the Congaree River bottom. The net result would be a thin veneer of TLM coated sediment deposited on the Congaree River bottom. The ability for particles to settle and deposit is a function of the sediment particle geometry, density (i.e., mineral composition), and current velocity. Finally, turbulent flow could also scour and/or re-work sediments impacted with TLM. These sediments could then be re-deposited as current energies waned.

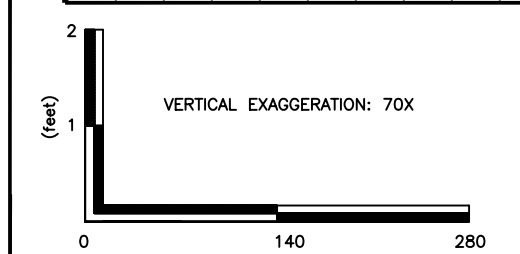
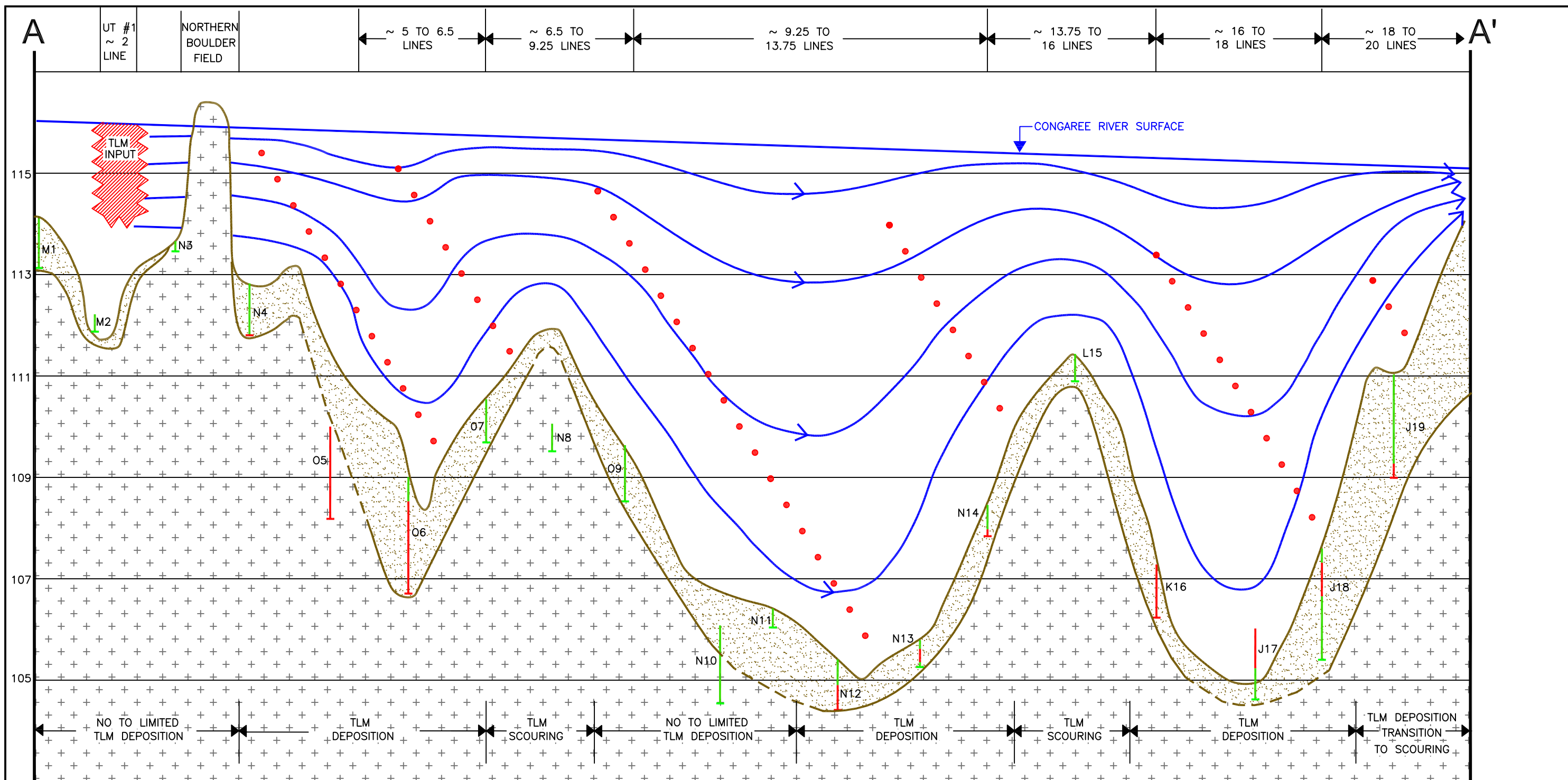
The turbulent flow model may explain discontinuous TLM observed at the N34 and N36 nodes, and the various locations within the southern boulder field.

SUMMARY

The aforementioned provided a descriptive TLM depositional model for laminar and turbulent flow. The laminar flow model discussed a number of variables that may contribute to settling and deposition and

identified favorable bathymetric conditions for TLM deposition. The final analyses attributes up river bathymetric lows bounded by down river bathymetric high conditions favorable for TLM accumulation under laminar flow conditions. Conversely, areas of high bathymetry (boulder field and down river of the 20 line) would be less conducive to TLM accumulation since current velocity would be too high for deposition and scouring would dominate.

Turbulent flow would act to suspend and dilute TLM, scour and re-deposit TLM-containing sediments, and if contacted, coat suspended particles with TLM. Transport and deposition of the aforementioned is dependent on current velocity with suspended separate phase TLM likely be transported furthest down river than reworked or coated sediments which will settle faster.



NOTES:

- 1) A NUMBER OF POINTS (e.g., N8, N10, J17 etc.) WERE SUPERIMPOSED ON THE CROSS SECTION BUT BELIEVED TO BE REPRESENTATIVE OF CONDITIONS IN THAT AREA.
- 2) HIGH CURRENT VELOCITY EXPECTED AT BATHYMETRIC HIGHS AND LOWER CURRENT VELOCITY EXPECTED AT BATHYMETRIC LOWS.
- 3) THIS GEOLOGICAL CROSS-SECTION WAS PREPARED BY EVALUATING EXISTING BORING LOGS AND INFERRED SITE CONDITIONS BETWEEN DATA POINTS. AS SUCH, INTERPRETATION BETWEEN DATA POINTS WAS BASED ON BEST PROFESSIONAL JUDGEMENT. ACTUAL SITE CONDITIONS DEPICTED BETWEEN EXISTING BORINGS MAY VARY.

FIGURE E-1
SOUTH CAROLINA ELECTRIC & GAS COMPANY

CROSS SECTION A-A'
AND CONCEPTUAL TLM DEPOSITIONAL MODEL

CONGAREE RIVER
 COLUMBIA, SOUTH CAROLINA

DATE: 2/16/12 FILE NAME: 1017

MANAGEMENT AND TECHNICAL RESOURCES, INC.

APPENDIX F

LABORATORY ANALYTICAL REPORTS AND DATA EVALUATION MEMOS

Environmental Forensic Report

Congaree River

SDG: SG100629



Report To:

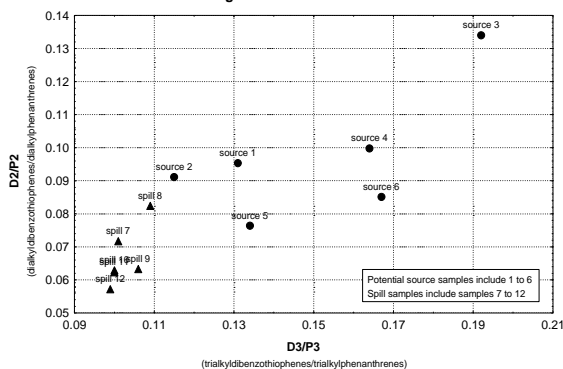
SCANA
1426 Main Street
MC 158
Columbia, SC 29218

Report By:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472

July 2, 2010

Figure 1. Double Ratio Plot



Identifying and allocating sources of pollutants in complex environments.

Final Laboratory Report

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472
Phone: 617-923-4662
Fax: 617-923-4610
E-Mail meta@metaenv.com



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

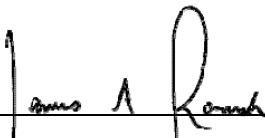
New York Certification Number: 11886

Certification

This certifies that this package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed herein. The results included in this data report relate only to the samples as received and analyzed by the laboratory.

This report shall not be reproduced except in full, without the written approval of the laboratory.


Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager and Quality Assurance Officer, as verified by the following signatures.



James A. Roush
Environmental Scientist, Laboratory Manager

July 2, 2010

Date



David M. Mauro
Senior Scientist, Quality Assurance Officer

July 2, 2010

Date

Sample Delivery Group Narrative

Project: Congaree River

Client: SCANA
1426 Main Street
MC 158
Columbia, SC 29218

Report Contact: Robert Apple

Dates of Receipt: June 29, 2010

Sample Summary: The samples received for this project are summarized in the attached sample login forms in Appendix A.

META Project Number: S08005

SDG No.: SG100629

Total Pages in Report: 85

Chain of Custody

There sediment samples were received in good condition. The internal temperature of the shipping container was within the recommended 0-6°C range and was as follows:

Samples received: 06/29/2010 4.6°C Ice present

Internal chain of custody procedures were followed after sample receipt. Samples were stored in a locked refrigerator. A sample custody logbook contains the record of sample removal from the secure sample storage area to the sample preparation laboratory. The custody record for the sample extracts is present on the sample extraction logbook page.

The disposal of samples and extracts will be authorized one month after the release of this data report. Sample disposal will be documented.

Methods

The sediment samples were prepared by solvent extraction (EPA 3570) using dichloromethane (DCM). The extracts were spiked with internal standard and analyzed by GC/FID (EPA 8100M) for fingerprinting and by GC/MS/SIM (EPA 8270M) for mono- and polycyclic aromatic hydrocarbons (MAHs and PAHs), alkyl PAH homologues and other selected compounds.

Results

Sample results are presented in several appendices which follow this narrative.

Appendix B: GC/FID Fingerprints

Appendix C: MAH/PAH Concentrations

Appendix D: Extended MAH/PAH Profiles - Histograms

Appendix E: Extracted Ion Current Profiles (EICPs)

Quality Control

Analyte Flags

The detection limits were determined as the sample equivalent of the lowest linear initial calibration standard. Analytes measured between 50% and 100% of the lowest standard were reported as "estimated" and flagged with the letter "J." Undetected analytes were reported as null and flagged with the letter, "U." Analytes marked with a "B" were detected in the associated blank and should be reviewed for a possible positive bias. No deviations were thought significant enough to compromise the integrity of the reported values.

Holding Times

All samples were extracted within holding times. The samples and extracts were stored at $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ prior to extraction and analysis. The extracts were analyzed within 40 days of sample preparation.

Surrogate Spikes

Extraction surrogates were added to all samples prior to extraction. All surrogate compounds were recovered within the 50%-120% acceptable criterion with the following exceptions; perylene-d12 was over-recovered in sample Congaree Sed-2; toluene-d8, phenanthrene-d10, and benzo(a)pyrene-d12 were under-recovered in sample Duplicate of Congaree Sed-1. The recovery issues were due to the high dilution (100x) that was performed on the extracts prior to analysis.

Blanks

Various MAHs and PAHs were detected below or just above the reporting limit (RL) in soil blank QC100630-SB. As these compounds were detected in the field sample at much higher relative concentrations (greater than 10x the blank levels) positive bias does not appear to be significant.

Blank Spikes

A blank spike sample was extracted with each analytical batch. Several MAHs and PAHs were over-recovered. The cause of the over-recovery was due to a low internal standard response in the QC sample.

Duplicates

Sample Congaree Sed-1 was extracted and analyzed in duplicate. Relative percent differences are reported with the sample results in Appendix C.

Internal Standards

Internal standards were recovered within acceptable QC limits (50%-200%) relative to the continuing calibration standards.

Other Sample-Specific QC

Even at 100x dilution, several compounds were detected above the calibration limit in samples Congaree Sed-1 and Congaree Sed-3. Those results have been flagged with “E”.

Interpretation

Introduction

Three sediment samples were received by META from the Congaree River in South Carolina site on June 29, 2010. The samples were analyzed for hydrocarbon fingerprints and an expanded list of MAHs and PAHs.

This report summarizes the findings and compares the samples.

Composition of Pyrogenic and Petrogenic Materials

MAHs and PAHs are one group of hydrocarbons that are present at high relative amounts in crude oil, coal, coal tar, and many of their products. In environmental forensic chemistry and geochemistry, MAHs and PAHs are placed in subgroups according to their origins. These groups include diagenic, or recently produced, petrogenic, produced at relatively low temperatures over long periods of time, and pyrogenic, produced at high temperatures with a shortage of oxygen. Petrogenic PAHs are those found in crude oil and similar materials. Pyrogenic PAHs are those found in coal tar and related substances, and from the incomplete combustion of organic matter.

Both pyrogenic and petrogenic sources of PAHs have been found to contain hundreds of individual MAHs and PAH compounds in generally predictable patterns. For example, it is known that the temperature of formation of MAHs and PAHs largely determines the distribution of the various parent and alkylated PAHs. Variations in these MAH and PAH distributions are measured using gas chromatography (GC) methods, particularly GC/MS. The visual interpretation of the results from GC/MS testing is a chromatogram. Variations in chromatograms are used to identify the sources of those MAH and PAHs.

Of particular importance to environmental forensic chemistry is the fact that petrogenic and pyrogenic substances from different sources can have measurably different amounts of MAHs and PAHs. For example, crude oils from different reservoirs can exhibit notably different ratios of trialkylated dibenzothiophenes to trialkylated phenanthrenes. Similarly, the ratio of

dialkylated chrysene to chrysene varies among certain pyrogenic sources. Consequently, the determination of PAH profiles forms an important component of environmental forensic studies where hydrocarbon releases, either petrogenic or pyrogenic, are known or suspected to be involved.

In addition to MAHs and PAHs, pyrogenic and petrogenic substances can contain paraffinic hydrocarbons, olefinic hydrocarbons, naphthenic hydrocarbons, and other types of compounds. The presence and relative amounts of these compounds also is used to identify the nature and source of hydrocarbon-based materials in environmental samples.

Description of Chemical Fingerprinting Methodology

PAHs commonly form the basis for source attribution and allocation at sites involving petrogenic or pyrogenic materials. Studies have shown that the pattern of PAHs clearly distinguishes petrogenic from pyrogenic substances and can be used to identify and classify petrogenic or pyrogenic substances of different origins. For example, ASTM Method D 5739-95 is the method used extensively by the U.S. Coast Guard to determine the source of oil spilled in public waterways. That method relies on the determination of selected PAHs in oil, soil, or water samples by gas chromatography with mass spectrometric detection (GC/MS) and the use of the qualitative patterns and quantitative ratios of those PAHs to determine which oil samples have a common origin. Similarly, work by META Environmental, Inc. (META) has shown that the same methodology can be used to identify the sources of PAHs at former MGP sites, coke plants, tar refineries and wood treating facilities. Further, META has modified the typical sample preparation and analysis procedures for hydrocarbon fingerprinting to include MAHs as well as PAHs.

An approach based on MAH/PAH profiling has been used to investigate the sources of hydrocarbons at the Congaree River site, which is the topic of this report. Therefore, a more detailed discussion of the forensic methods used is presented in the next subsection as background.

GC/FID Fingerprinting

All soil, water, and NAPL samples in this study were analyzed by gas chromatography with flame ionization detection (GC/FID). With GC/FID, organic compounds in a sample are vaporized and then separated in a long, narrow fused silica capillary column. Separation follows boiling point approximately with the most volatile compounds exiting the column first followed by increasingly less volatile compounds. Therefore, certain refined petroleum products, generated by the distillation of crude oil and which differ in their boiling point ranges, are distinguishable by where they appear on a chromatogram. Once they exit the column, the compounds are detected using the flame ionization technique. As the compounds exit and are detected, their responses are recorded and shown as peaks on a continuous plot. The height and area of a peak are proportional to the concentration of that compound in the sample. When done in a controlled and reproducible manner, the GC/FID method produces a “fingerprint” of a sample where the presence and relative amounts of the compounds are immediately visible as peaks of varying height appearing at different times. GC/FID fingerprints for the samples analyzed are provided in Appendix B.

GC/FID methods are commonly used for fingerprinting in a number of forensic fields. The patterns of individual peaks and the sizes and shapes of any baseline features are examined qualitatively for similarities and differences among samples.

The instrumental conditions for the GC/FID analyses in this study were adjusted so that compounds with boiling points between about hexane (C6) and n-tetracontane (C40) were detectable in one analytical run. This range includes most of the VOCs and all of the SVOCs commonly measured in environmental investigations. In particular, it includes benzene, toluene, ethylbenzene, xylenes, and the 16 priority pollutant PAHs that comprise a major portion of MGP tars and other pyrogenic substances. It also includes the range of compounds that are measurable in pyrogenic substances by gas chromatographic methods. Finally, META's GC/FID conditions detect most of the constituents of gasoline, as well as all of the constituents of higher boiling petroleum products (e.g., kerosene, diesel, refined oils).

Source identification using GC/FID is mostly qualitatively applied. An experienced chemist examines the chromatograms, compares them to those of reference materials, and makes a judgment regarding the nature and source of the contamination in the sample. The chemist might go "peak-by-peak" looking for similarities and differences, comparing peak ratios, and looking for indicator compounds.

For some samples, GC/FID fingerprinting is accurate and sufficient. However, the reliability of GC/FID fingerprinting decreases when multiple sources are present in a sample and when the sample composition becomes extensively altered by environmental weathering processes. Other testing methods, such as GC/MS, are complementary for source identification under these conditions.

Extended PAH Profiles (EPPs) by GC/MS

Samples from the Congaree River site also were analyzed by GC/MS for an expanded list of MAHs and PAHs (EPPs). Separation was accomplished with gas chromatography using a method similar to the GC/FID method discussed previously. However, in GC/MS, once compounds exit the column, they are detected using a mass spectrometer. In the mass spectrometer, the molecules of each compound are ionized at high temperature and vacuum. The ionic fragments are unstable and fragment into smaller ions. The ions are then counted and the mass spectrum recorded. Thus, the mass spectrum for a compound is the pattern of ionic fragments that forms when that compound is ionized. Mass spectra vary widely and are characteristic of their source compound. For example, the mass spectrum of hexane is very different from the mass spectrum of benzene even though both compounds contain six carbon atoms plus hydrogen atoms.

In GC/MS, one obtains both a chromatogram of peaks and additional compound-specific information in the mass spectrum. When executed in a controlled and reproducible manner, the GC/MS method produces multiple "fingerprints" of a sample when specific fragment ions are isolated.

GC/MS is utilized in two general ways in environmental forensic chemistry. First, samples are analyzed under the conditions required by various standard methods, particularly EPA Methods 8260 and 8270 (U.S. EPA SW-846). The concentrations of certain target compounds are

determined and the mass spectrum of each peak in the chromatogram is generated and stored. These mass spectra can be used to identify non-target compounds or to generate extracted ion current profiles (EICPs). Second, various specialty methods are utilized where the GC/MS operating conditions are setup to measure only certain groups of compounds. For example, the method described in 40 CFR Subchapter J Part 300 Subpart L Appendix C for PAHs, alkylated PAHs, and biomarkers is used extensively in oil spill and UST release analyses. This method is similar to ASTM Method D 5739-95, "Standard Practice for Oil Spill Source Identification by Gas Chromatography and Positive Ion Electron Impact Low Resolution Mass Spectrometry."

GC/MS data are used both qualitatively and quantitatively. An experienced chemist examines the chromatograms, compares them to those of reference materials, and makes judgments regarding the nature and source of the contamination in the sample. The chemist might go "peak-by-peak" looking for similarities and differences, comparing peak ratios, and looking for indicator compounds. This process is described in detail in ASTM Method D 5739-95.

GC/MS data are more commonly used quantitatively by calculating the concentrations of selected compounds, by comparing peak area ratios, or by applying chemometric or pattern recognition techniques to the raw or adjusted data. These data analysis methods are used extensively with extended PAH profiles (MAHs, PAHs and alkylated PAHs) and with biomarker compound data. Various degrees of statistical confidence can be achieved by examining chemical concentrations and compound ratios or patterns from multiple samples and replicate samples. This characteristic of GC/MS quantitative data is particularly valuable when assessing the degree of similarity or difference between samples, particularly when multiple sources of hydrocarbons are present in the sample or when environmental weathering has altered the original distributions of hydrocarbons.

Finally, the mass spectra of selected compounds also can be examined to determine whether any diagnostic or indicator chemicals are present in the sample. For example, the PAH retene (1-methyl-7-isopropylphenanthrene) is present in significant concentrations in coal, but at much lower concentrations in coal tar or petroleum products. Thus, the ratio of retene to chrysene can be used to determine whether coal fines are present in a soil sample and to explain some of the hydrocarbon patterns observed at sites where coal was used extensively. Further, unknown compounds can be identified and their presence used as clues to the source(s) of the chemicals.

The GC/MS data in this study were reported and utilized both qualitatively and quantitatively. First, the concentrations of MAHs, PAHs and alkylated PAHs were calculated and included in Appendix C. These concentrations were utilized to estimate contaminant levels in samples, to generate bar graphs (Appendix D) and compare compound ratios. The ratios were used to generate plots for identifying samples with similar compositions.

The GC/MS data also were used qualitatively by generating extracted ion current profiles (EICPs) for selected compounds and compound groups of forensic value (Appendix E). For example, the EICPs for selected "biomarker" compounds including normal alkanes, isoprenoid hydrocarbons, alkylcyclohexanes, triterpanes and steranes are shown on the first page of the EICP report for each sample. These compound groups are commonly used in hydrocarbon source identifications and weathering evaluations. For example, the estimated boiling point range of a refined petroleum product, as indicated by the location of the alkanes and unresolved complex mixture (UCM) on the chromatogram, can be used to determine whether the material is kerosene,

kerosene, diesel, No. 6 fuel oil, or some other product. Similarly, triterpanes and steranes are known to be present in crude oils and some refined petroleum products, but not found in coke oven tars and rarely found in MGP tars. Therefore, the presence of triterpanes and steranes is monitored to confirm and refine the petrogenic versus pyrogenic assessment conducted with the PAH profiles.

Sample-Specific Observations

Congaree Sed-1

Sample Congaree Sed-1 contained pyrogenic material (see definitions). The pyrogenic material was indicated by the wide range distribution of unsubstituted mono- and polycyclic aromatic hydrocarbons (MAHs & PAHs), with the 2 and 3 ring PAHs most abundant. The concentration of total 16 priority pollutant PAHs (PAH16) was 9,430. Materials with PAH concentrations in this range include coal tar and coal tar products, such as cresosote and road tar.

The abundance of naphthalene relative to the heavier PAHs suggests that this material has not experienced substantial weathering.

The ratio of fluoranthene to pyrene (0.566 – Table 1) as well as the double ratio plots of dibenzofuran/fluorene (D/F) to Fl/Py (Figure 1) and benzofluorenes/methylpyrenes (BF/MP) to Fl/Py (Figure 2) show that this sample is very similar to tars in META's reference library that were formed from manufactured gas plants (MGPs) utilizing carbureted water gas processes.

There were no indications of petrogenic materials in either the GC/FID fingerprint (Appendix B) nor the extracted ion current profiles for alkanes, cyclic alkanes, and petroleum biomarkers (Appendix D).

The duplicate analysis of Congaree Sed-1 was similar.

Congaree Sed-2

Sample Congaree Sed-2 contained a pyrogenic substance similar to Congaree Sed-1. The concentration of total PAHs(16) was 1,700 mg/kg. Naphthalene was present at a lower concentration than phenanthrene, and MAHs were nearly absent, suggesting the material was more weathered than Sample Congaree Sed-1, likely from water washing of the more soluble compounds.

The PAH ratios of sample Congaree Sed-2 shown in Table 1 are different from those of samples Congaree Sed-1 and Congaree Sed-3. For example, the ratios of fluoranthene to pyrene (0.815) and benzofluorenes to methylpyrenes were higher than the range of the other two samples and the duplicate. Other ratios showed a similar trend. These ratios are similar to some tars in META's reference library that were formed from manufactured gas plants (MGPs) utilizing coal carbonization processes. However, many coal carbonization tar have even higher ratios; in particular, tar sample T157 was collected from the Huger St site in 1996 and exhibited substantially higher Fl/Py and BF/MP ratios (Figure 2).

Congaree Sed-3

Sample Congaree Sed-3 contained a pyrogenic material very similar to Congaree Sed-1.

Discussion

All three sediment samples showed similar pyrogenic characteristics in both the GC/FID fingerprints (Appendix B) and the diagnostic ratios (Table 1) with some variations. All three samples contained PAHs at high relative amounts (greater than 1,000 mg/kg) which together with visual observations indicated that the samples contained tar or a tar product. The pyrogenic material in sample Congaree Sed-2 was different from Congaree Sed-1 and Congaree Sed-3, as indicated by the various PAH ratios in Table 1.

None of the samples exhibit compounds or features characteristic of petrogenic (petroleum-derived) materials.

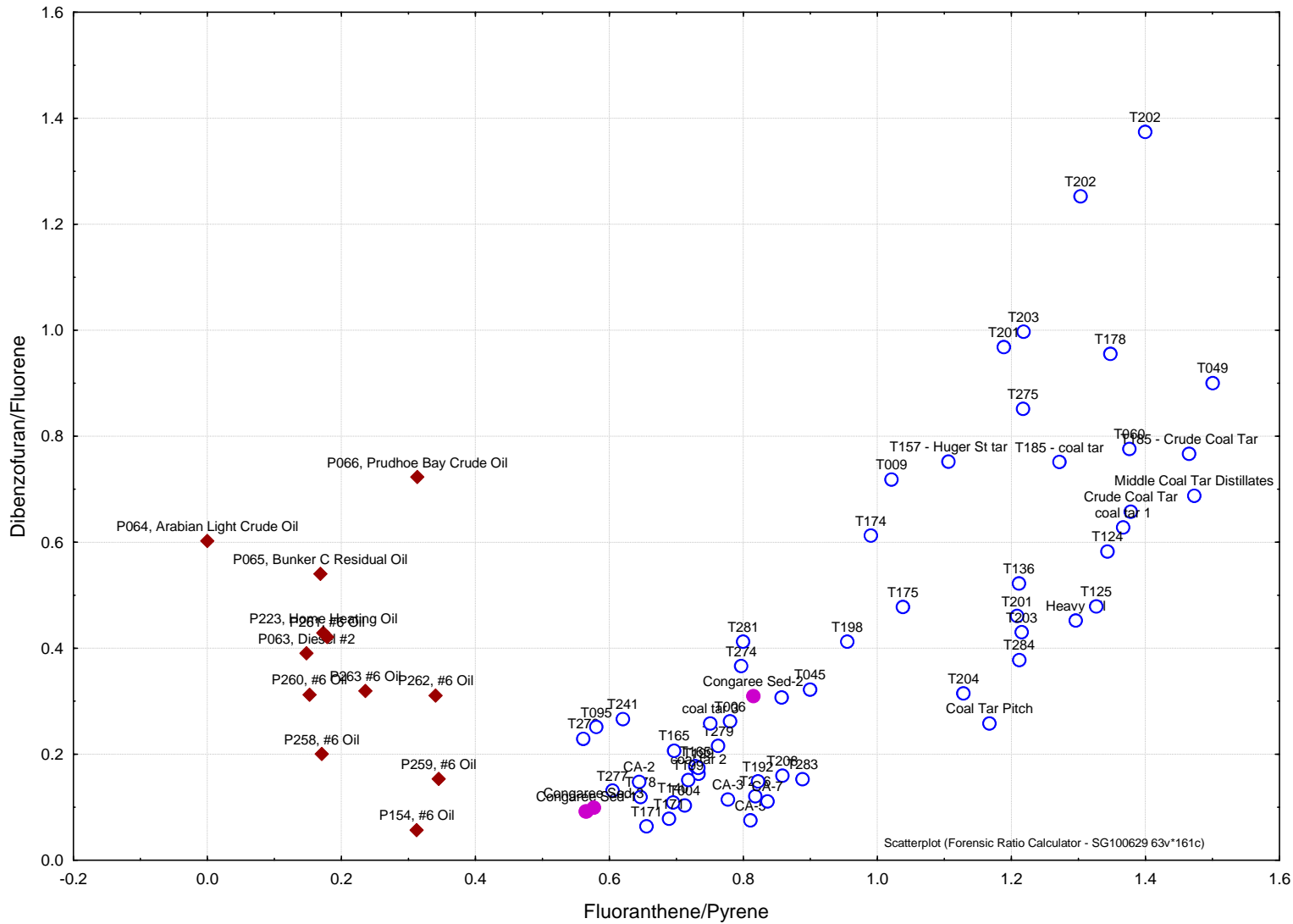
Table 1. Selected Source and Weathering Ratios

Field ID	Lab ID	Fl/Py	D/F	C17/Pri	C18/Phy	Pri/Phy	C3D/C3PA	C2D/C2PA	BF/MP	(Fl+Py)/Total PP HPAHs
Congaree Sed-1	SG100629-01	0.566	0.092	NC	NC	1.729	1.302	0.851	0.317	0.439
Dup of Congaree Sed-1	SG100629-01DUP	0.565	0.092	0.791	2.119	1.687	1.344	0.870	0.306	0.448
Congaree Sed-2	SG100629-02	0.815	0.310	0.789	NC	2.705	0.608	0.330	0.528	0.536
Congaree Sed-3	SG100629-03	0.577	0.099	NC	NC	2.266	1.109	0.737	0.336	0.466

Ratios:

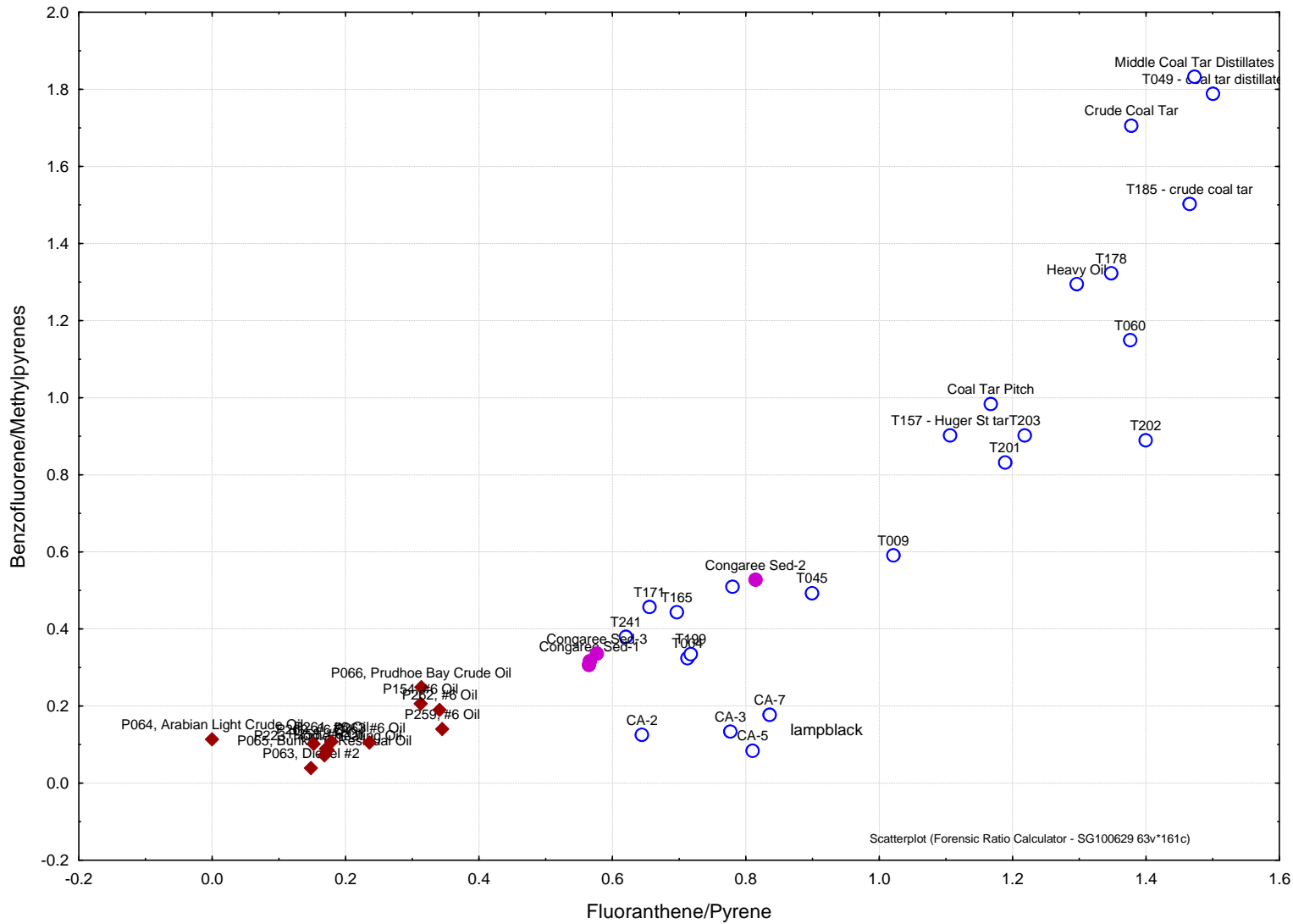
Fl/Py	fluoranthene/pyrene
D/F	dibenzofuran/fluorene
C17/Pris	heptadecane/pristane
C18/Phy	octadecane/phytane
Pri/Phy	pristane/phytane
C3D/C3PA	trialkyldibenzothiophenes/trialkylphenanthrenes/anthracenes
C2D/C2PA	dialkyldibenzothiophenes/dialkylphenanthrenes/anthracenes
BF/MP	benzofluorenes/methylpyrenes
NC	Not calculable

Figure 1. Selected Diagnostic Ratios – Dibenzofuran/Fluorene v. Fluoranthene/Pyrene



TXXX Tar Sample from META's in house source library
 ● Field Samples

Figure 2. Selected Diagnostic Ratios – Benzofluorenes/Methylpyrenes v. Fluoranthene/Pyrene



TXXX Tar Sample from META's in house source library
 ● Field Samples

Definitions

Pyrogenic substances are complex mixtures of primarily hydrocarbons produced from organic matter subjected to high temperatures but with insufficient oxygen for complete combustion. Pyrogenic materials are produced by fires, internal combustion engines, and furnaces. They also are formed when coke or gas are produced from coal or oil. Coal-tar based products, such as roofing, pavement sealers, waterproofing, pesticides, and some shampoos contain pyrogenic materials.

Petrogenic substances include crude oil and crude oil derivatives such as gasoline, heating oil, and asphalt.

Pitch is the semi-solid or solid material consisting of high molecular weight hydrocarbons that remain following coal tar distillation.

References

“Chemical Fingerprinting of Hydrocarbons,” in: Introduction to Environmental Forensics. B.L. Murphy and R.D. Morrison editors, Academic Press, San Diego, CA 2002.

Mauro, D.M., “Chemical Source Attribution at former MGP Sites,” EPRI Report 1000728, December 2000.

Appendix A

Chain of Custody



Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.

106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 109636

Client MTR	Report to Contact Cheryl Koshinski	Telephone No. / Fax No. / E-mail 412-829-9650 / 412-349-0350	Quote No.
Address 1600 Commerce Circle	Sampler's Signature <i>[Signature]</i>	Waybill No.	Page ____ of ____
City Trafford	State PA	Zip Code 15035	Analysis (Attach list if more space is needed.)
Project Name Huger Sediments	Printed Name Lucas Beverstorf		

Sample ID / Description <small>(Containers for each sample may be combined on one line.)</small>	Date	Time	G-Grab C-Composite	Matrix				No. of Containers by Preservative Type					Lot No.	Remarks / Cooler I.D.	
				Aqueous	Solid	Non-Aqueous	Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit			
Congaree Sed-1	6-28-10	14:30	G			X	X								SG100629-01
Congaree Sed-2	6-28-10	15:00	G			X	X								SG100629-02
Congaree Sed-3	6-28-10	15:20	G			X	X								SG100629-03

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown	Sample Disposal <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab	Note: All samples are retained for six weeks from receipt unless other arrangements are made.			
Turn Around Time Required (Prior lab approval required for expedited TAT.) <input type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)	QC Requirements (Specify)				
1. Relinquished by <i>[Signature]</i>	Date 6/28/10	Time 16:17	1. Received by <i>[Signature]</i>	Date	Time
2. Relinquished by <i>[Signature]</i>	Date 6/28/10	Time 17:20	2. Received by <i>[Signature]</i>	Date	Time
3. Relinquished by	Date	Time	3. Laboratory received by <i>[Signature]</i>	Date 6/29/10	Time 9:00 A.
Comments	LAB USE ONLY Received on ice (Circle) Yes No Ice Pack			Receipt Temp. 4.6 °C	

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
SG100629-01	Congaree Sed-1	Sediment	6/28/2010	6/29/2010	S08005-60	1 x 2oz & 1x 8oz jar		SCANA/MTR	Huger Sediments
SG100629-02	Congaree Sed-2	Sediment	6/28/2010	6/29/2010	S08005-60	2 x 4oz jar		SCANA/MTR	Huger Sediments
SG100629-03	Congaree Sed-3	Sediment	6/28/2010	6/29/2010	S08005-60	2 x 4oz jar		SCANA/MTR	Huger Sediments

Logged By: BSM

Date: 6/29/10

Reviewed By: [Signature]

Date: 6/30/10

META Environmental, Inc.

Sample Receipt Checklist

Receipt date: 6/29/10

Login date: 6/29/10

Login personnel: Bryan Massa

Client Information:

Company Name: MTR

Project Manager: Cheryl Yushinski

Project Name: Huger Sediments

Shipping Information:

How were samples received? UPS FedEx DHL Other:

Number of coolers: 1

Internal temperature of coolers: 4.6

Was ice present? Yes No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? Yes No

Was it signed? Yes No

Was all project information present on the COC? Yes No

Was a bill of lading or shipping label retained? Yes No

Sample Information:

Number of sample containers: 6 ^{6/29/10 BSM}

Does this match the COC? Yes No

Were all sample containers Intact? Yes No

If no, list samples and problems: # of jars not listed on COC

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes No NA

Comments:

Custodian: [Signature]

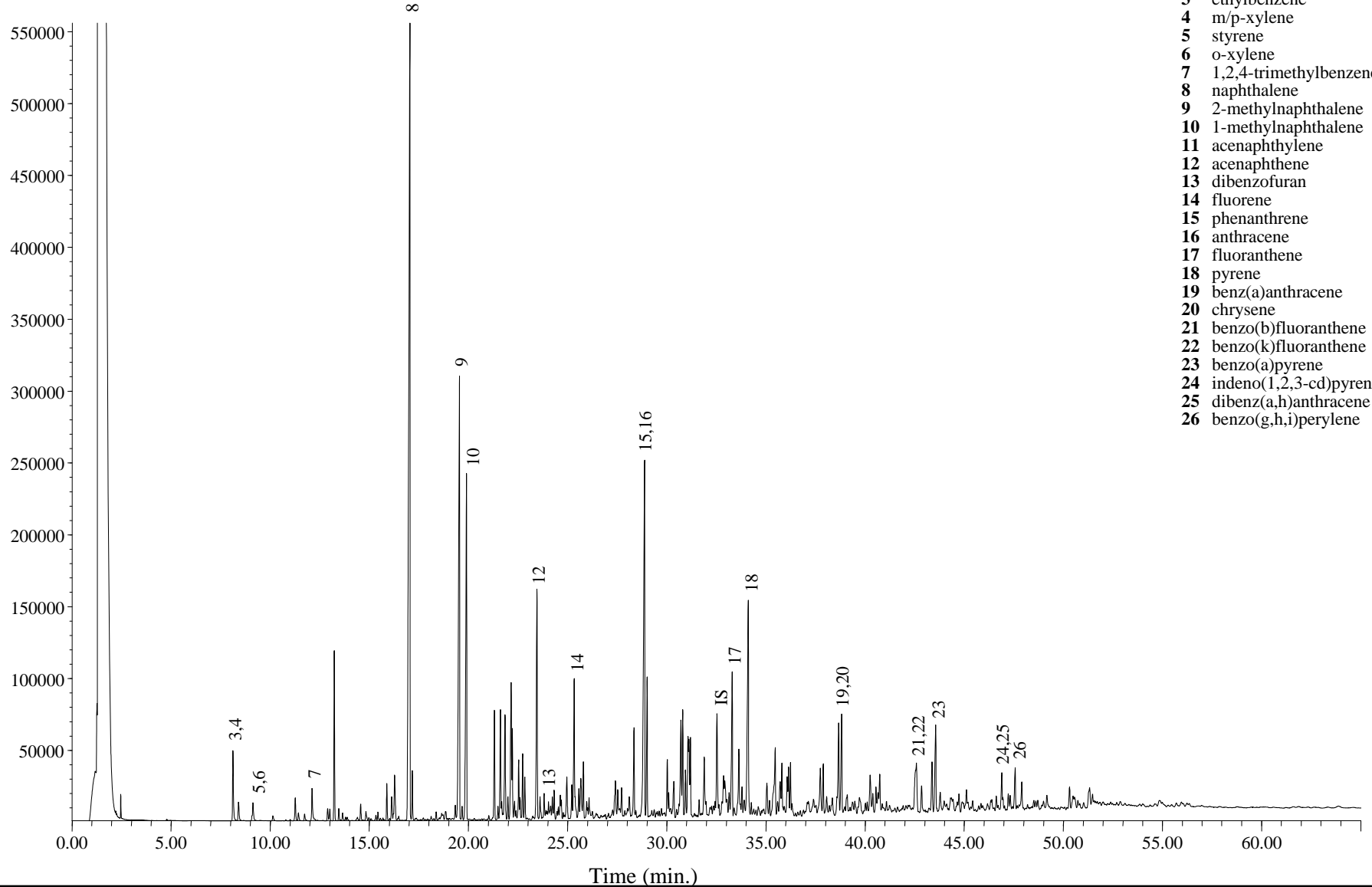
Project Manager: [Signature]

Appendix B

GC/FID Fingerprints

GC/FID Fingerprint

C070109.D\FID2B



- 1 benzene
- 2 toluene
- 3 ethylbenzene
- 4 m/p-xylene
- 5 styrene
- 6 o-xylene
- 7 1,2,4-trimethylbenzene
- 8 naphthalene
- 9 2-methylnaphthalene
- 10 1-methylnaphthalene
- 11 acenaphthylene
- 12 acenaphthene
- 13 dibenzofuran
- 14 fluorene
- 15 phenanthrene
- 16 anthracene
- 17 fluoranthene
- 18 pyrene
- 19 benz(a)anthracene
- 20 chrysene
- 21 benzo(b)fluoranthene
- 22 benzo(k)fluoranthene
- 23 benzo(a)pyrene
- 24 indeno(1,2,3-cd)pyrene
- 25 dibenz(a,h)anthracene
- 26 benzo(g,h,i)perylene

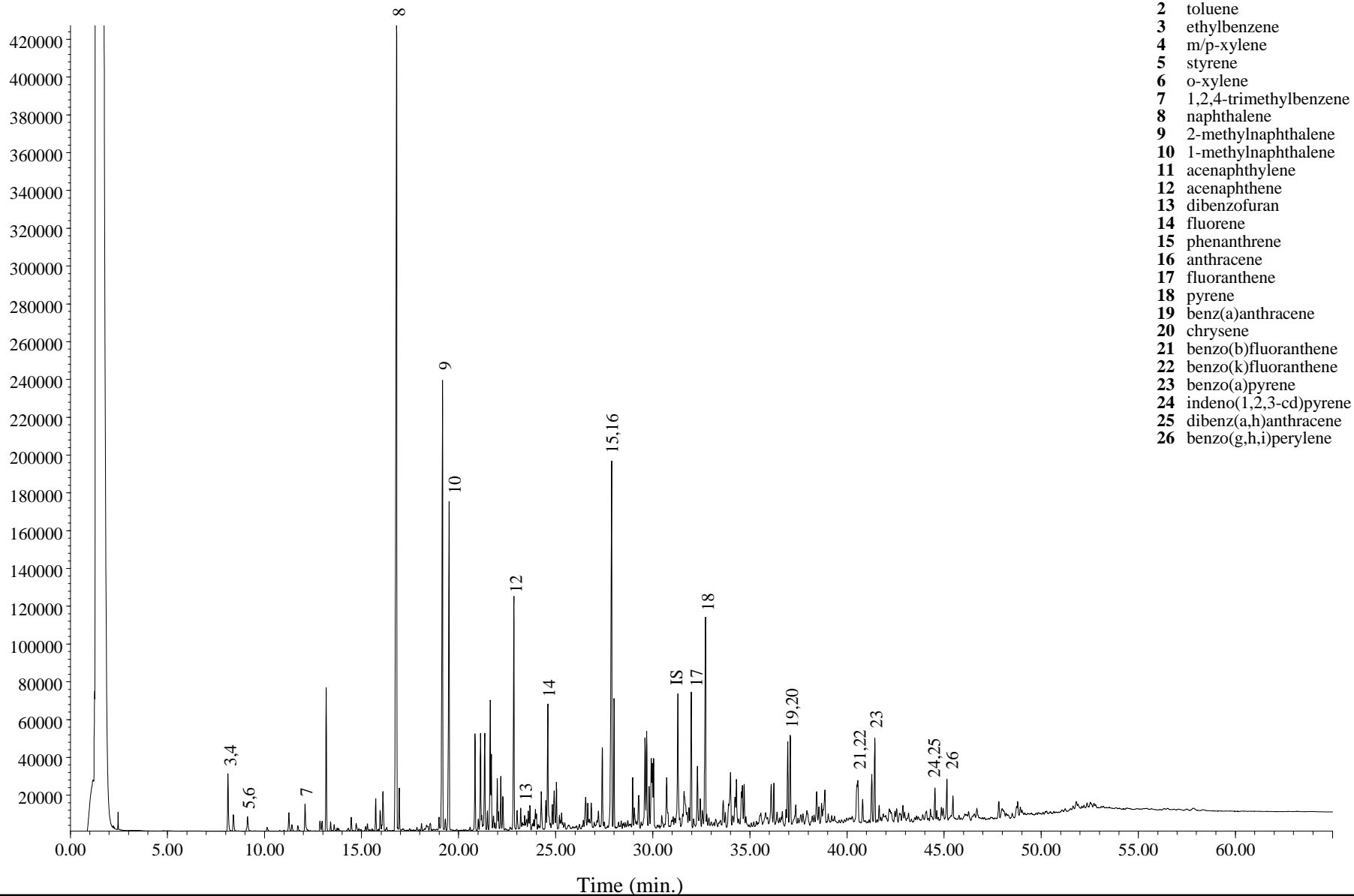
Extraction Date: 06/30/2010
Analysis Date: 07/02/2010

IS - 5 α -androstane
SS1 - 2-fluorobiphenyl
SS2 - o-terphenyl

Field ID: Congaree Sed-1
Laboratory ID: SG100629-01A-D
Method: EPA 8100M

GC/FID Fingerprint

C070110.D\FID2B



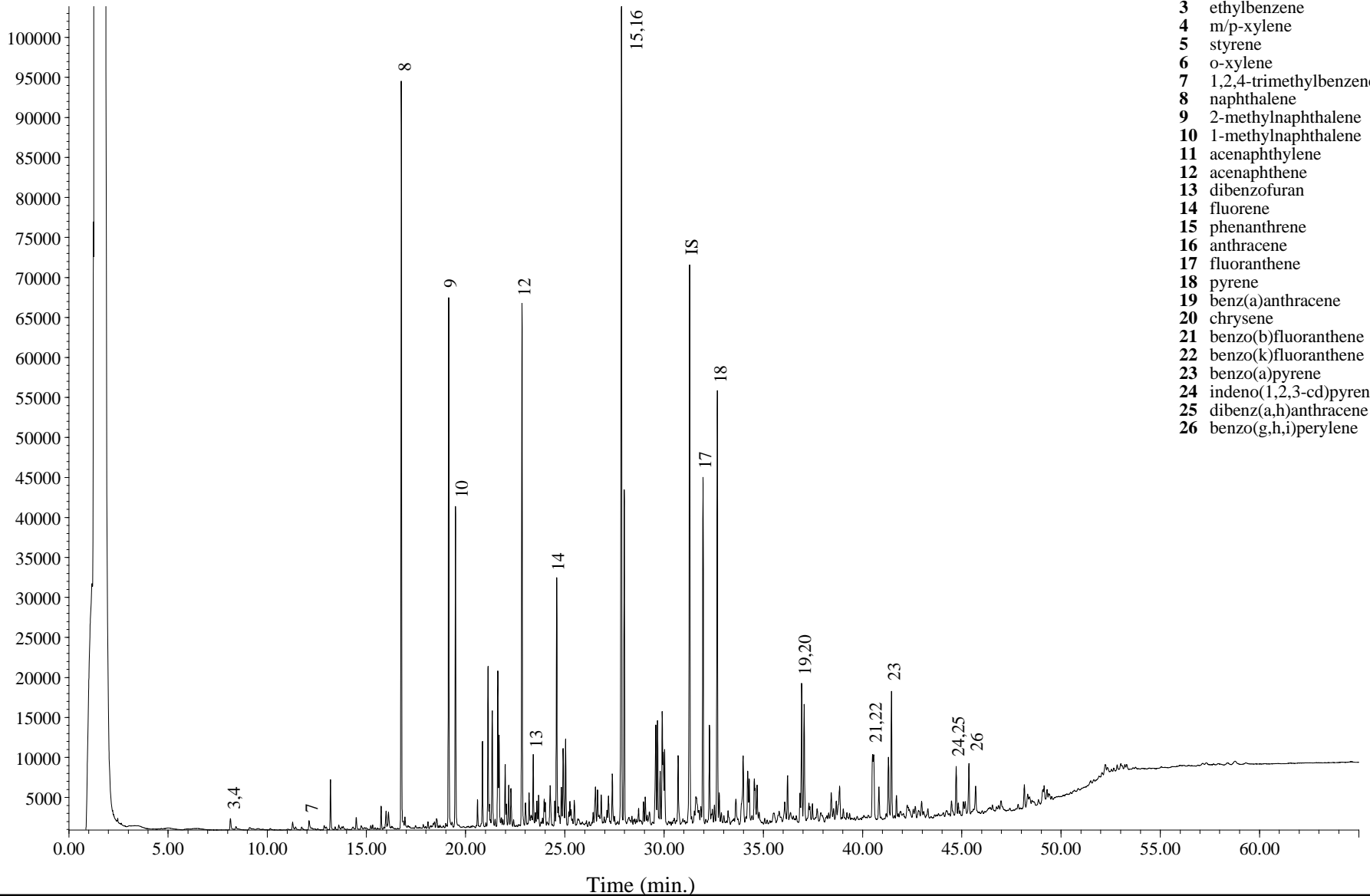
Extraction Date: 06/30/2010
Analysis Date: 07/02/2010

IS - 5 α -androstane
SS1 - 2-fluorobiphenyl
SS2 - o-terphenyl

Field ID: Congaree Sed-1
Laboratory ID: SG100629-01ADUP-D
Method: EPA 8100M

GC/FID Fingerprint

C070111.D\FID2B



- 1 benzene
- 2 toluene
- 3 ethylbenzene
- 4 m/p-xylene
- 5 styrene
- 6 o-xylene
- 7 1,2,4-trimethylbenzene
- 8 naphthalene
- 9 2-methylnaphthalene
- 10 1-methylnaphthalene
- 11 acenaphthylene
- 12 acenaphthene
- 13 dibenzofuran
- 14 fluorene
- 15 phenanthrene
- 16 anthracene
- 17 fluoranthene
- 18 pyrene
- 19 benz(a)anthracene
- 20 chrysene
- 21 benzo(b)fluoranthene
- 22 benzo(k)fluoranthene
- 23 benzo(a)pyrene
- 24 indeno(1,2,3-cd)pyrene
- 25 dibenz(a,h)anthracene
- 26 benzo(g,h,i)perylene

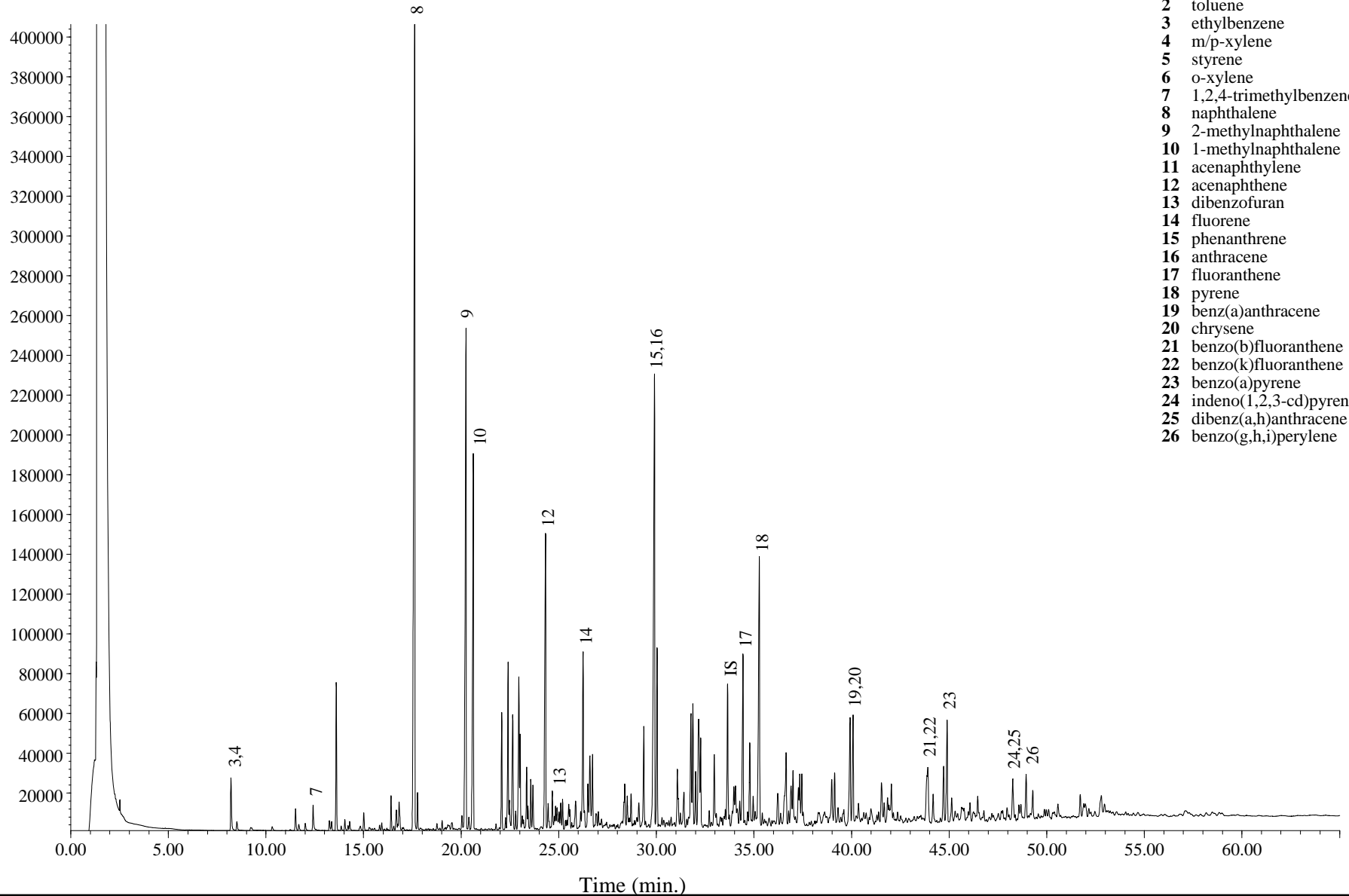
Extraction Date: 06/30/2010
Analysis Date: 07/02/2010

IS - 5 α -androstane
SS1 - 2-fluorobiphenyl
SS2 - o-terphenyl

Field ID: Congaree Sed-2
Laboratory ID: SG100629-02A-D
Method: EPA 8100M

GC/FID Fingerprint

C070112.D\FID2B



- 1 benzene
- 2 toluene
- 3 ethylbenzene
- 4 m/p-xylene
- 5 styrene
- 6 o-xylene
- 7 1,2,4-trimethylbenzene
- 8 naphthalene
- 9 2-methylnaphthalene
- 10 1-methylnaphthalene
- 11 acenaphthylene
- 12 acenaphthene
- 13 dibenzofuran
- 14 fluorene
- 15 phenanthrene
- 16 anthracene
- 17 fluoranthene
- 18 pyrene
- 19 benz(a)anthracene
- 20 chrysene
- 21 benzo(b)fluoranthene
- 22 benzo(k)fluoranthene
- 23 benzo(a)pyrene
- 24 indeno(1,2,3-cd)pyrene
- 25 dibenz(a,h)anthracene
- 26 benzo(g,h,i)perylene

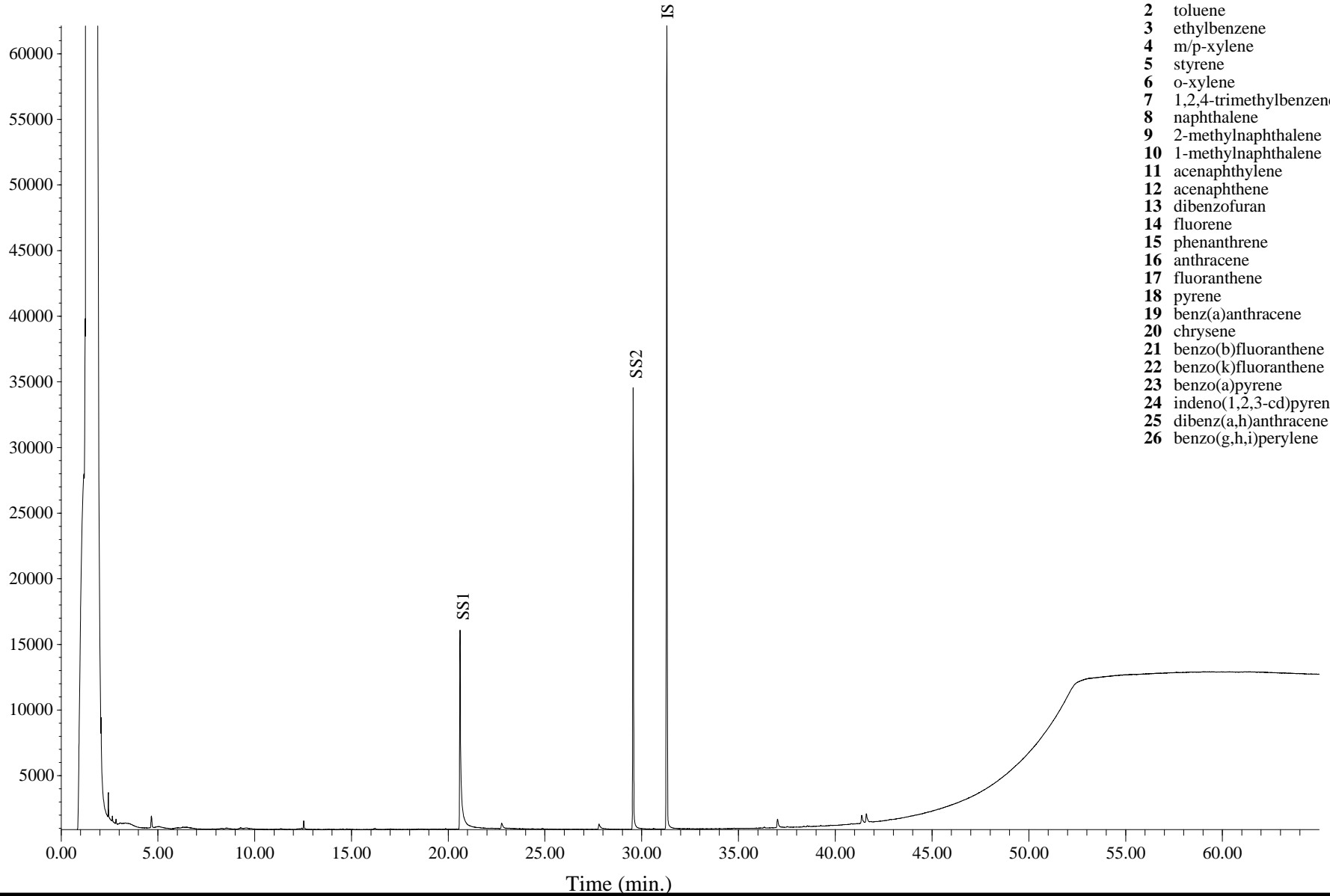
Extraction Date: 06/30/2010
Analysis Date: 07/02/2010

IS - 5 α -androstane
SS1 - 2-fluorobiphenyl
SS2 - o-terphenyl

Field ID: Congaree Sed-3
Laboratory ID: SG100629-03A-D
Method: EPA 8100M

GC/FID Fingerprint

C070106.D\FID2B



Extraction Date: 06/30/2010
Analysis Date: 07/01/2010

IS - 5 α -androstane
SS1 - 2-fluorobiphenyl
SS2 - o-terphenyl

Field ID: Soil Blank
Laboratory ID: QC100630-SB
Method: EPA 8100M

Appendix C

MAH/PAH Concentrations

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01A-D2		
File ID:	E070112.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.06
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				
Benzene	43.9 B	0.246	0.123	
Toluene	6.43 B	0.246	0.123	
Ethylbenzene	214 B	0.246	0.123	
m/p-Xylenes	65.4 B	0.246	0.123	
Styrene	11.7 B	0.246	0.123	
o-Xylene	58.9 B	0.246	0.123	
Isopropylbenzene	22.2	0.246	0.123	
n-Propylbenzene	4.7 B	0.246	0.123	
1,3,5-Trimethylbenzene	28.8 B	0.246	0.123	
1,2,4-Trimethylbenzene	90.2 B	0.246	0.123	
t-Butylbenzene	U	0.246	0.123	
sec-Butylbenzene	0.223 J	0.246	0.123	
p-Isopropyltoluene	11.7	0.246	0.123	
n-Butylbenzene	2.27 B	0.246	0.123	
C1 - Benzene	5.05 B	0.246	0.123	
C2 - Benzene	218 B	0.246	0.123	
C3 - Benzene	171 B	0.246	0.123	
C4 - Benzene	106	0.246	0.123	
C5 - Benzene	17.6	0.246	0.123	
trans-Decalin	0.405	0.246	0.123	
cis-Decalin	0.357	0.246	0.123	
Naphthalene	3,710 EB	0.246	0.123	
2-Methylnaphthalene	1,870 EB	0.246	0.123	
1-Methylnaphthalene	1,170 EB	0.246	0.123	
C1 - Naphthalene	1,920 EB	0.246	0.123	
C2 - Naphthalene	862	0.246	0.123	
C3 - Naphthalene	212	0.246	0.123	
C4 - Naphthalene	43.0	0.246	0.123	
Acenaphthylene	146	0.246	0.123	
Acenaphthene	644	0.246	0.123	
Dibenzofuran	37.2	0.246	0.123	
Fluorene	405	0.246	0.123	
C1 - Fluorene	218	0.246	0.123	
C2 - Fluorene	88.7	0.246	0.123	
C3 - Fluorene	36.8	0.246	0.123	
Phenanthrene	1,510 E	0.246	0.123	
Anthracene	385	0.246	0.123	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01A-D2		
File ID:	E070112.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.06
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	801	0.246	0.123	
C2 - Phenanthrene/Anthracene	282	0.246	0.123	
C3 - Phenanthrene/Anthracene	68.8	0.246	0.123	
C4 - Phenanthrene/Anthracene	20.4	0.246	0.123	
Dibenzothiophene	299	0.246	0.123	
C1 - Dibenzothiophene	358	0.246	0.123	
C2 - Dibenzothiophene	240	0.246	0.123	
C3 - Dibenzothiophene	89.6	0.246	0.123	
C4 - Dibenzothiophene	20.1	0.246	0.123	
Benzo(b)naphtho(2,1-d)thiophene	114	0.246	0.123	
Fluoranthene	417	0.246	0.123	
Pyrene	737 B	0.246	0.123	
C1 - Fluoranthene/Pyrene	641	0.246	0.123	
C2 - Fluoranthene/Pyrene	209	0.246	0.123	
C3 - Fluoranthene/Pyrene	60.8	0.246	0.123	
Benz(a)anthracene	270	0.246	0.123	
Chrysene*	287	0.246	0.123	
C1 - Benz(a)anthracene/Chrysene	224	0.246	0.123	
C2 - Benz(a)anthracene/Chrysene	82.7	0.246	0.123	
C3 - Benz(a)anthracene/Chrysene	26.0	0.246	0.123	
C4 - Benz(a)anthracene/Chrysene	11.4	0.246	0.123	
Benzo(b)fluoranthene	123 B	0.246	0.123	
Benzo(j/k)fluoranthene	153 B	0.246	0.123	
Benzo(e)pyrene	171 B	0.246	0.123	
Benzo(a)pyrene	320 B	0.246	0.123	
Perylene	54.0	0.246	0.123	
Indeno(1,2,3-cd)pyrene	116	0.246	0.123	
Dibenz(a,h)anthracene	47.0	0.246	0.123	
Benzo(g,h,i)perylene	159 B	0.246	0.123	
Coronene	39.8	0.246	0.123	
Retene	U	0.246	0.123	
Benzo(b/c)fluorenes	84.6	0.246	0.123	
2-Methylpyrene	85.7	0.246	0.123	
4-Methylpyrene	84.5	0.246	0.123	
1-Methylpyrene	96.9	0.246	0.123	
Heptadecane	BU	0.246	0.123	
Pristane	7.07	0.246	0.123	
Octadecane	BU	0.246	0.123	
Phytane	4.09	0.246	0.123	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01A-D2		
File ID:	E070112.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.06
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	1.99	0.246	0.123	
2,6,10-trimethyltridecane	3.84	0.246	0.123	
Norpristane	3.82	0.246	0.123	
Total PAH (16)	9,430	0.246	0.123	
Total PAH (42)	16,500	0.246	0.123	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	82	50 - 120
Phenanthrene-d10	80	50 - 120
Benzo(a)pyrene-d12	83	50 - 120
Perylene-d12	83	50 - 120

NA - Not applicable.
 B - Analyte detected in the Blank.
 J - Estimated value; detected between the RL and DL.
 U - Analyte not detected above DL.
 D - Analyte reported from a diluted extract.
 E - Estimate, result detected above calibration range.
 I - Concentration/Peak ID uncertain due to potential interference.
 RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
 EDL - Estimated detection limit is 50% of RL.
 * - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-2

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-02A-D2		
File ID:	E070114.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.34
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				
Benzene	1.22 B	0.230	0.115	
Toluene	0.555 B	0.230	0.115	
Ethylbenzene	6.64 B	0.230	0.115	
m/p-Xylenes	1.82 B	0.230	0.115	
Styrene	0.807 B	0.230	0.115	
o-Xylene	0.953 B	0.230	0.115	
Isopropylbenzene	1.25	0.230	0.115	
n-Propylbenzene	0.477 B	0.230	0.115	
1,3,5-Trimethylbenzene	1.84 B	0.230	0.115	
1,2,4-Trimethylbenzene	4.31 B	0.230	0.115	
t-Butylbenzene	U	0.230	0.115	
sec-Butylbenzene	U	0.230	0.115	
p-Isopropyltoluene	0.965	0.230	0.115	
n-Butylbenzene	0.708 B	0.230	0.115	
C1 - Benzene	0.467 B	0.230	0.115	
C2 - Benzene	6.11 B	0.230	0.115	
C3 - Benzene	10.4 B	0.230	0.115	
C4 - Benzene	12.3	0.230	0.115	
C5 - Benzene	4.26	0.230	0.115	
trans-Decalin	0.238	0.230	0.115	
cis-Decalin	U	0.230	0.115	
Naphthalene	291 B	0.230	0.115	
2-Methylnaphthalene	231 B	0.230	0.115	
1-Methylnaphthalene	134 B	0.230	0.115	
C1 - Naphthalene	231 B	0.230	0.115	
C2 - Naphthalene	141	0.230	0.115	
C3 - Naphthalene	42.2	0.230	0.115	
C4 - Naphthalene	10.4	0.230	0.115	
Acenaphthylene	10.5	0.230	0.115	
Acenaphthene	194	0.230	0.115	
Dibenzofuran	30.6	0.230	0.115	
Fluorene	98.8	0.230	0.115	
C1 - Fluorene	29.7	0.230	0.115	
C2 - Fluorene	13.2	0.230	0.115	
C3 - Fluorene	4.49	0.230	0.115	
Phenanthrene	365	0.230	0.115	
Anthracene	142	0.230	0.115	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-2

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-02A-D2		
File ID:	E070114.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.34
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	121	0.230	0.115	
C2 - Phenanthrene/Anthracene	34.5	0.230	0.115	
C3 - Phenanthrene/Anthracene	7.47	0.230	0.115	
C4 - Phenanthrene/Anthracene	1.99	0.230	0.115	
Dibenzothiophene	22.6	0.230	0.115	
C1 - Dibenzothiophene	18.7	0.230	0.115	
C2 - Dibenzothiophene	11.4	0.230	0.115	
C3 - Dibenzothiophene	4.54	0.230	0.115	
C4 - Dibenzothiophene	1.24	0.230	0.115	
Benzo(b)naphtho(2,1-d)thiophene	6.14	0.230	0.115	
Fluoranthene	145	0.230	0.115	
Pyrene	178 B	0.230	0.115	
C1 - Fluoranthene/Pyrene	96.5	0.230	0.115	
C2 - Fluoranthene/Pyrene	21.6	0.230	0.115	
C3 - Fluoranthene/Pyrene	6.72	0.230	0.115	
Benz(a)anthracene	40.2	0.230	0.115	
Chrysene*	54.1	0.230	0.115	
C1 - Benz(a)anthracene/Chrysene	23.6	0.230	0.115	
C2 - Benz(a)anthracene/Chrysene	8.18	0.230	0.115	
C3 - Benz(a)anthracene/Chrysene	2.61	0.230	0.115	
C4 - Benz(a)anthracene/Chrysene	1.58	0.230	0.115	
Benzo(b)fluoranthene	29.1 B	0.230	0.115	
Benzo(j/k)fluoranthene	38.0 B	0.230	0.115	
Benzo(e)pyrene	29.5 B	0.230	0.115	
Benzo(a)pyrene	60.0 B	0.230	0.115	
Perylene	11.4	0.230	0.115	
Indeno(1,2,3-cd)pyrene	23.6	0.230	0.115	
Dibenz(a,h)anthracene	7.8	0.230	0.115	
Benzo(g,h,i)perylene	27.1 B	0.230	0.115	
Coronene	7.61	0.230	0.115	
Retene	0.623	0.230	0.115	
Benzo(b/c)fluorenes	18.0	0.230	0.115	
2-Methylpyrene	11.9	0.230	0.115	
4-Methylpyrene	9.6	0.230	0.115	
1-Methylpyrene	12.6	0.230	0.115	
Heptadecane	2.39 B	0.230	0.115	
Pristane	3.03	0.230	0.115	
Octadecane	BU	0.230	0.115	
Phytane	1.12	0.230	0.115	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-2

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-02A-D2		
File ID:	E070114.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.34
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.952	0.230	0.115	
2,6,10-trimethyltridecane	1.62	0.230	0.115	
Norpristane	1.39	0.230	0.115	
Total PAH (16)	1,700	0.230	0.115	
Total PAH (42)	2,630	0.230	0.115	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	101	50 - 120
Phenanthrene-d10	101	50 - 120
Benzo(a)pyrene-d12	113	50 - 120
Perylene-d12	155	50 - 120

NA - Not applicable.
 B - Analyte detected in the Blank.
 J - Estimated value; detected between the RL and DL.
 U - Analyte not detected above DL.
 D - Analyte reported from a diluted extract.
 E - Estimate, result detected above calibration range.
 I - Concentration/Peak ID uncertain due to potential interference.
 RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
 EDL - Estimated detection limit is 50% of RL.
 * - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-3

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-03A-D2		
File ID:	E070115.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.18
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
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MAH & PAH COMPOUNDS:

Benzene	17.0 B	0.239	0.120	
Toluene	4.33 B	0.239	0.120	
Ethylbenzene	113 B	0.239	0.120	
m/p-Xylenes	20.3 B	0.239	0.120	
Styrene	9.44 B	0.239	0.120	
o-Xylene	6.12 B	0.239	0.120	
Isopropylbenzene	12.5	0.239	0.120	
n-Propylbenzene	2.91 B	0.239	0.120	
1,3,5-Trimethylbenzene	16.0 B	0.239	0.120	
1,2,4-Trimethylbenzene	49.9 B	0.239	0.120	
t-Butylbenzene	U	0.239	0.120	
sec-Butylbenzene	0.198 J	0.239	0.120	
p-Isopropyltoluene	6.67	0.239	0.120	
n-Butylbenzene	4.17 B	0.239	0.120	
C1 - Benzene	3.52 B	0.239	0.120	
C2 - Benzene	87.4 B	0.239	0.120	
C3 - Benzene	102 B	0.239	0.120	
C4 - Benzene	83.6	0.239	0.120	
C5 - Benzene	16.7	0.239	0.120	
trans-Decalin	0.422	0.239	0.120	
cis-Decalin	U	0.239	0.120	
Naphthalene	2,240 EB	0.239	0.120	
2-Methylnaphthalene	1,320 EB	0.239	0.120	
1-Methylnaphthalene	792 B	0.239	0.120	
C1 - Naphthalene	1,330 B	0.239	0.120	
C2 - Naphthalene	652	0.239	0.120	
C3 - Naphthalene	165	0.239	0.120	
C4 - Naphthalene	30.6	0.239	0.120	
Acenaphthylene	85.8	0.239	0.120	
Acenaphthene	642	0.239	0.120	
Dibenzofuran	33.4	0.239	0.120	
Fluorene	336	0.239	0.120	
C1 - Fluorene	111	0.239	0.120	
C2 - Fluorene	56.4	0.239	0.120	
C3 - Fluorene	23.6	0.239	0.120	
Phenanthrene	1,250 E	0.239	0.120	
Anthracene	355	0.239	0.120	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-3

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-03A-D2		
File ID:	E070115.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.18
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	623	0.239	0.120	
C2 - Phenanthrene/Anthracene	194	0.239	0.120	
C3 - Phenanthrene/Anthracene	44.0	0.239	0.120	
C4 - Phenanthrene/Anthracene	11.8	0.239	0.120	
Dibenzothiophene	224	0.239	0.120	
C1 - Dibenzothiophene	240	0.239	0.120	
C2 - Dibenzothiophene	143	0.239	0.120	
C3 - Dibenzothiophene	48.8	0.239	0.120	
C4 - Dibenzothiophene	9.89	0.239	0.120	
Benzo(b)naphtho(2,1-d)thiophene	75.4	0.239	0.120	
Fluoranthene	350	0.239	0.120	
Pyrene	607 B	0.239	0.120	
C1 - Fluoranthene/Pyrene	481	0.239	0.120	
C2 - Fluoranthene/Pyrene	139	0.239	0.120	
C3 - Fluoranthene/Pyrene	36.0	0.239	0.120	
Benz(a)anthracene	207	0.239	0.120	
Chrysene*	216	0.239	0.120	
C1 - Benz(a)anthracene/Chrysene	154	0.239	0.120	
C2 - Benz(a)anthracene/Chrysene	54.4	0.239	0.120	
C3 - Benz(a)anthracene/Chrysene	13.9	0.239	0.120	
C4 - Benz(a)anthracene/Chrysene	6.62	0.239	0.120	
Benzo(b)fluoranthene	92.3 B	0.239	0.120	
Benzo(j/k)fluoranthene	117 B	0.239	0.120	
Benzo(e)pyrene	125 B	0.239	0.120	
Benzo(a)pyrene	232 B	0.239	0.120	
Perylene	39.8	0.239	0.120	
Indeno(1,2,3-cd)pyrene	84.6	0.239	0.120	
Dibenz(a,h)anthracene	33.0	0.239	0.120	
Benzo(g,h,i)perylene	115 B	0.239	0.120	
Coronene	29.1	0.239	0.120	
Retene	1.55	0.239	0.120	
Benzo(b/c)fluorenes	65.4	0.239	0.120	
2-Methylpyrene	64.3	0.239	0.120	
4-Methylpyrene	60.6	0.239	0.120	
1-Methylpyrene	69.6	0.239	0.120	
Heptadecane	BU	0.239	0.120	
Pristane	6.3	0.239	0.120	
Octadecane	BU	0.239	0.120	
Phytane	2.78	0.239	0.120	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-3

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-03A-D2		
File ID:	E070115.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.18
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	1.99	0.239	0.120	
2,6,10-trimethyltridecane	3.4	0.239	0.120	
Norpristane	3.88	0.239	0.120	
Total PAH (16)	6,960	0.239	0.120	
Total PAH (42)	12,000	0.239	0.120	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	75	50 - 120
Phenanthrene-d10	77	50 - 120
Benzo(a)pyrene-d12	91	50 - 120
Perylene-d12	103	50 - 120

NA - Not applicable.
 B - Analyte detected in the Blank.
 J - Estimated value; detected between the RL and DL.
 U - Analyte not detected above DL.
 D - Analyte reported from a diluted extract.
 E - Estimate, result detected above calibration range.
 I - Concentration/Peak ID uncertain due to potential interference.
 RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
 EDL - Estimated detection limit is 50% of RL.
 * - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SB		
File ID:	E070110.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
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MAH & PAH COMPOUNDS:

Benzene	0.002	0.002	0.001	
Toluene	0.002	0.002	0.001	
Ethylbenzene	0.001 J	0.002	0.001	
m/p-Xylenes	0.001 J	0.002	0.001	
Styrene	0.002 J	0.002	0.001	
o-Xylene	0.001 J	0.002	0.001	
Isopropylbenzene	U	0.002	0.001	
n-Propylbenzene	0.001 J	0.002	0.001	
1,3,5-Trimethylbenzene	0.001 J	0.002	0.001	
1,2,4-Trimethylbenzene	0.001 J	0.002	0.001	
t-Butylbenzene	U	0.002	0.001	
sec-Butylbenzene	U	0.002	0.001	
p-Isopropyltoluene	U	0.002	0.001	
n-Butylbenzene	0.001 J	0.002	0.001	
C1 - Benzene	0.002	0.002	0.001	
C2 - Benzene	0.002	0.002	0.001	
C3 - Benzene	0.004	0.002	0.001	
C4 - Benzene	U	0.002	0.001	
C5 - Benzene	U	0.002	0.001	
trans-Decalin	U	0.002	0.001	
cis-Decalin	U	0.002	0.001	
Naphthalene	0.001 J	0.002	0.001	
2-Methylnaphthalene	0.001 J	0.002	0.001	
1-Methylnaphthalene	0.001 J	0.002	0.001	
C1 - Naphthalene	0.001 J	0.002	0.001	
C2 - Naphthalene	U	0.002	0.001	
C3 - Naphthalene	U	0.002	0.001	
C4 - Naphthalene	U	0.002	0.001	
Acenaphthylene	U	0.002	0.001	
Acenaphthene	U	0.002	0.001	
Dibenzofuran	U	0.002	0.001	
Fluorene	U	0.002	0.001	
C1 - Fluorene	U	0.002	0.001	
C2 - Fluorene	U	0.002	0.001	
C3 - Fluorene	U	0.002	0.001	
Phenanthrene	U	0.002	0.001	
Anthracene	U	0.002	0.001	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SB		
File ID:	E070110.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	U	0.002	0.001	
C2 - Phenanthrene/Anthracene	U	0.002	0.001	
C3 - Phenanthrene/Anthracene	U	0.002	0.001	
C4 - Phenanthrene/Anthracene	U	0.002	0.001	
Dibenzothiophene	U	0.002	0.001	
C1 - Dibenzothiophene	U	0.002	0.001	
C2 - Dibenzothiophene	U	0.002	0.001	
C3 - Dibenzothiophene	U	0.002	0.001	
C4 - Dibenzothiophene	U	0.002	0.001	
Benzo(b)naphtho(2,1-d)thiophene	U	0.002	0.001	
Fluoranthene	U	0.002	0.001	
Pyrene	0.001 J	0.002	0.001	
C1 - Fluoranthene/Pyrene	U	0.002	0.001	
C2 - Fluoranthene/Pyrene	U	0.002	0.001	
C3 - Fluoranthene/Pyrene	U	0.002	0.001	
Benz(a)anthracene	U	0.002	0.001	
Chrysene*	U	0.002	0.001	
C1 - Benz(a)anthracene/Chrysene	U	0.002	0.001	
C2 - Benz(a)anthracene/Chrysene	U	0.002	0.001	
C3 - Benz(a)anthracene/Chrysene	U	0.002	0.001	
C4 - Benz(a)anthracene/Chrysene	U	0.002	0.001	
Benzo(b)fluoranthene	0.001 J	0.002	0.001	
Benzo(j/k)fluoranthene	0.001 J	0.002	0.001	
Benzo(e)pyrene	0.001 J	0.002	0.001	
Benzo(a)pyrene	0.001 J	0.002	0.001	
Perylene	U	0.002	0.001	
Indeno(1,2,3-cd)pyrene	U	0.002	0.001	
Dibenz(a,h)anthracene	U	0.002	0.001	
Benzo(g,h,i)perylene	0.001 J	0.002	0.001	
Coronene	U	0.002	0.001	
Retene	U	0.002	0.001	
Benzo(b/c)fluorenes	U	0.002	0.001	
2-Methylpyrene	U	0.002	0.001	
4-Methylpyrene	U	0.002	0.001	
1-Methylpyrene	U	0.002	0.001	
Heptadecane	0.002	0.002	0.001	
Pristane	U	0.002	0.001	
Octadecane	0.003	0.002	0.001	
Phytane	U	0.002	0.001	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SB		
File ID:	E070110.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	U	0.002	0.001	
2,6,10-trimethyltridecane	U	0.002	0.001	
Norpristane	U	0.002	0.001	
Total PAH (16)	0.006	0.002	0.001	
Total PAH (42)	0.008	0.002	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	98	50 - 120
Phenanthrene-d10	88	50 - 120
Benzo(a)pyrene-d12	112	50 - 120
Perylene-d12	110	50 - 120

NA - Not applicable.
 B - Analyte detected in the Blank.
 J - Estimated value; detected between the RL and DL.
 U - Analyte not detected above DL.
 D - Analyte reported from a diluted extract.
 E - Estimate, result detected above calibration range.
 I - Concentration/Peak ID uncertain due to potential interference.
 RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
 EDL - Estimated detection limit is 50% of RL.
 * - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank Spike

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SBS		
File ID:	E070111.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount				% Recovery
Benzene	2.00	2.48 B	0.002	0.001	124
Toluene	2.00	2.47 B	0.002	0.001	124
Ethylbenzene	2.00	2.18 B	0.002	0.001	109
m/p-Xylenes	2.00	2.14 B	0.002	0.001	107
Styrene	2.00	2.44 B	0.002	0.001	122
o-Xylene	2.00	2.25 B	0.002	0.001	113
Isopropylbenzene	2.00	2.29	0.002	0.001	115
n-Propylbenzene	2.00	2.37 B	0.002	0.001	119
1,3,5-Trimethylbenzene	2.00	2.38 B	0.002	0.001	119
1,2,4-Trimethylbenzene	2.00	2.31 B	0.002	0.001	116
t-Butylbenzene		U	0.002	0.001	
sec-Butylbenzene	2.00	2.36	0.002	0.001	118
p-Isopropyltoluene	2.00	2.38	0.002	0.001	119
n-Butylbenzene	2.00	2.41 B	0.002	0.001	121
C1 - Benzene		BU	0.002	0.001	
C2 - Benzene		BU	0.002	0.001	
C3 - Benzene		BU	0.002	0.001	
C4 - Benzene		U	0.002	0.001	
C5 - Benzene		U	0.002	0.001	
trans-Decalin		U	0.002	0.001	
cis-Decalin		U	0.002	0.001	
Naphthalene	2.00	2.46 B	0.002	0.001	123
2-Methylnaphthalene	2.00	2.52 B	0.002	0.001	126
1-Methylnaphthalene	2.00	2.45 B	0.002	0.001	123
C1 - Naphthalene		BU	0.002	0.001	
C2 - Naphthalene		U	0.002	0.001	
C3 - Naphthalene		U	0.002	0.001	
C4 - Naphthalene		U	0.002	0.001	
Acenaphthylene	2.00	2.54	0.002	0.001	127
Acenaphthene	2.00	2.52	0.002	0.001	126
Dibenzofuran	2.00	2.56	0.002	0.001	128
Fluorene	2.00	2.58	0.002	0.001	129
C1 - Fluorene		U	0.002	0.001	
C2 - Fluorene		U	0.002	0.001	
C3 - Fluorene		U	0.002	0.001	
Phenanthrene	2.00	2.48	0.002	0.001	124
Anthracene	2.00	2.35	0.002	0.001	118

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank Spike

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SBS		
File ID:	E070111.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene		U	0.002	0.001	
C2 - Phenanthrene/Anthracene		U	0.002	0.001	
C3 - Phenanthrene/Anthracene		U	0.002	0.001	
C4 - Phenanthrene/Anthracene		U	0.002	0.001	
Dibenzothiophene	2.00	2.53	0.002	0.001	127
C1 - Dibenzothiophene		U	0.002	0.001	
C2 - Dibenzothiophene		U	0.002	0.001	
C3 - Dibenzothiophene		U	0.002	0.001	
C4 - Dibenzothiophene		U	0.002	0.001	
Benzo(b)naphtho(2,1-d)thiophene		U	0.002	0.001	
Fluoranthene	2.00	2.5	0.002	0.001	125
Pyrene	2.00	2.45 B	0.002	0.001	123
C1 - Fluoranthene/Pyrene		U	0.002	0.001	
C2 - Fluoranthene/Pyrene		U	0.002	0.001	
C3 - Fluoranthene/Pyrene		U	0.002	0.001	
Benz(a)anthracene	2.00	2.5	0.002	0.001	125
Chrysene*	2.00	2.58	0.002	0.001	129
C1 - Benz(a)anthracene/Chrysene		U	0.002	0.001	
C2 - Benz(a)anthracene/Chrysene		U	0.002	0.001	
C3 - Benz(a)anthracene/Chrysene		U	0.002	0.001	
C4 - Benz(a)anthracene/Chrysene		U	0.002	0.001	
Benzo(b)fluoranthene	2.00	2.72 B	0.002	0.001	136
Benzo(j/k)fluoranthene	2.00	2.73 B	0.002	0.001	137
Benzo(e)pyrene	2.00	2.61 B	0.002	0.001	131
Benzo(a)pyrene	2.00	2.64 B	0.002	0.001	132
Perylene		U	0.002	0.001	
Indeno(1,2,3-cd)pyrene	2.00	2.8	0.002	0.001	140
Dibenz(a,h)anthracene	2.00	2.85	0.002	0.001	143
Benzo(g,h,i)perylene	2.00	2.71 B	0.002	0.001	136
Coronene		U	0.002	0.001	
Retene		U	0.002	0.001	
Benzo(b/c)fluorenes		U	0.002	0.001	
2-Methylpyrene		U	0.002	0.001	
4-Methylpyrene		U	0.002	0.001	
1-Methylpyrene		U	0.002	0.001	
Heptadecane		BU	0.002	0.001	
Pristane		U	0.002	0.001	
Octadecane		BU	0.002	0.001	
Phytane		U	0.002	0.001	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank Spike

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SBS		
File ID:	E070111.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	U	0.002	0.001	
2,6,10-trimethyltridecane	U	0.002	0.001	
Norpristane	U	0.002	0.001	

<i>Extraction Surrogate Recoveries (%)</i>		Limits
Toluene-d8	112	50 - 120
Phenanthrene-d10	114	50 - 120
Benzo(a)pyrene-d12	136	50 - 120
Perylene-d12	130	50 - 120

NA - Not applicable.
 B - Analyte detected in the Blank.
 J - Estimated value; detected between the RL and DL.
 U - Analyte not detected above DL.
 D - Analyte reported from a diluted extract.
 E - Estimate, result detected above calibration range.
 I - Concentration/Peak ID uncertain due to potential interference.
 RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
 EDL - Estimated detection limit is 50% of RL.
 * - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Duplicate of Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01DUPA-D2		
File ID:	E070113.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.13
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				RPD
Benzene	22.1 B	0.242	0.121	66.1
Toluene	1.47 B	0.242	0.121	125.6
Ethylbenzene	124 B	0.242	0.121	53.3
m/p-Xylenes	40.4 B	0.242	0.121	47.3
Styrene	4.04 B	0.242	0.121	97.3
o-Xylene	34.1 B	0.242	0.121	53.3
Isopropylbenzene	12.8	0.242	0.121	53.7
n-Propylbenzene	2.61 B	0.242	0.121	57.2
1,3,5-Trimethylbenzene	16.6 B	0.242	0.121	53.7
1,2,4-Trimethylbenzene	52.0 B	0.242	0.121	53.7
t-Butylbenzene	U	0.242	0.121	NA
sec-Butylbenzene	0.135 J	0.242	0.121	49.2
p-Isopropyltoluene	6.78	0.242	0.121	53.2
n-Butylbenzene	1.22 B	0.242	0.121	60.2
C1 - Benzene	1.22 B	0.242	0.121	122.2
C2 - Benzene	128 B	0.242	0.121	52
C3 - Benzene	99.3 B	0.242	0.121	53.1
C4 - Benzene	60.8	0.242	0.121	54.2
C5 - Benzene	9.78	0.242	0.121	57.1
trans-Decalin	0.240 J	0.242	0.121	51.2
cis-Decalin	U	0.242	0.121	NA
Naphthalene	2,140 EB	0.242	0.121	53.7
2-Methylnaphthalene	1,070 EB	0.242	0.121	54.4
1-Methylnaphthalene	666 B	0.242	0.121	54.9
C1 - Naphthalene	1,100 B	0.242	0.121	54.3
C2 - Naphthalene	488	0.242	0.121	55.4
C3 - Naphthalene	120	0.242	0.121	55.4
C4 - Naphthalene	24.8	0.242	0.121	53.7
Acenaphthylene	72.0	0.242	0.121	67.9
Acenaphthene	371	0.242	0.121	53.8
Dibenzofuran	21.1	0.242	0.121	55.2
Fluorene	229	0.242	0.121	55.5
C1 - Fluorene	116	0.242	0.121	61.1
C2 - Fluorene	50.4	0.242	0.121	55.1
C3 - Fluorene	21.5	0.242	0.121	52.5
Phenanthrene	869	0.242	0.121	53.9
Anthracene	222	0.242	0.121	53.7

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Duplicate of Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01DUPA-D2		
File ID:	E070113.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.13
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	465	0.242	0.121	53.1
C2 - Phenanthrene/Anthracene	161	0.242	0.121	54.6
C3 - Phenanthrene/Anthracene	39.2	0.242	0.121	54.8
C4 - Phenanthrene/Anthracene	12.4	0.242	0.121	48.8
Dibenzothiophene	175	0.242	0.121	52.3
C1 - Dibenzothiophene	209	0.242	0.121	52.6
C2 - Dibenzothiophene	140	0.242	0.121	52.6
C3 - Dibenzothiophene	52.7	0.242	0.121	51.9
C4 - Dibenzothiophene	10.7	0.242	0.121	61
Benzo(b)naphtho(2,1-d)thiophene	66.2	0.242	0.121	53.1
Fluoranthene	244	0.242	0.121	52.3
Pyrene	432 B	0.242	0.121	52.2
C1 - Fluoranthene/Pyrene	371	0.242	0.121	53.4
C2 - Fluoranthene/Pyrene	120	0.242	0.121	54.1
C3 - Fluoranthene/Pyrene	33.9	0.242	0.121	56.8
Benz(a)anthracene	154	0.242	0.121	54.7
Chrysene*	163	0.242	0.121	55.1
C1 - Benz(a)anthracene/Chrysene	125	0.242	0.121	56.7
C2 - Benz(a)anthracene/Chrysene	46.6	0.242	0.121	55.8
C3 - Benz(a)anthracene/Chrysene	13.4	0.242	0.121	64
C4 - Benz(a)anthracene/Chrysene	7.23	0.242	0.121	44.8
Benzo(b)fluoranthene	70.9 B	0.242	0.121	53.7
Benzo(j/k)fluoranthene	84.8 B	0.242	0.121	57.4
Benzo(e)pyrene	96.8 B	0.242	0.121	55.4
Benzo(a)pyrene	179 B	0.242	0.121	56.5
Perylene	30.3	0.242	0.121	56.2
Indeno(1,2,3-cd)pyrene	65.1	0.242	0.121	56.2
Dibenz(a,h)anthracene	26.1	0.242	0.121	57.2
Benzo(g,h,i)perylene	89.5 B	0.242	0.121	55.9
Coronene	23.1	0.242	0.121	53.1
Retene	U	0.242	0.121	NA
Benzo(b/c)fluorenes	47.5	0.242	0.121	56.2
2-Methylpyrene	49.6	0.242	0.121	53.4
4-Methylpyrene	50.0	0.242	0.121	51.3
1-Methylpyrene	55.4	0.242	0.121	54.5
Heptadecane	3.36 B	0.242	0.121	#VALUE!
Pristane	4.25	0.242	0.121	49.8
Octadecane	5.34 B	0.242	0.121	#VALUE!
Phytane	2.52	0.242	0.121	47.5

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Duplicate of Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01DUPA-D2		
File ID:	E070113.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.13
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	1.09	0.242	0.121	58.4
2,6,10-trimethyltridecane	2.52	0.242	0.121	41.5
Norpristane	2.53	0.242	0.121	40.6
Total PAH (16)	5,410	0.242	0.121	54.2
Total PAH (42)	9,460	0.242	0.121	54.2

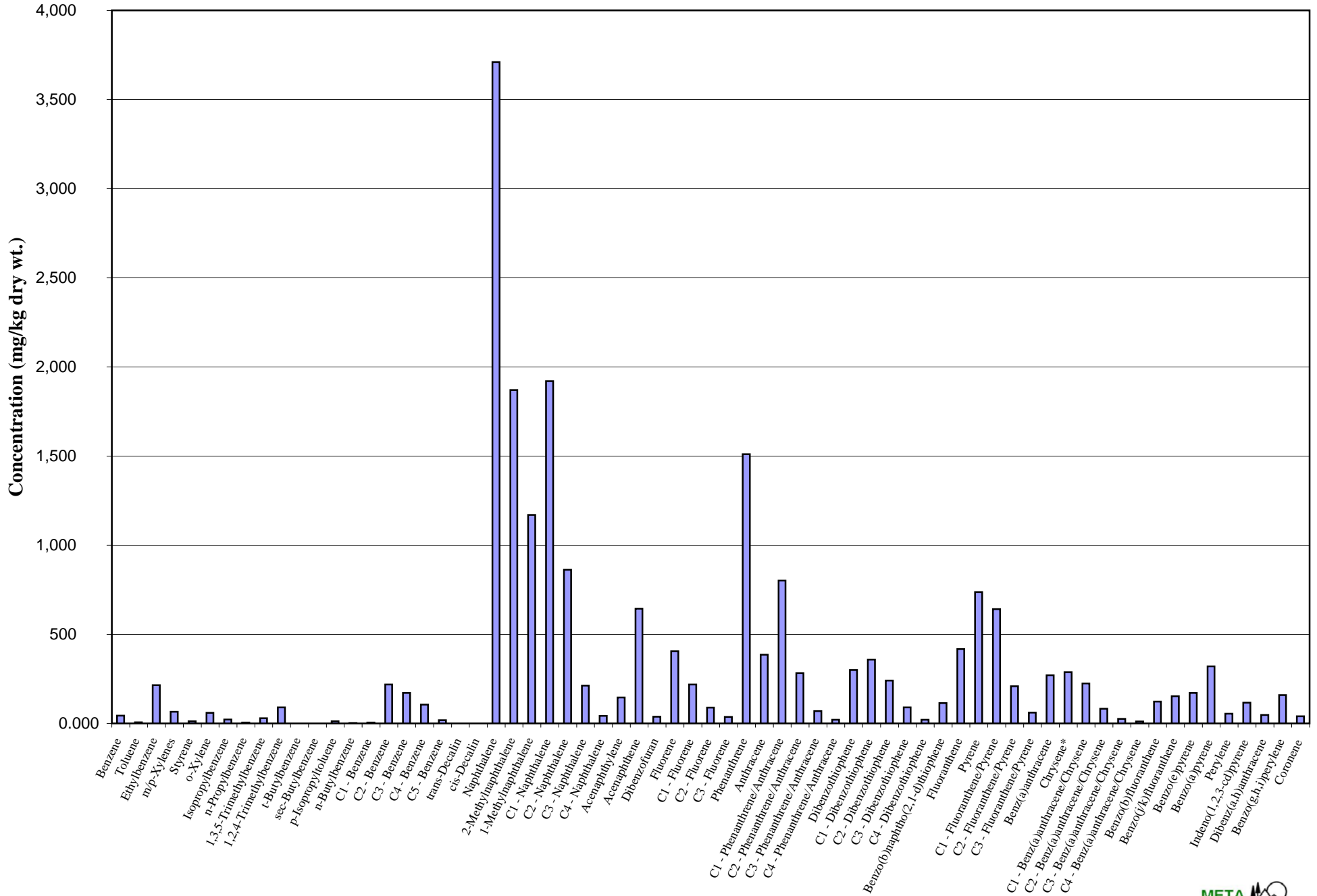
<i>Extraction Surrogate Recoveries (%)</i>		Limits
Toluene-d8	43	50 - 120
Phenanthrene-d10	39	50 - 120
Benzo(a)pyrene-d12	48	50 - 120
Perylene-d12	80	50 - 120

NA - Not applicable.
 B - Analyte detected in the Blank.
 J - Estimated value; detected between the RL and DL.
 U - Analyte not detected above DL.
 D - Analyte reported from a diluted extract.
 E - Estimate, result detected above calibration range.
 I - Concentration/Peak ID uncertain due to potential interference.
 RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
 EDL - Estimated detection limit is 50% of RL.
 * - Triphenylene is known to coelute with this compound.

Appendix D
Extended MAH/PAH Profiles –
Histograms

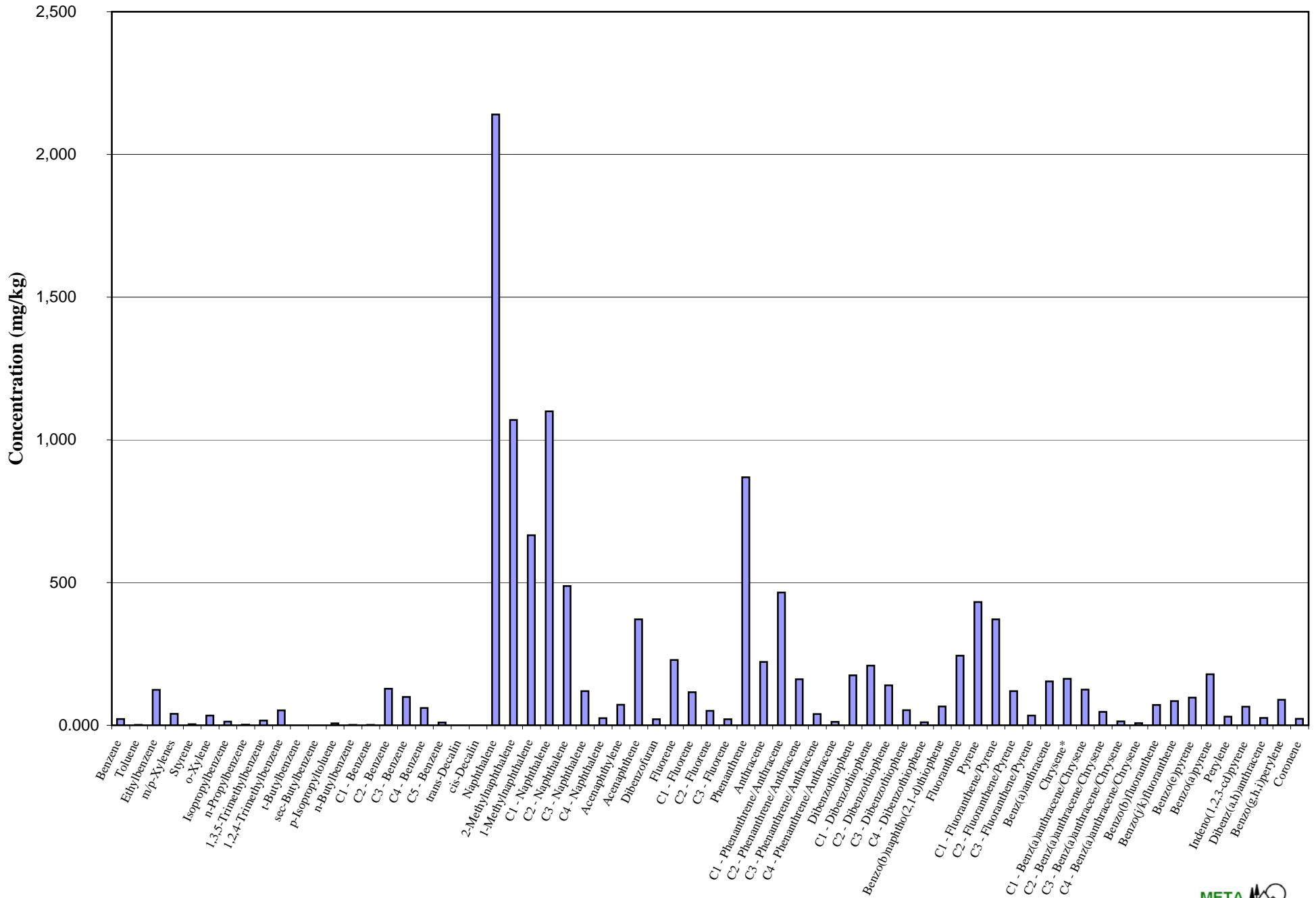
Congaree Sed-1

SG100629-01A-D2



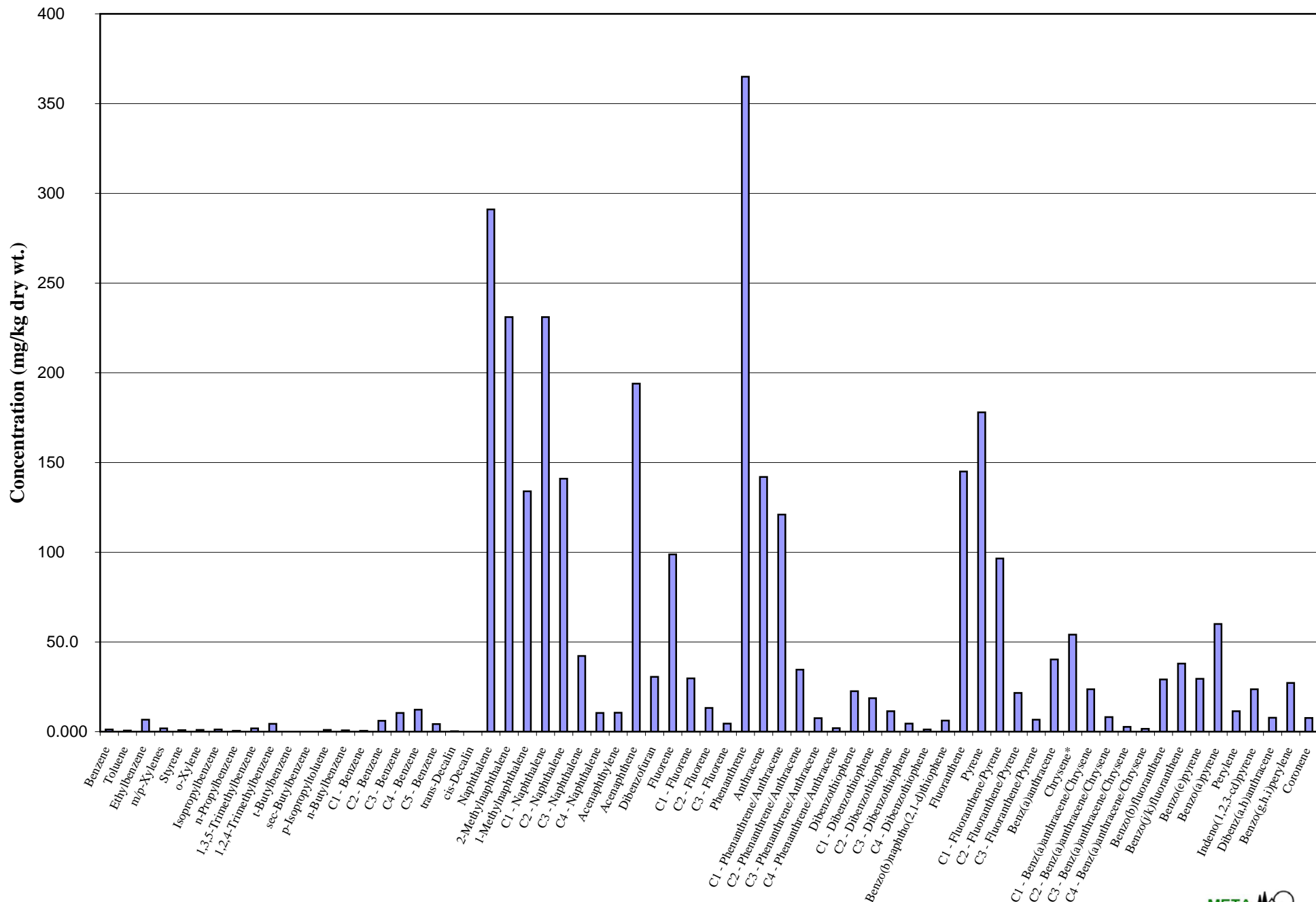
Duplicate of Congaree Sed-1

SG100629-01DUPA-D2



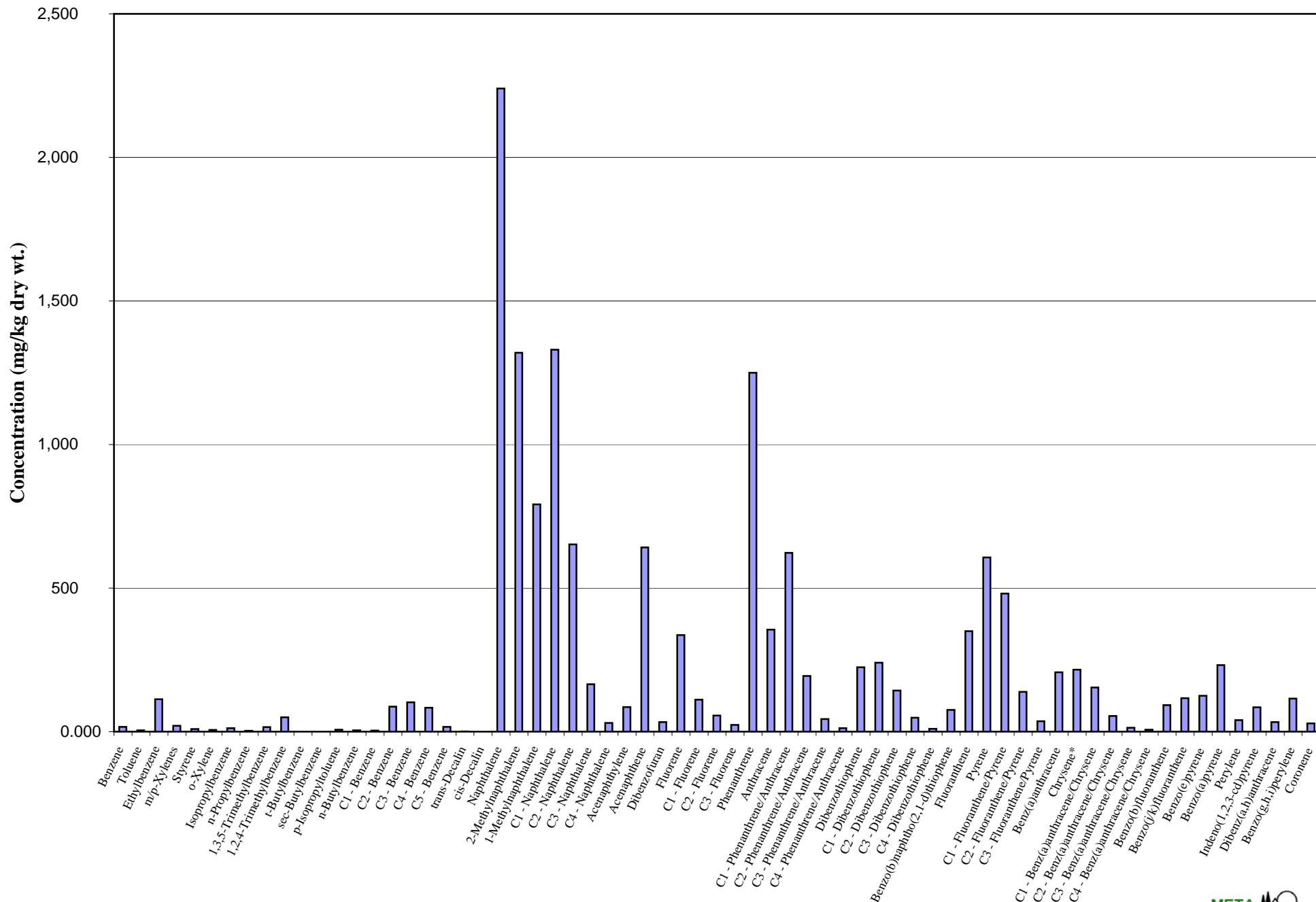
Congaree Sed-2

SG100629-02A-D2



Congaree Sed-3

SG100629-03A-D2

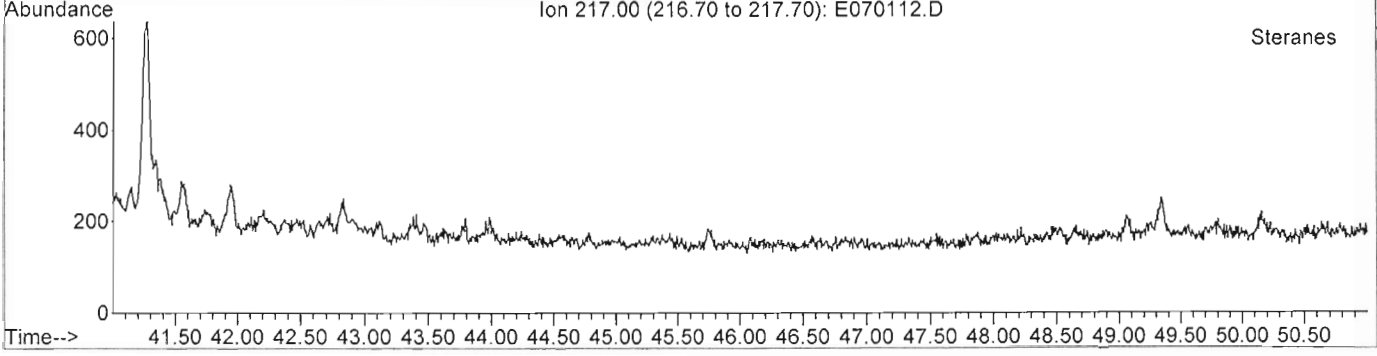
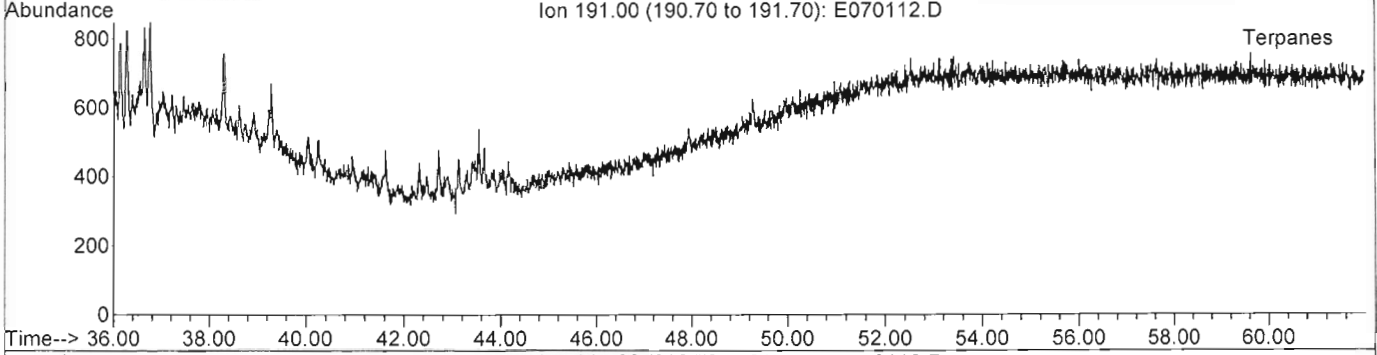
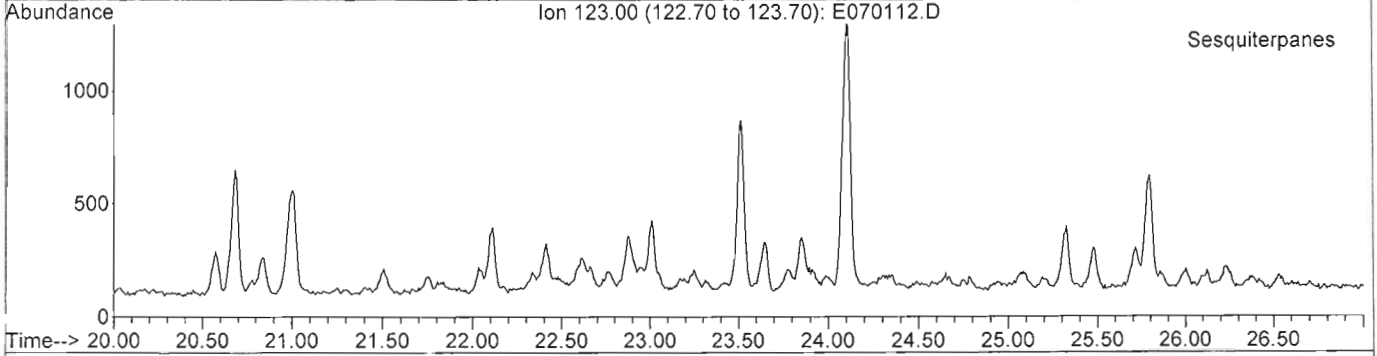
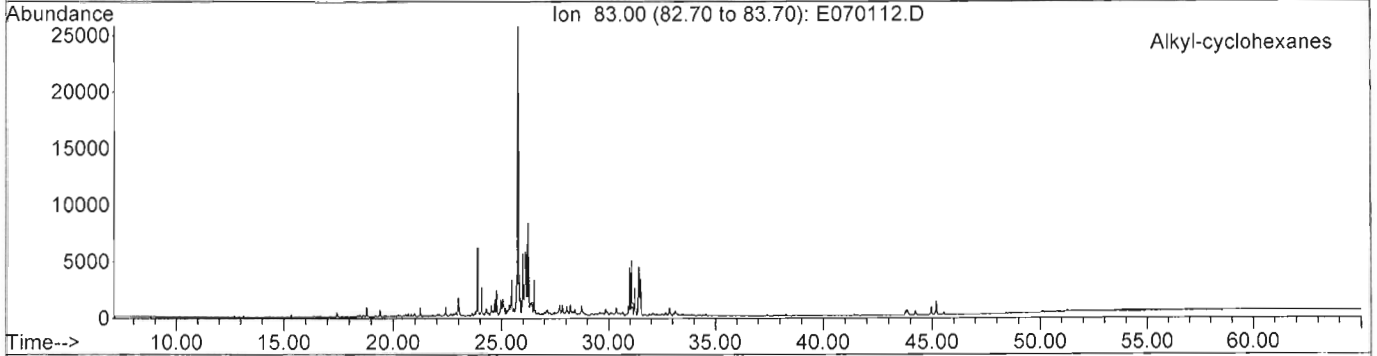
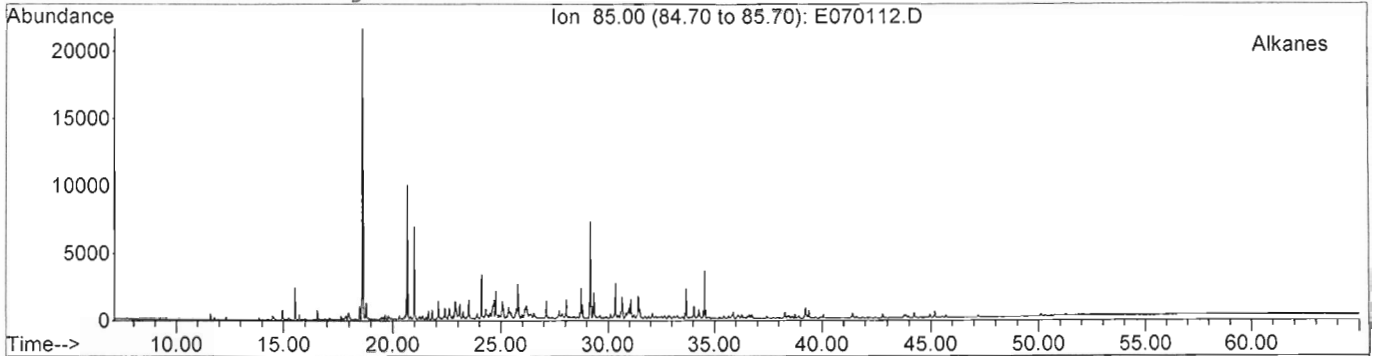


Appendix E

Extracted Ion Current Profiles (EICPs)

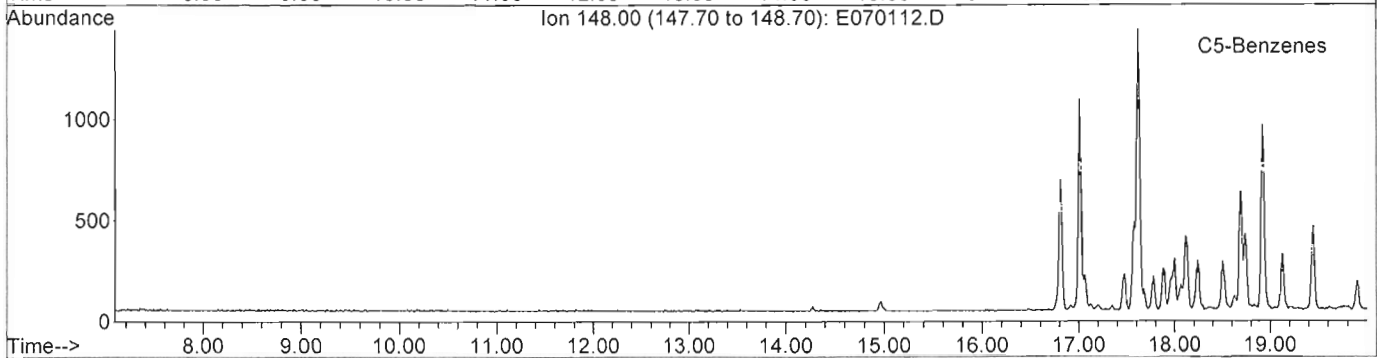
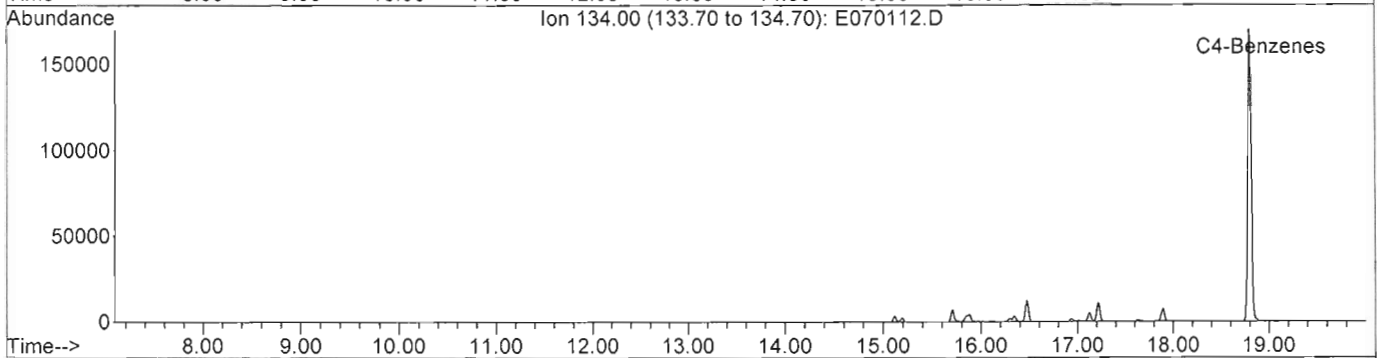
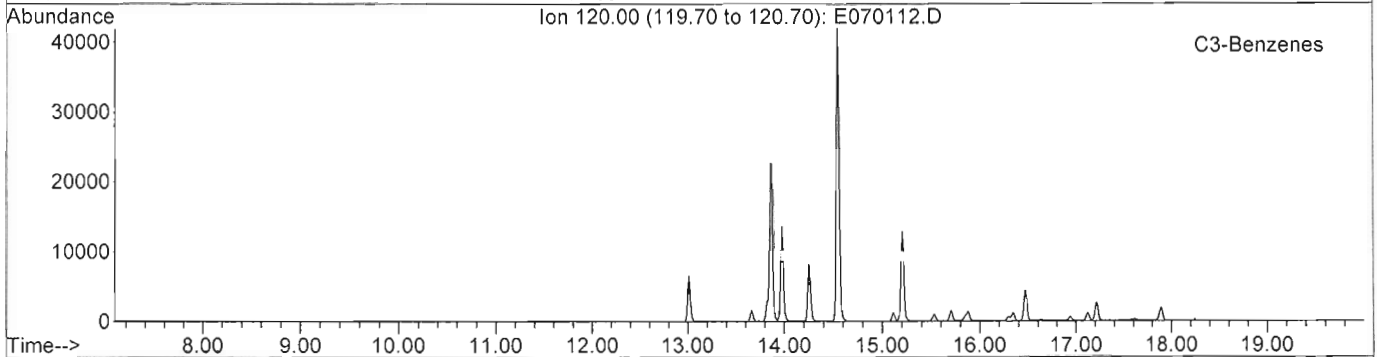
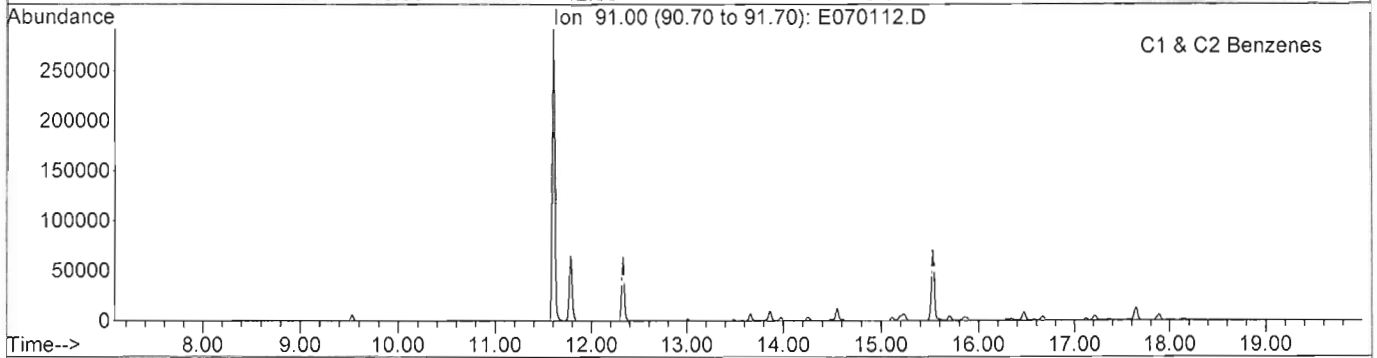
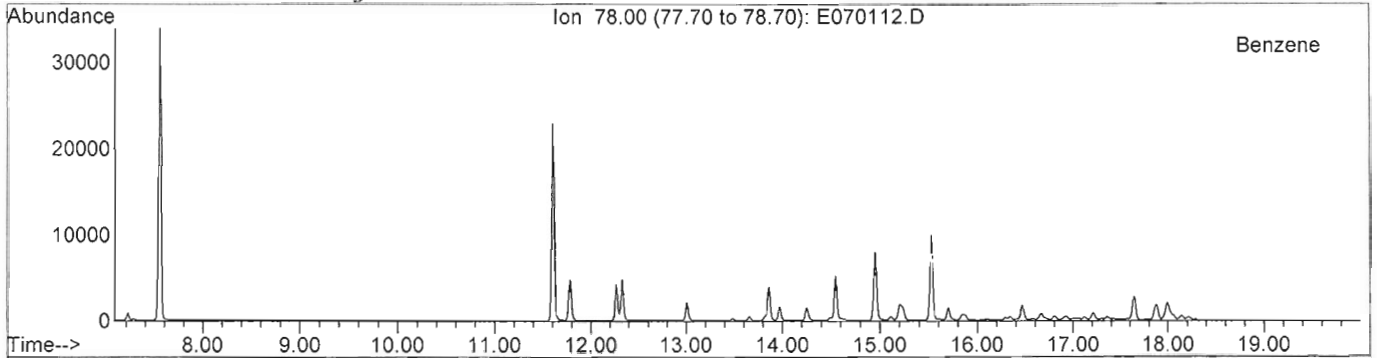
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Date Acquired: 2 Jul 2010 3:49 am
Sample Name: SG100629-01A-D2
Misc Info: Congaree Sed-1 - 100X



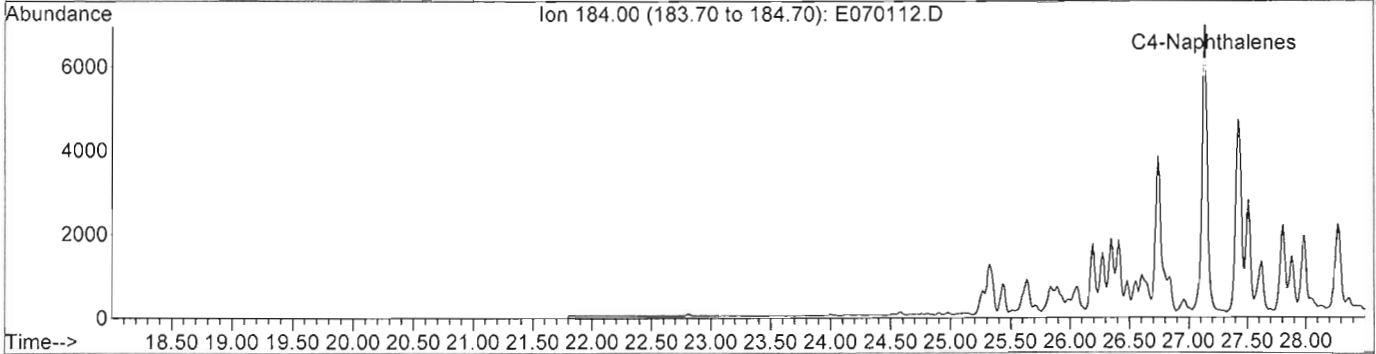
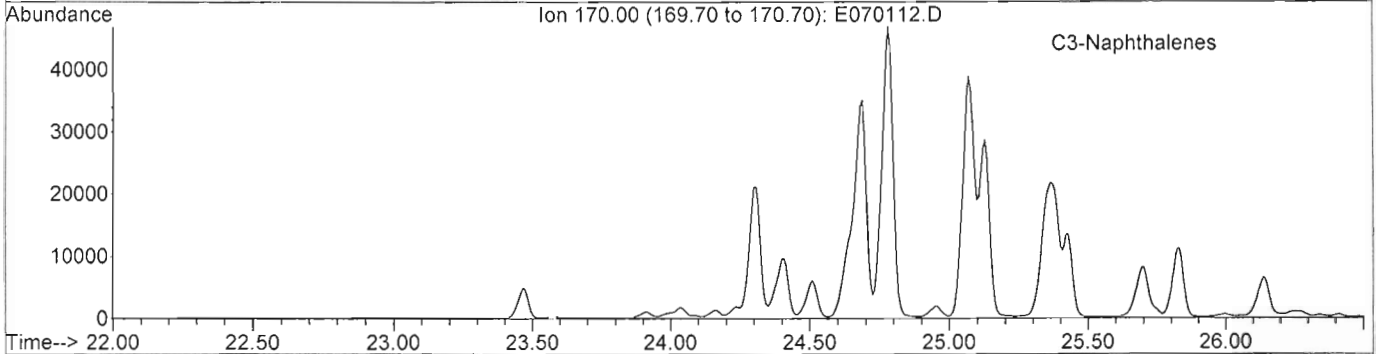
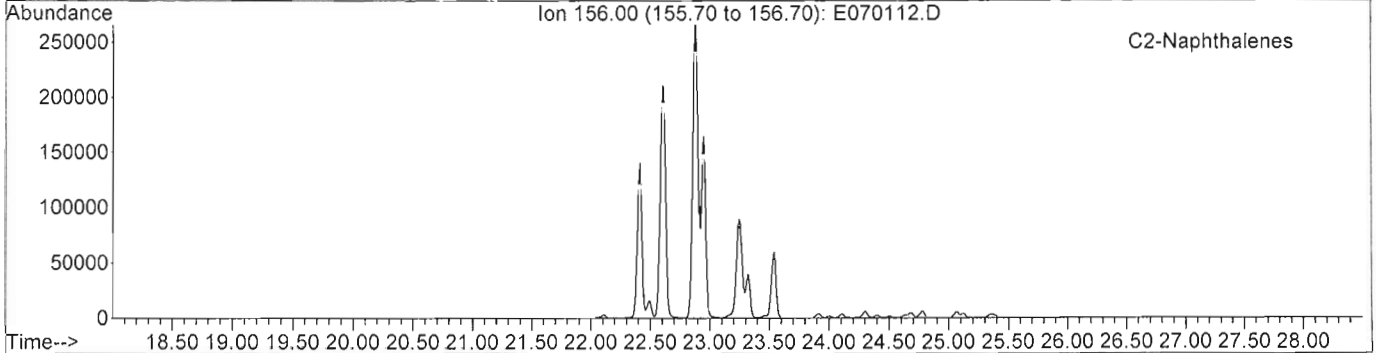
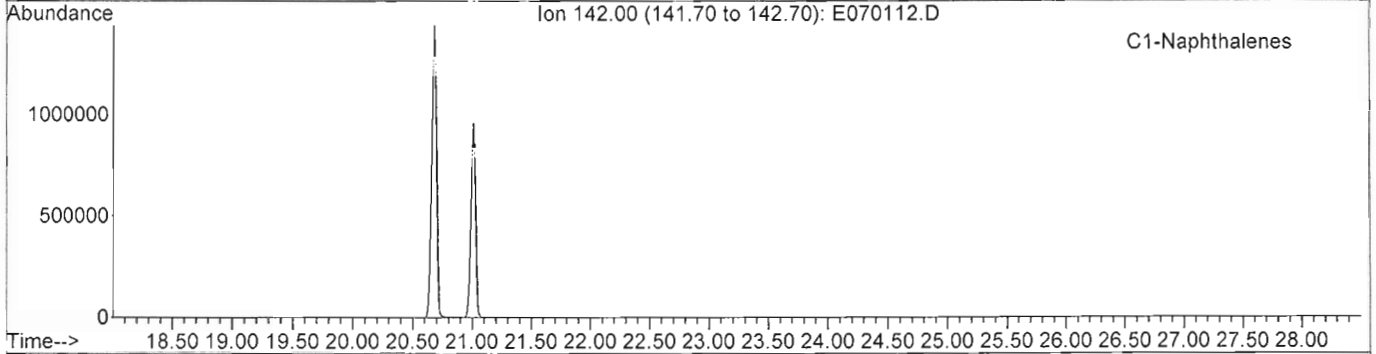
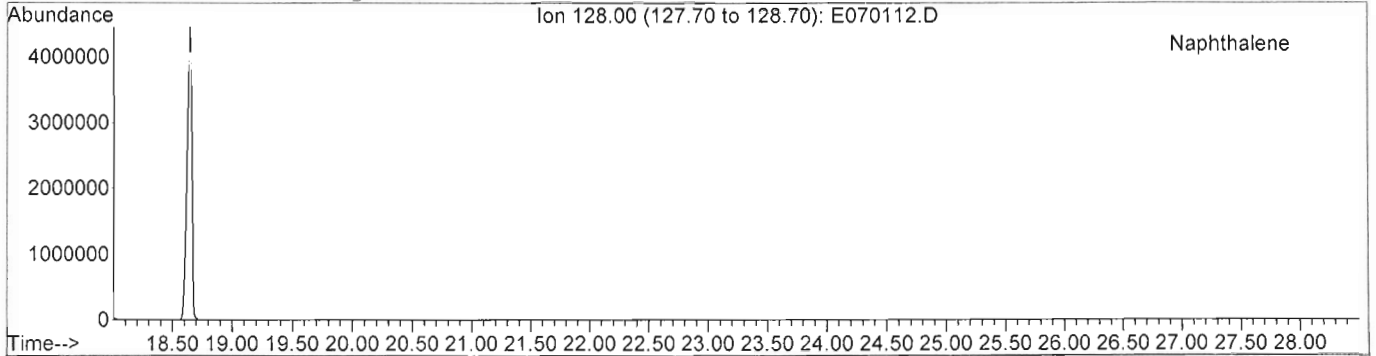
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Sample Name: SG100629-01A-D2
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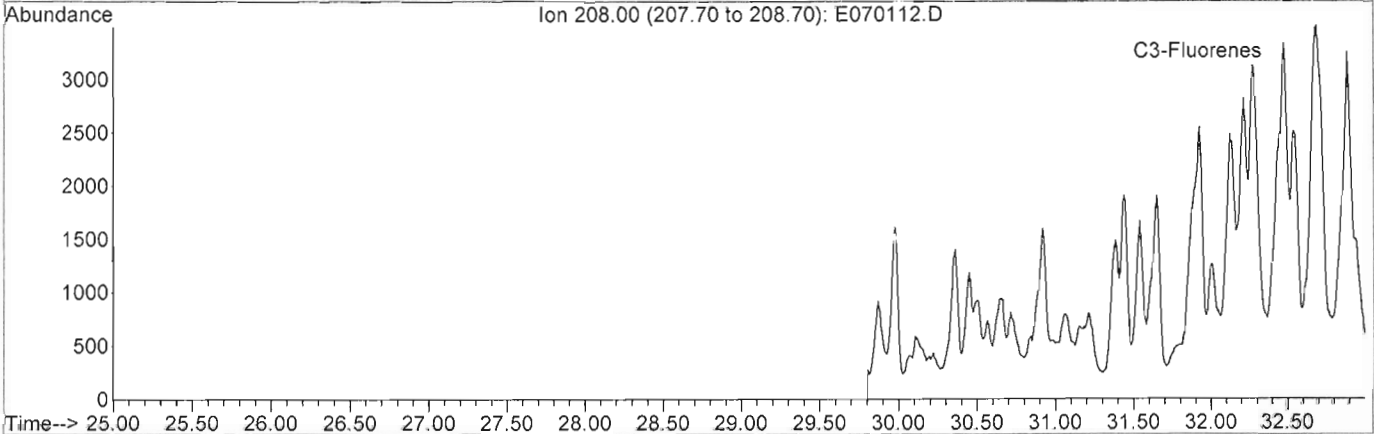
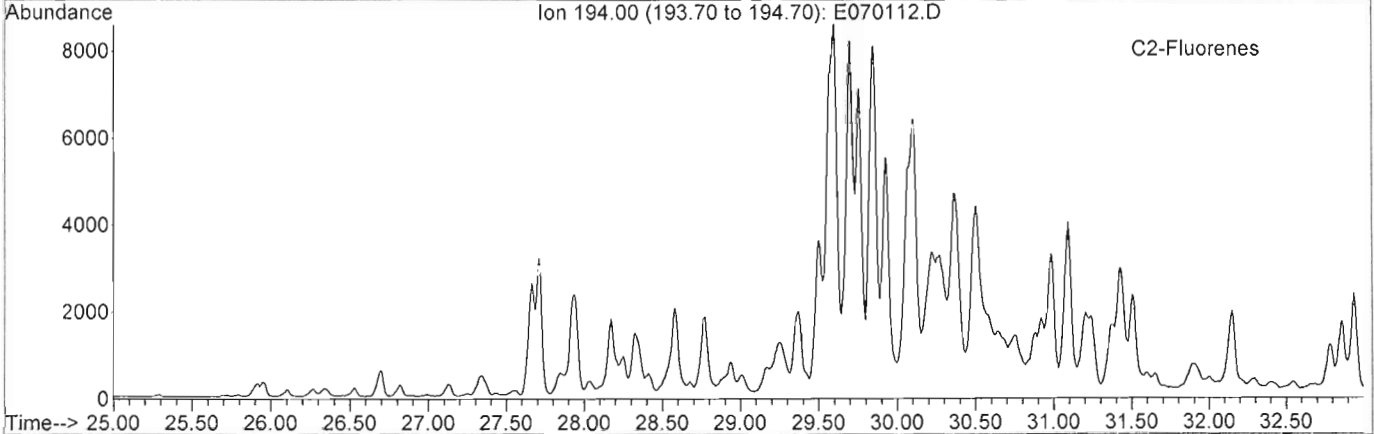
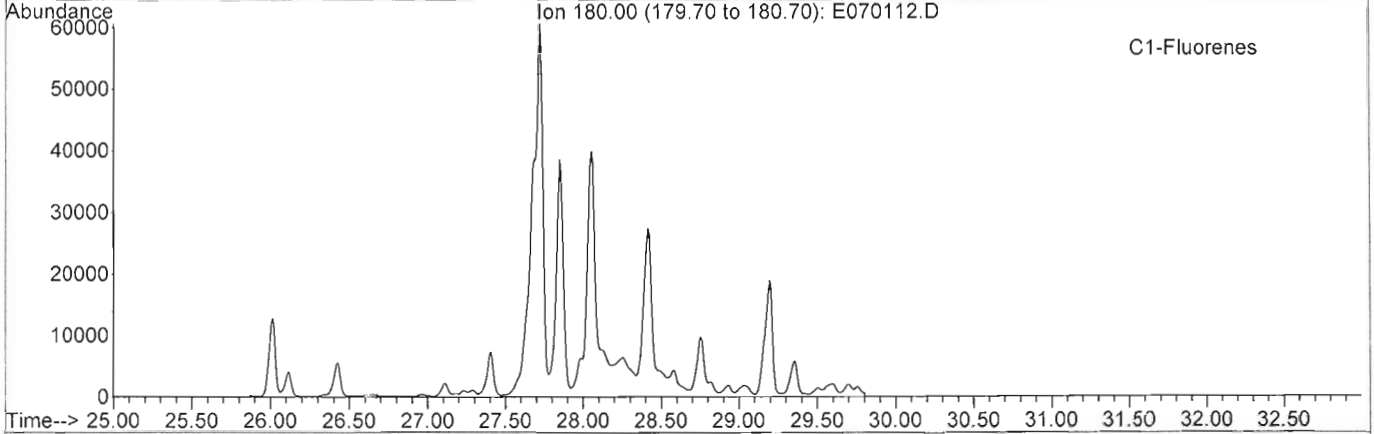
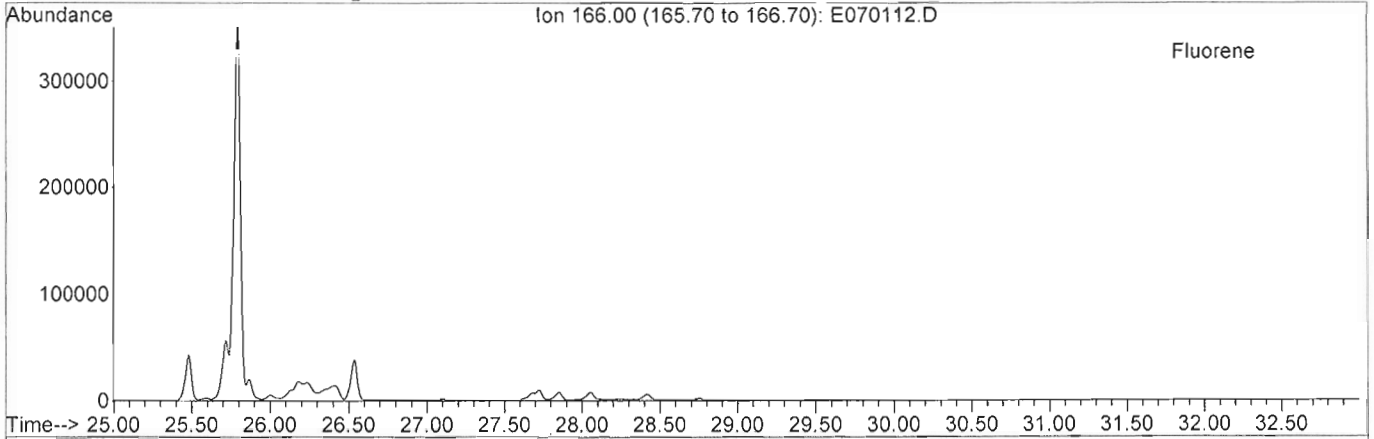
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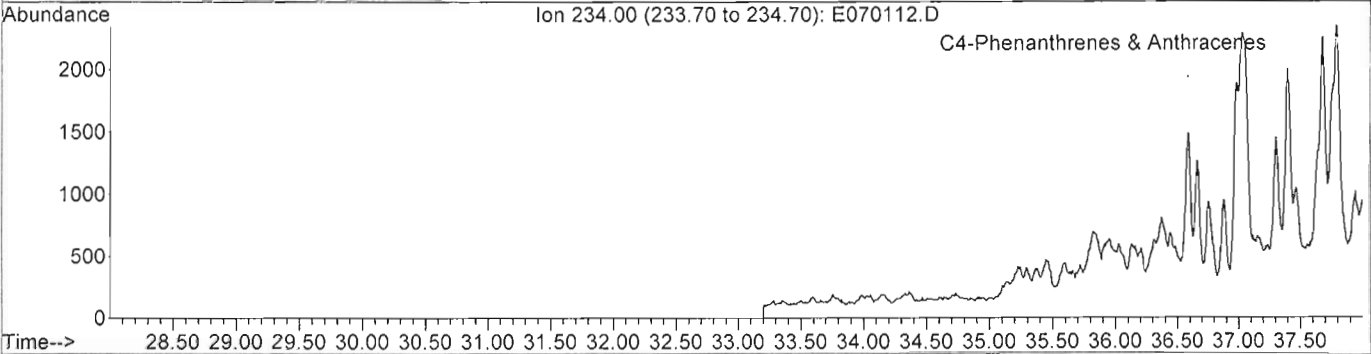
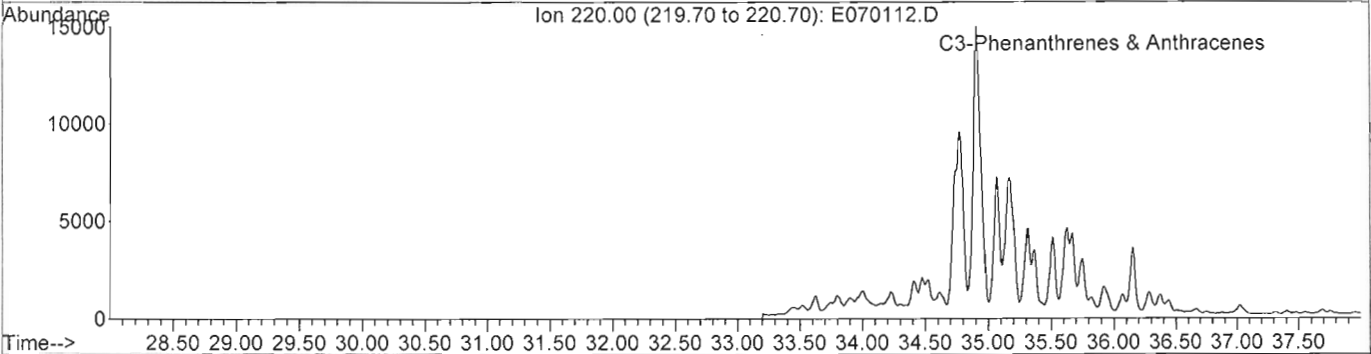
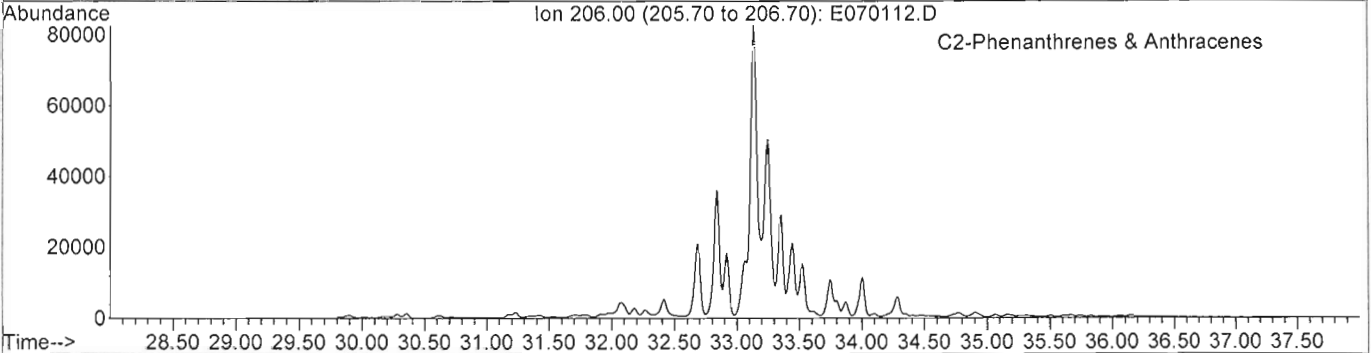
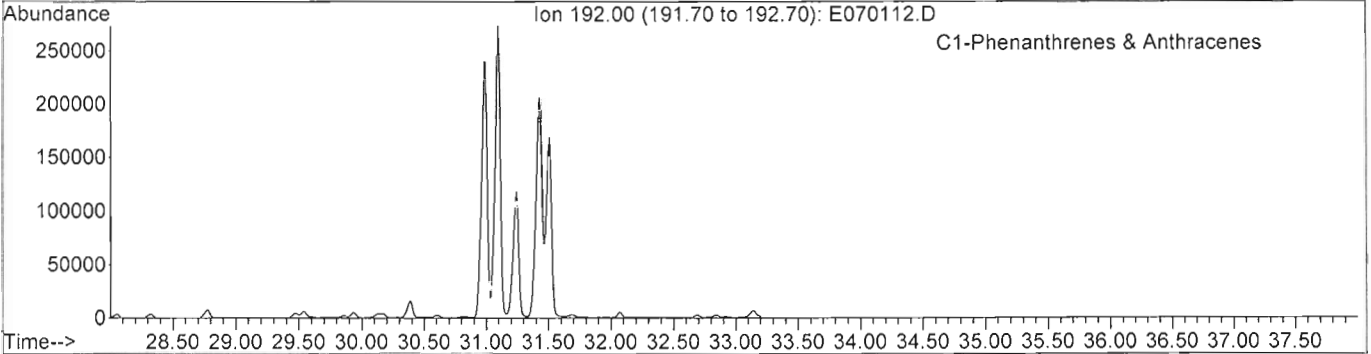
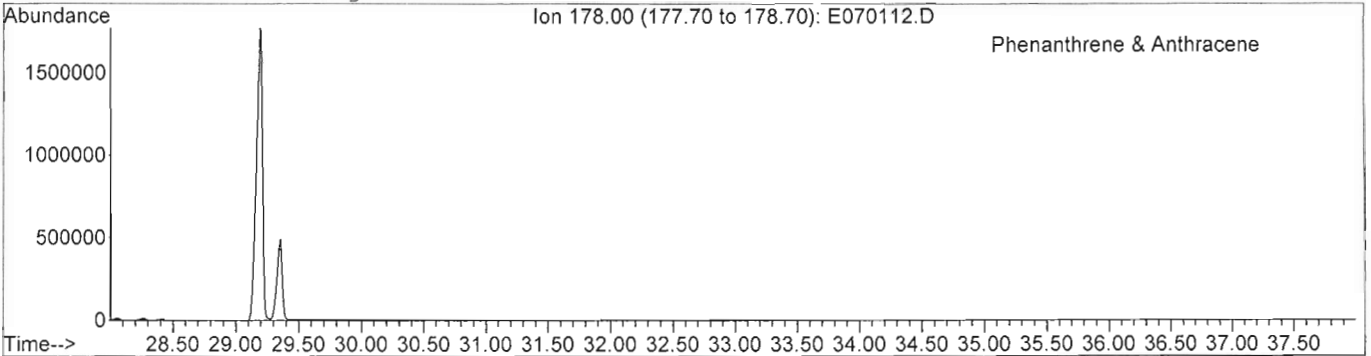
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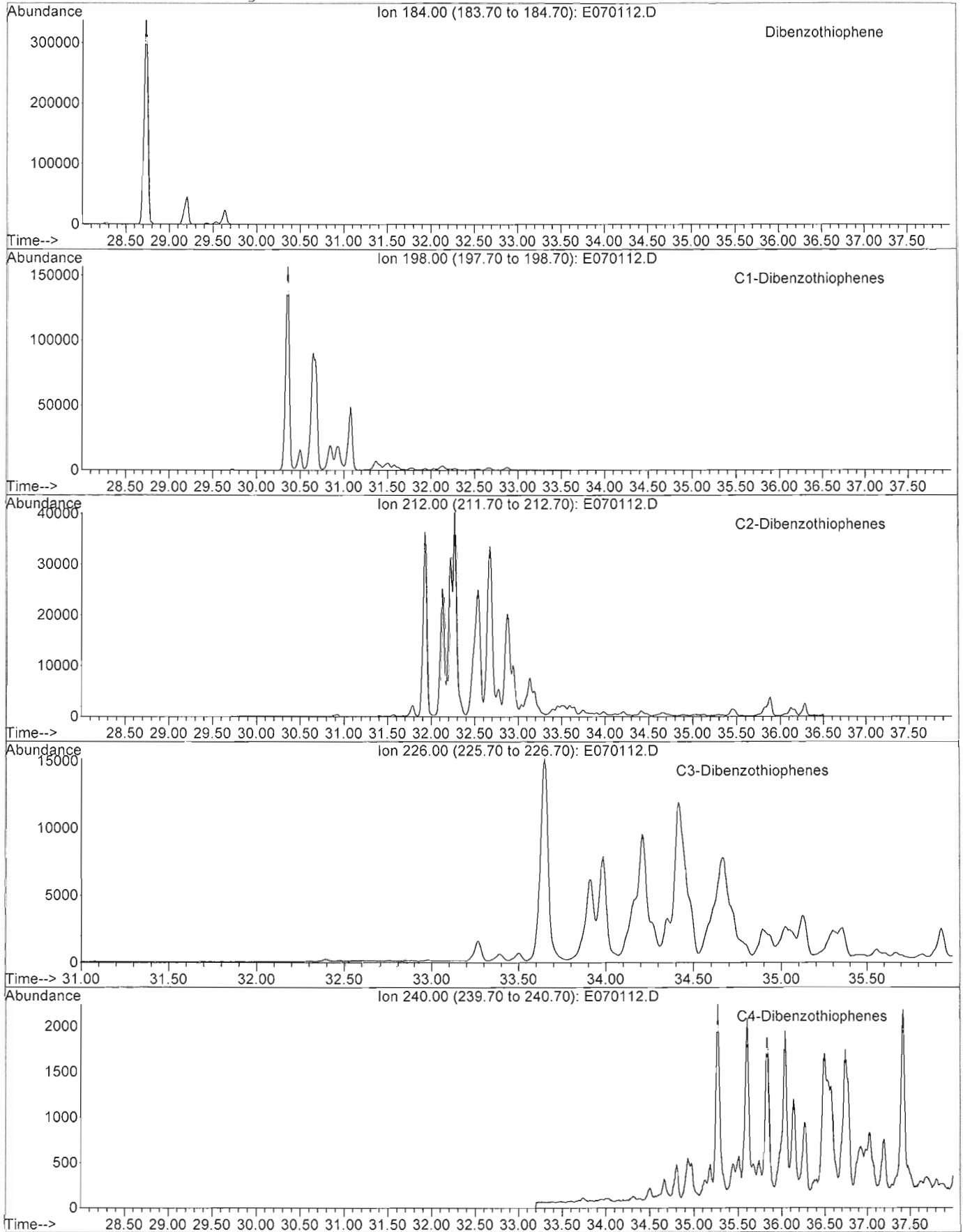
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Sample Name: SG100629-01A-D2
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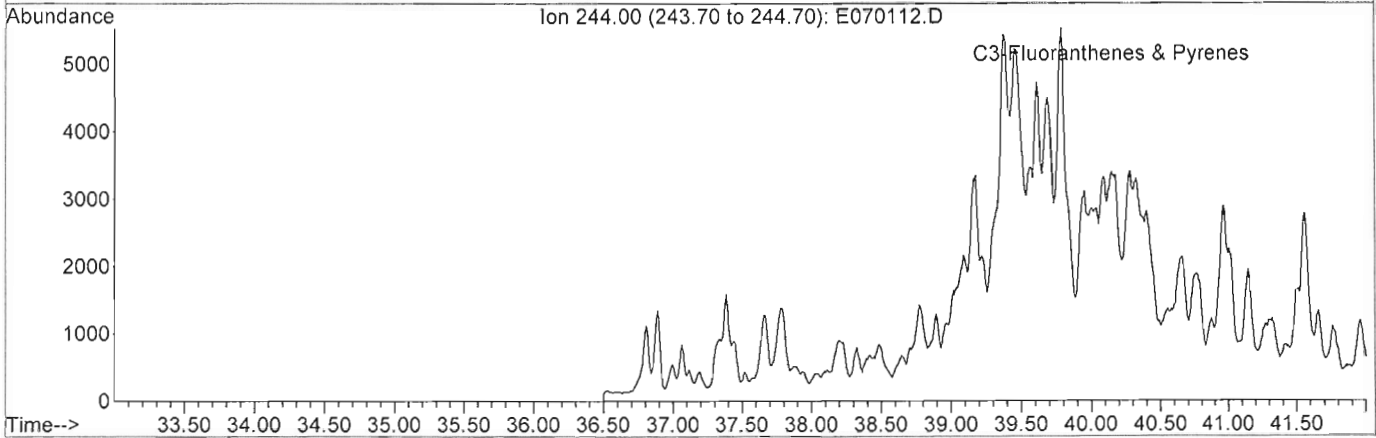
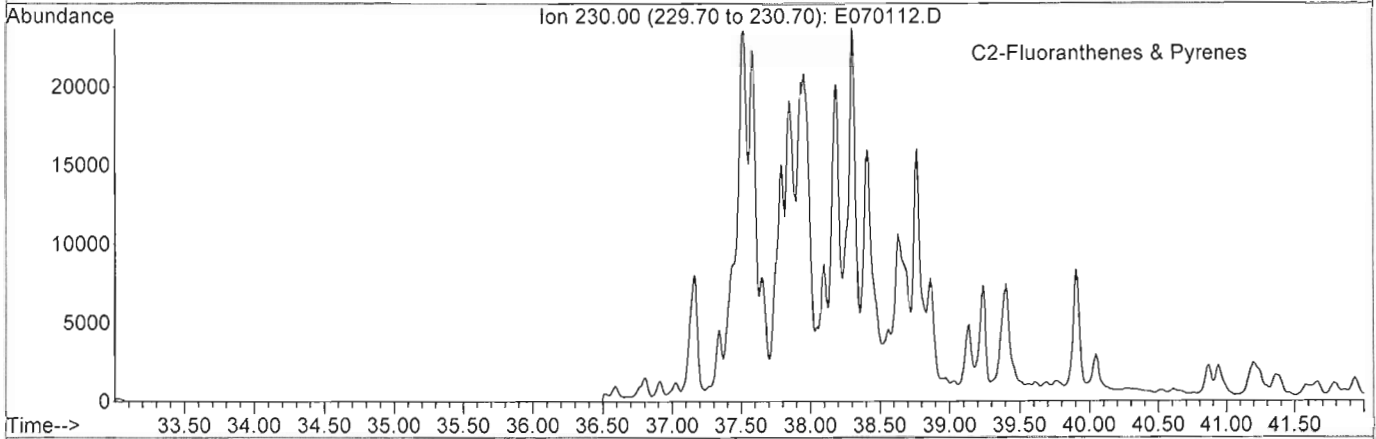
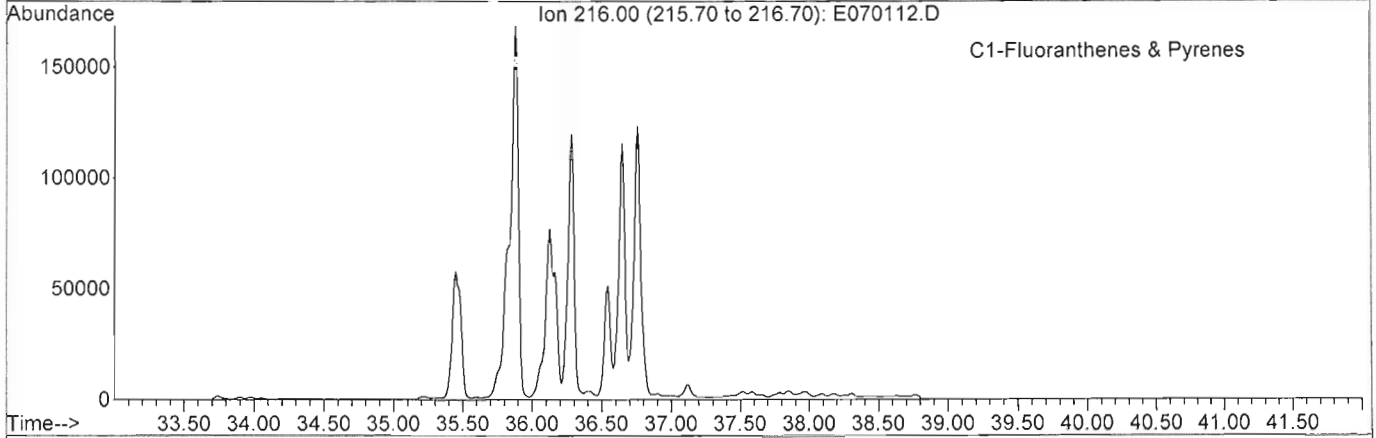
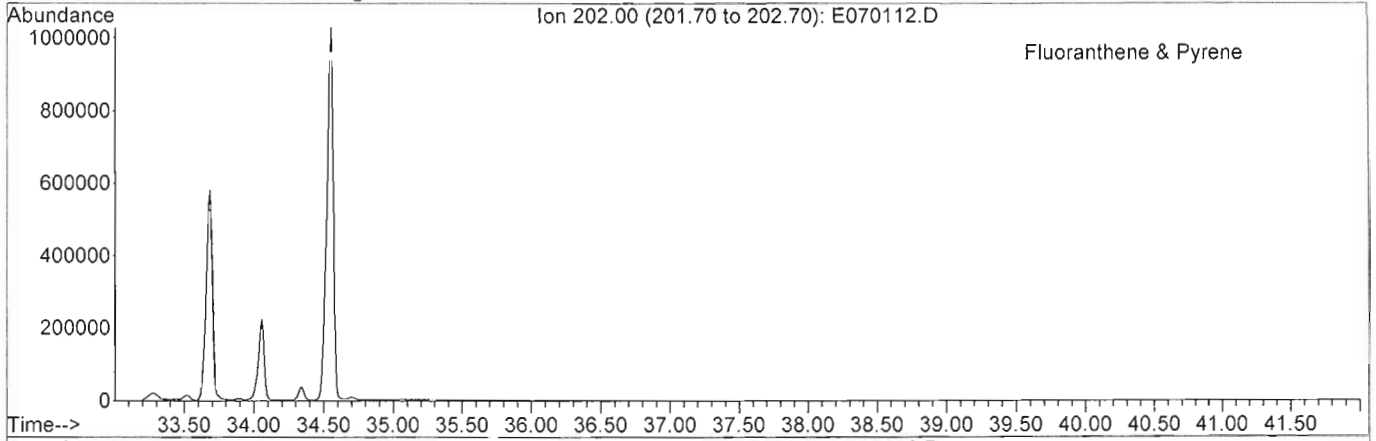
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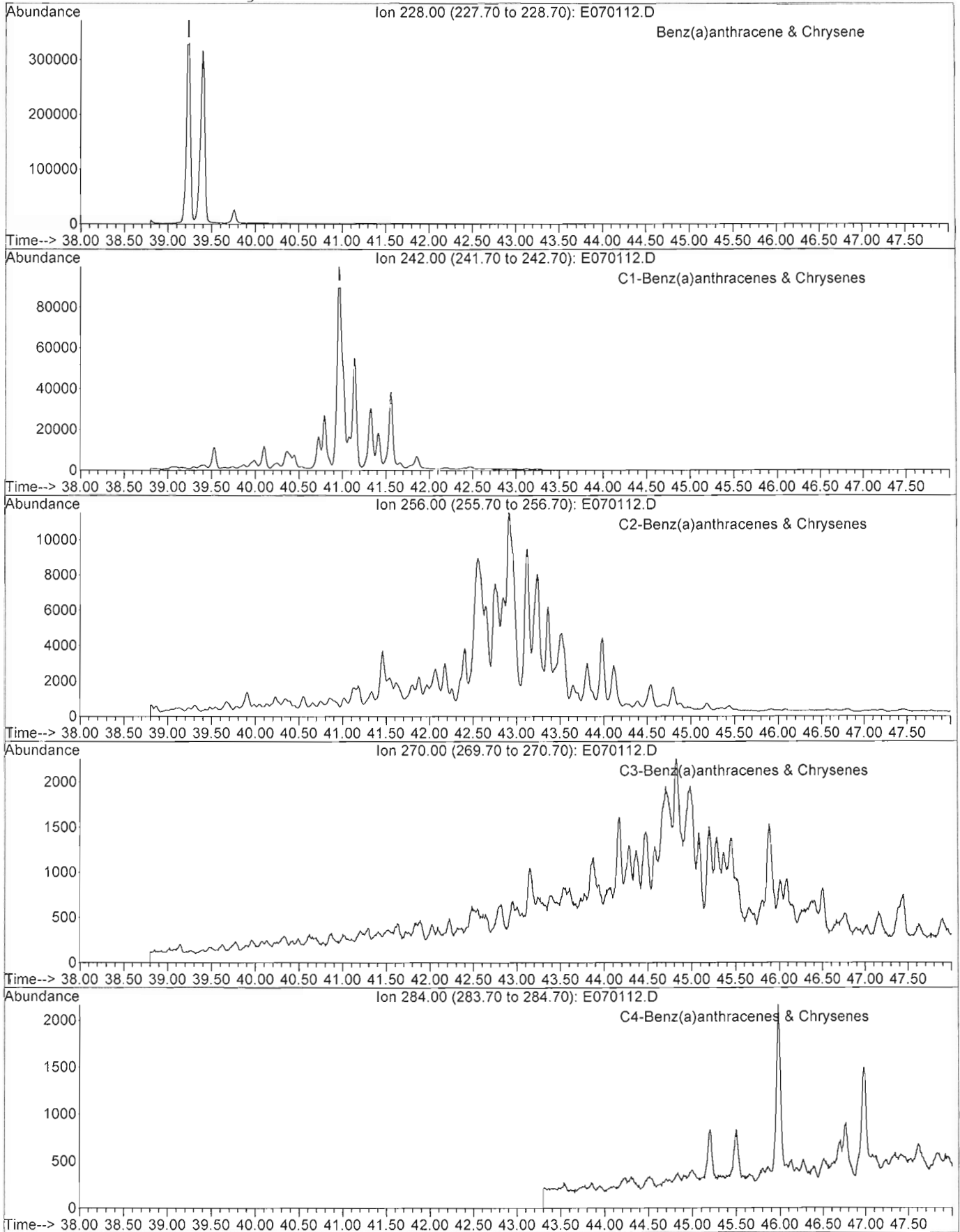
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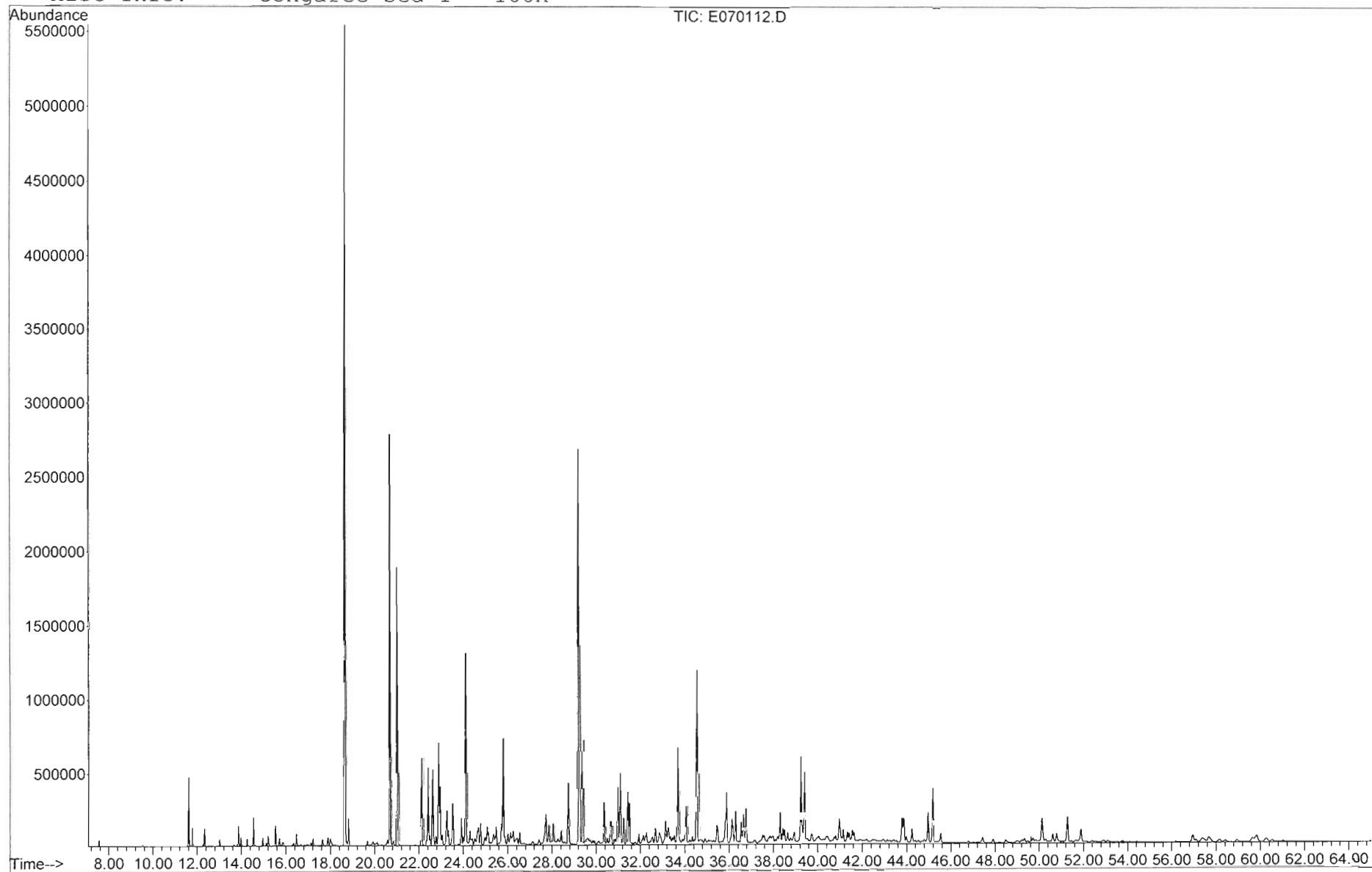
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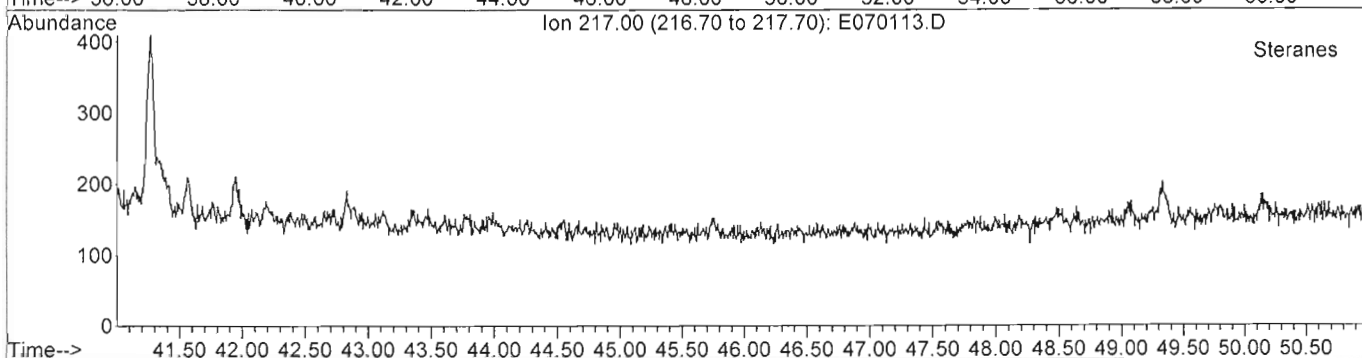
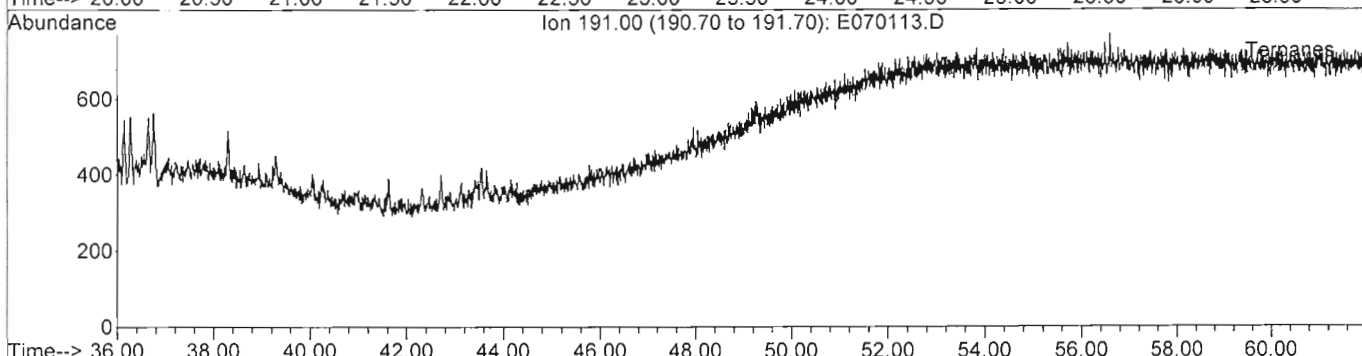
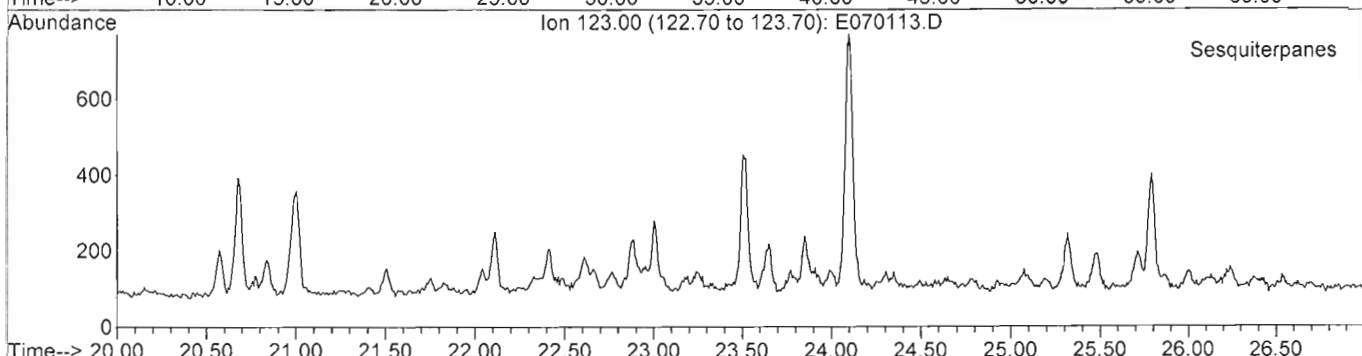
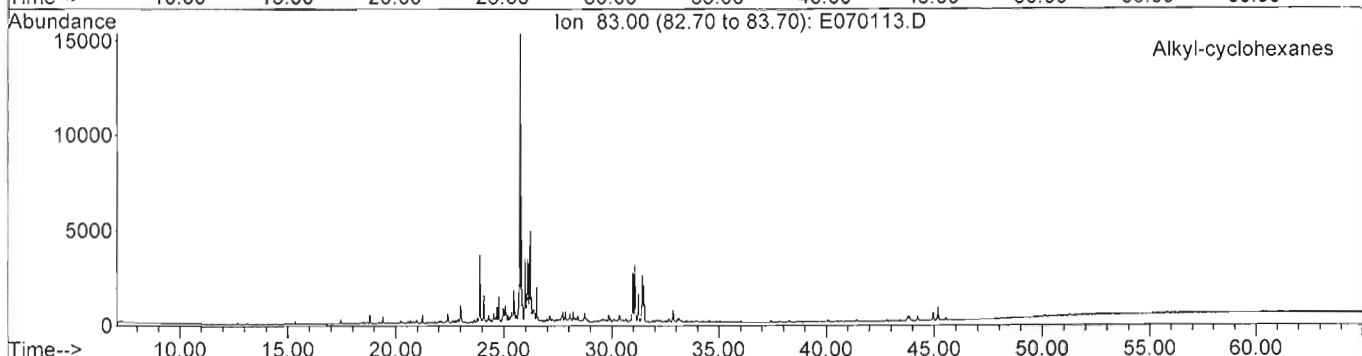
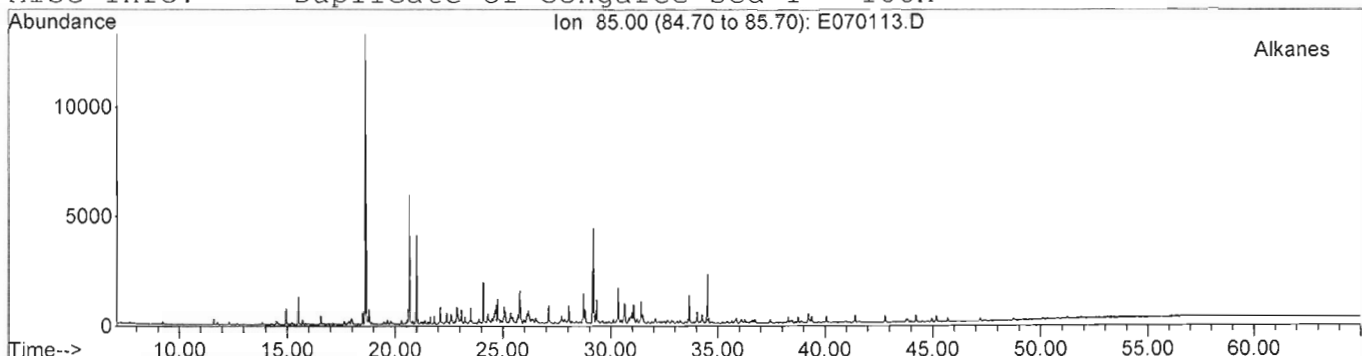
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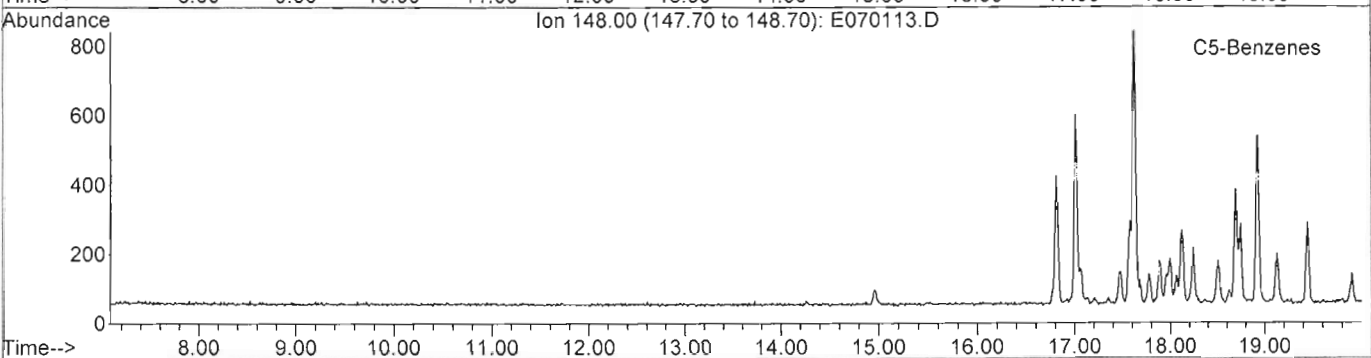
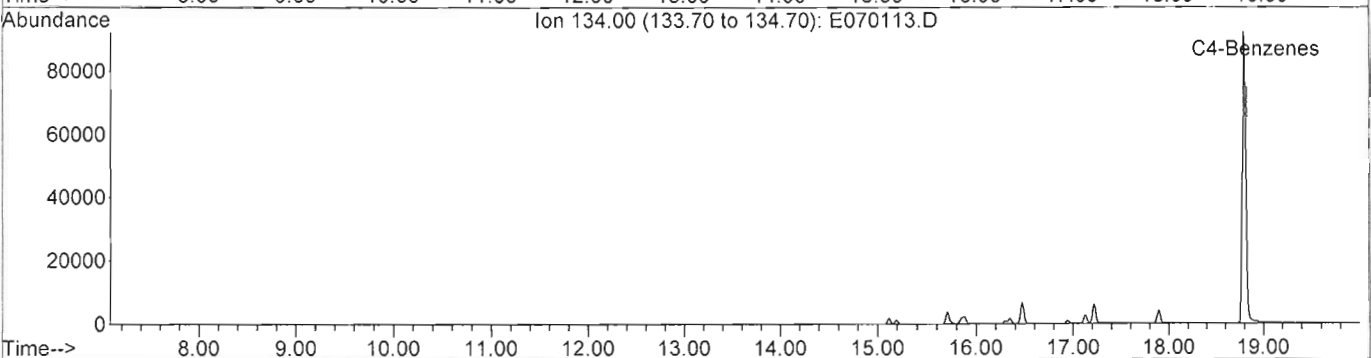
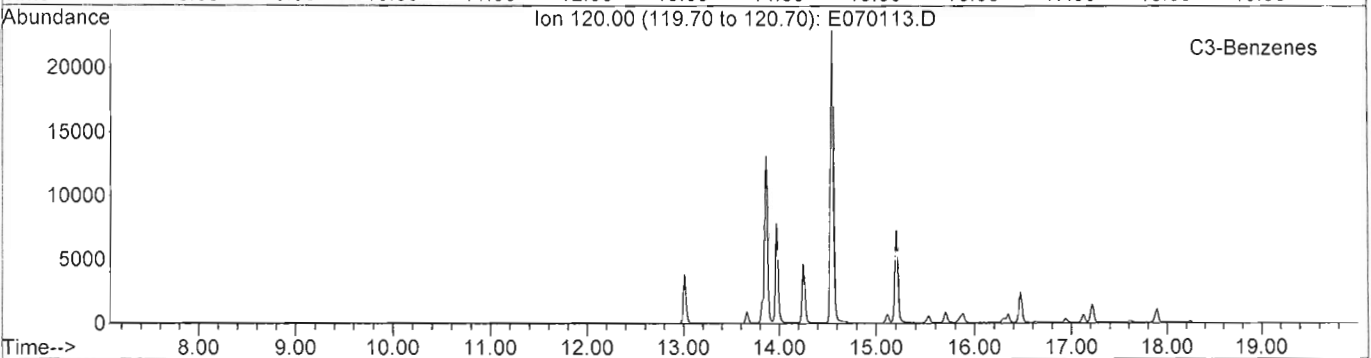
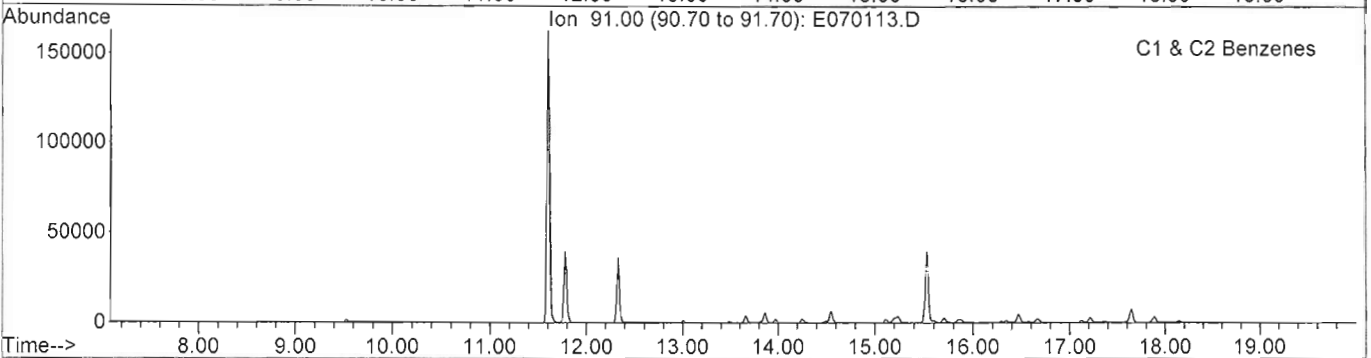
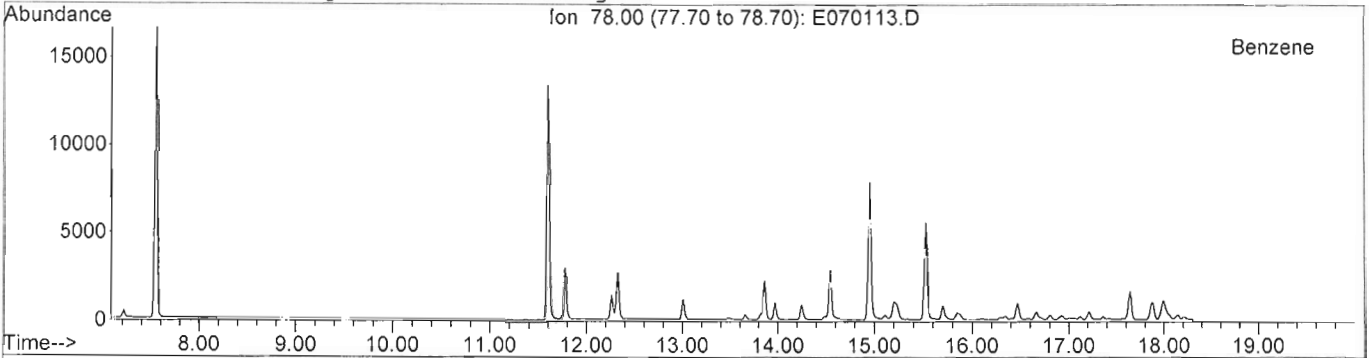
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Sample Name: SG100629-01DUPA-D2
Misc Info: Duplicate of Congaree Sed-1 - 100X



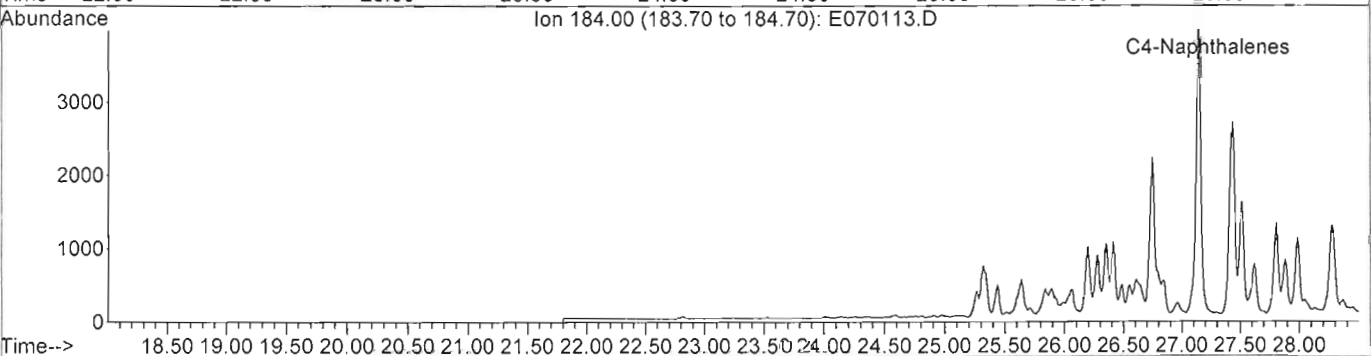
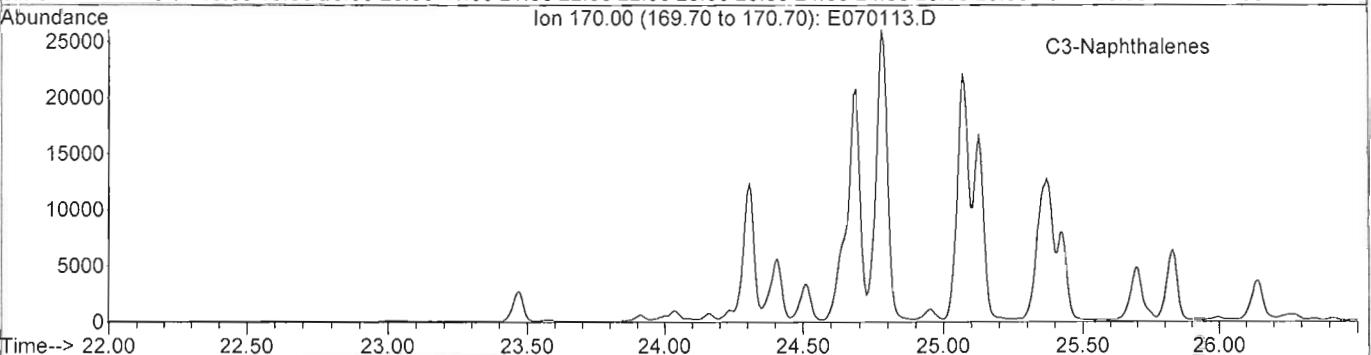
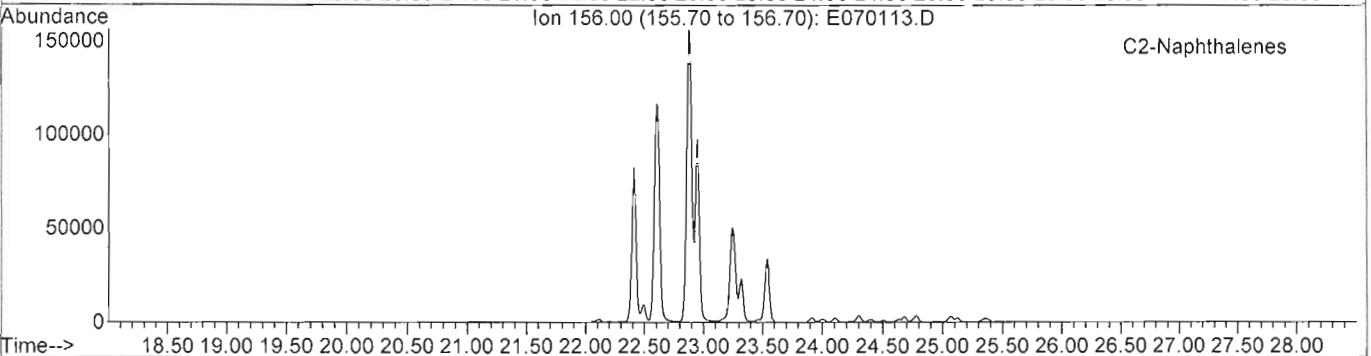
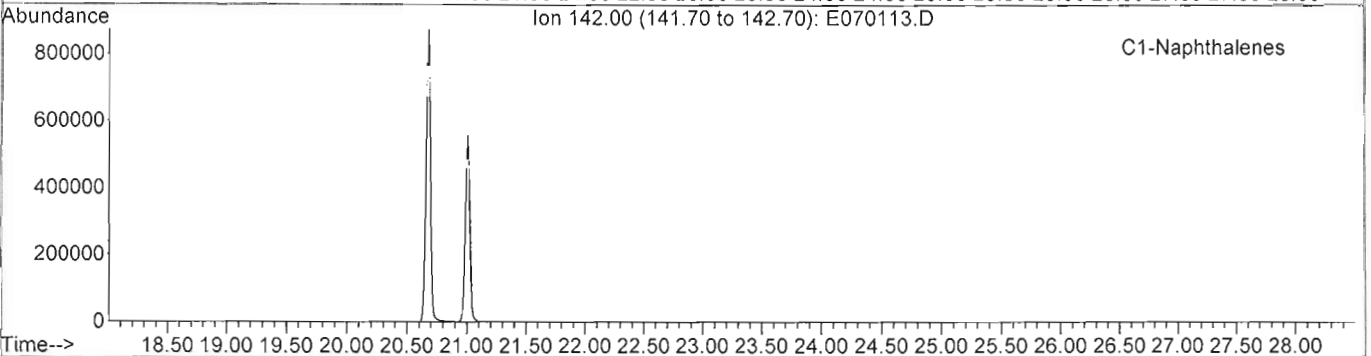
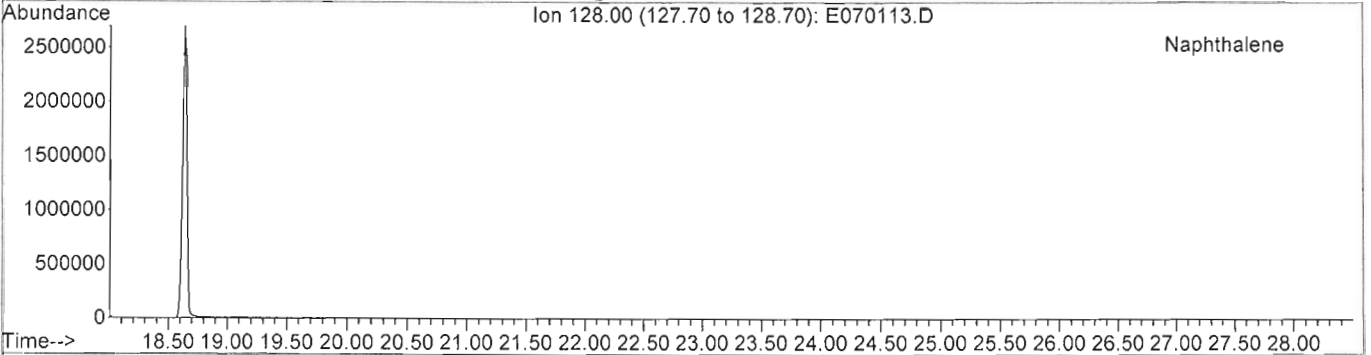
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Misc Info: Duplicate of Congaree Sed-1 - 100X



GC/MS EXTRACTED ION CHROMATOGRAM

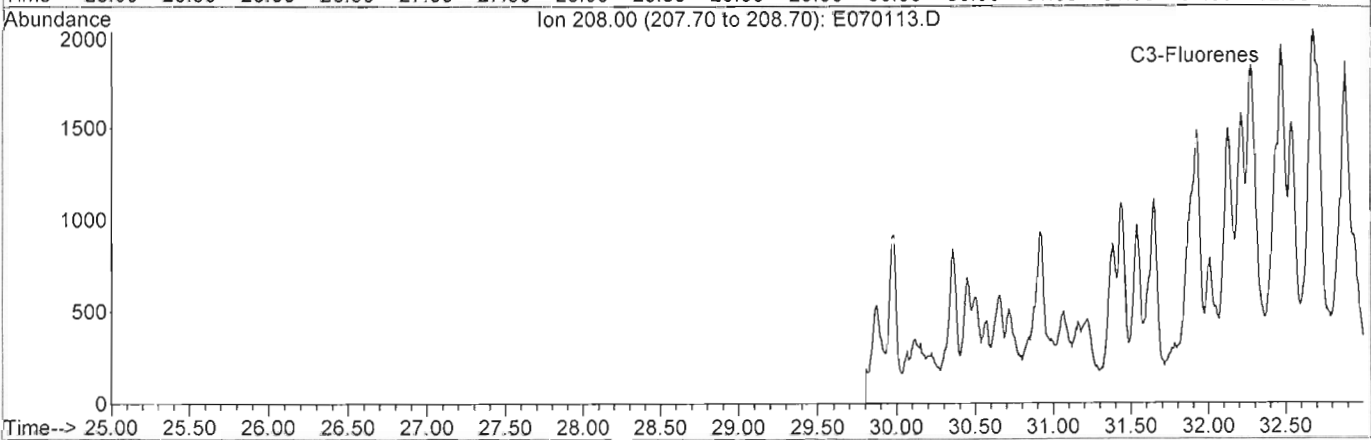
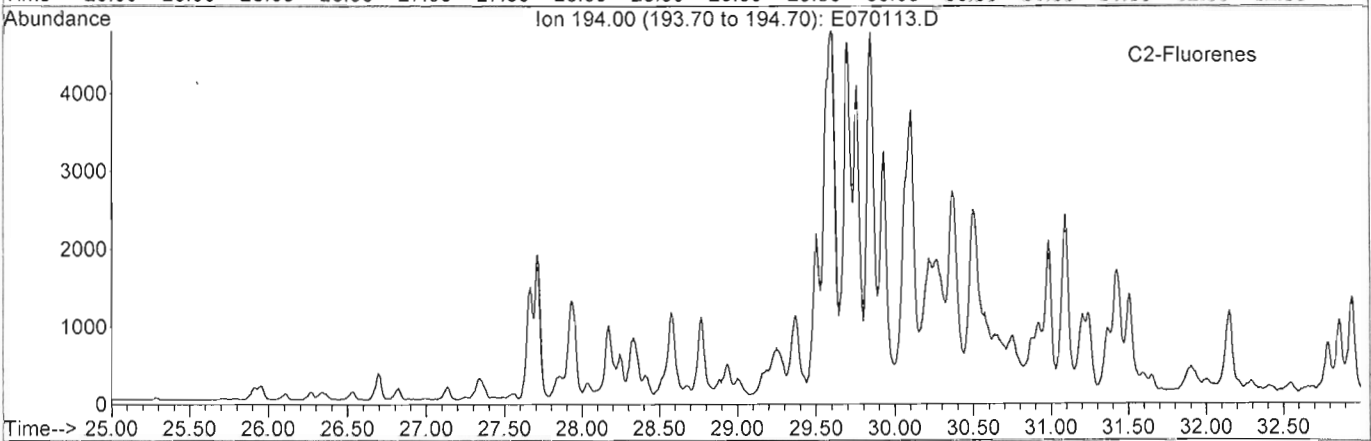
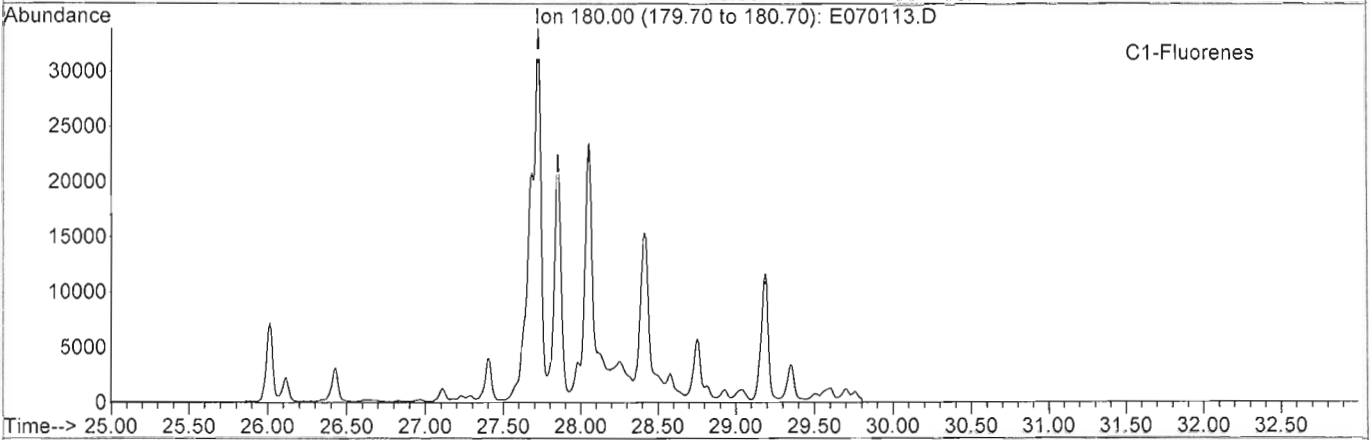
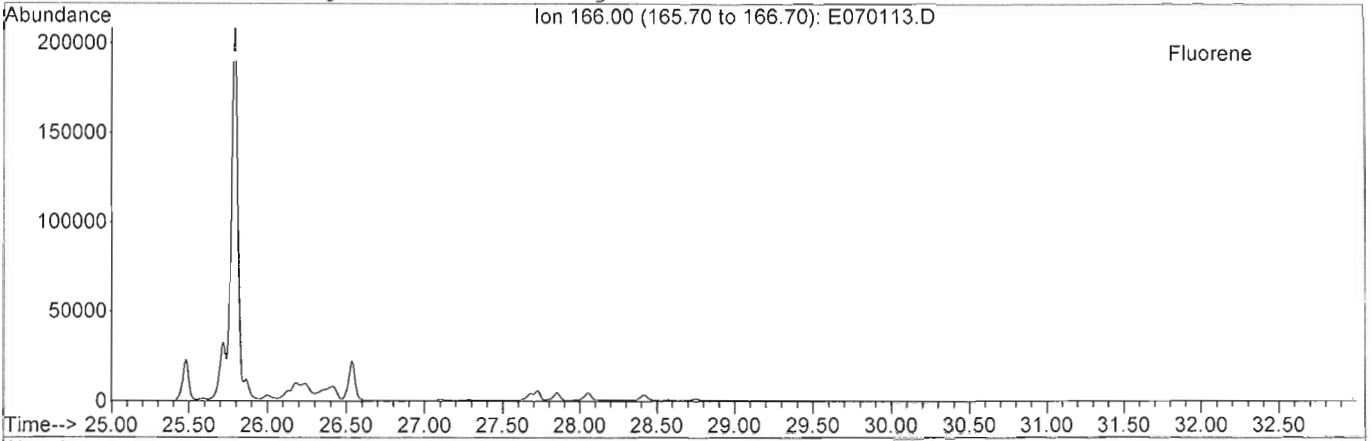
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Sample Name: SG100629-01DUPA-D2
Misc Info: Duplicate of Congaree Sed-1 - 100X



META Environmental, Inc.

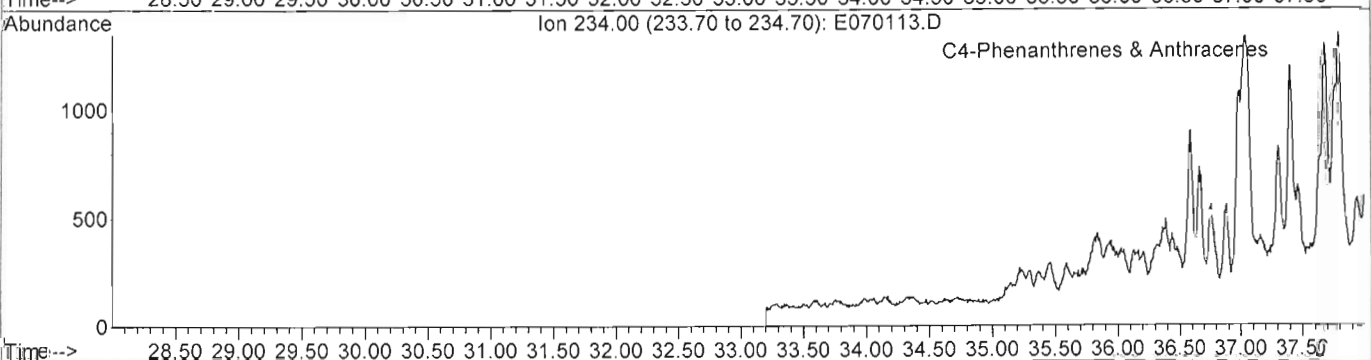
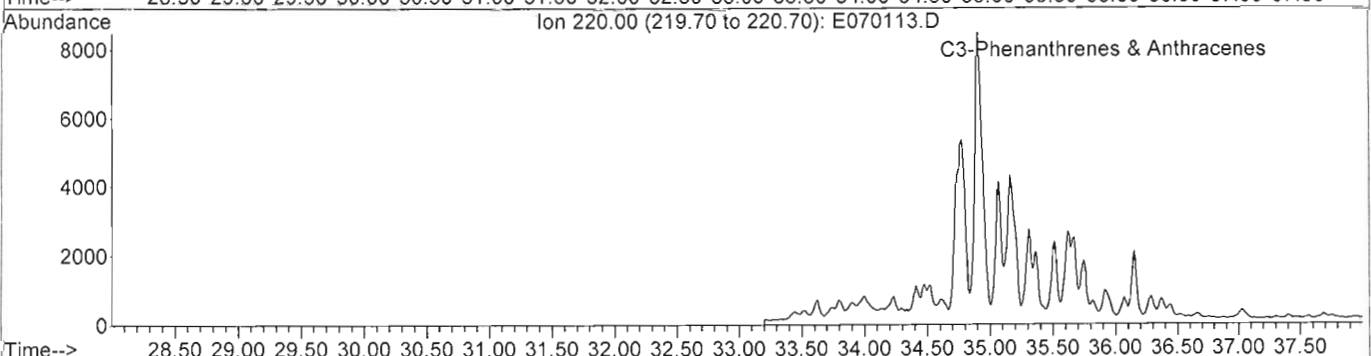
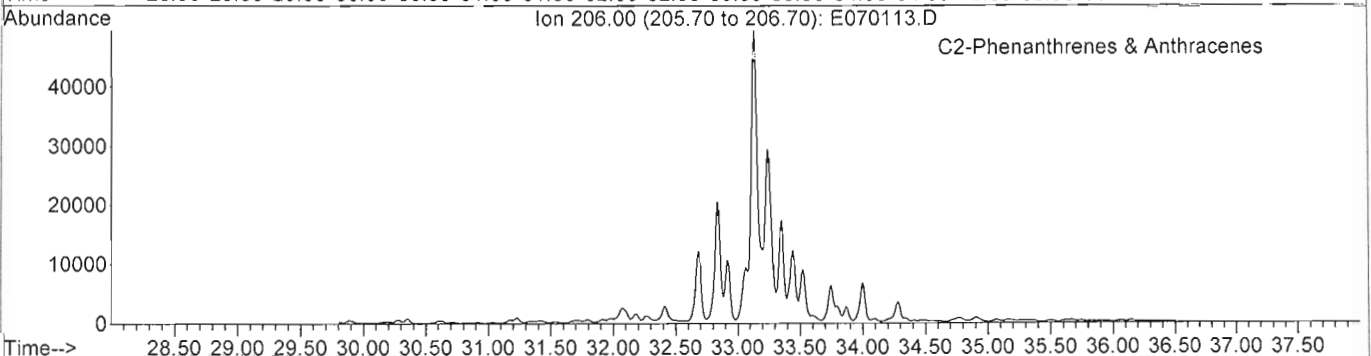
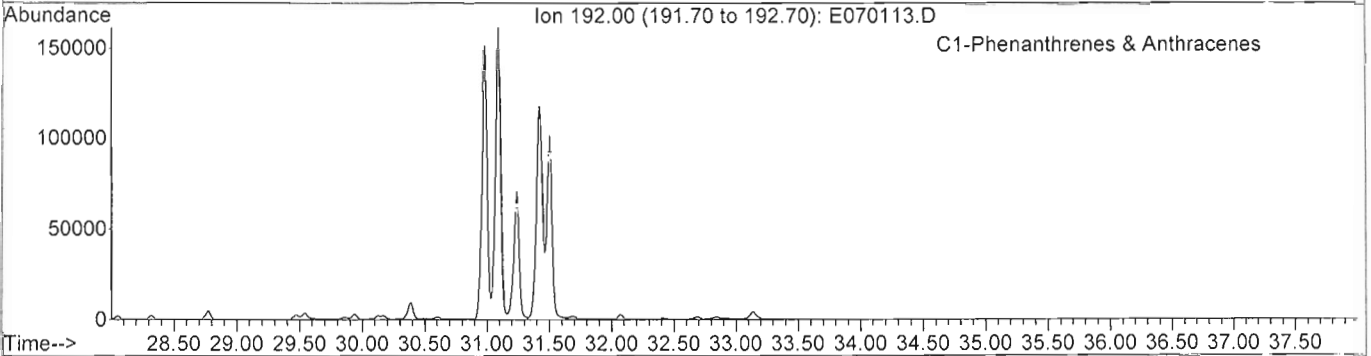
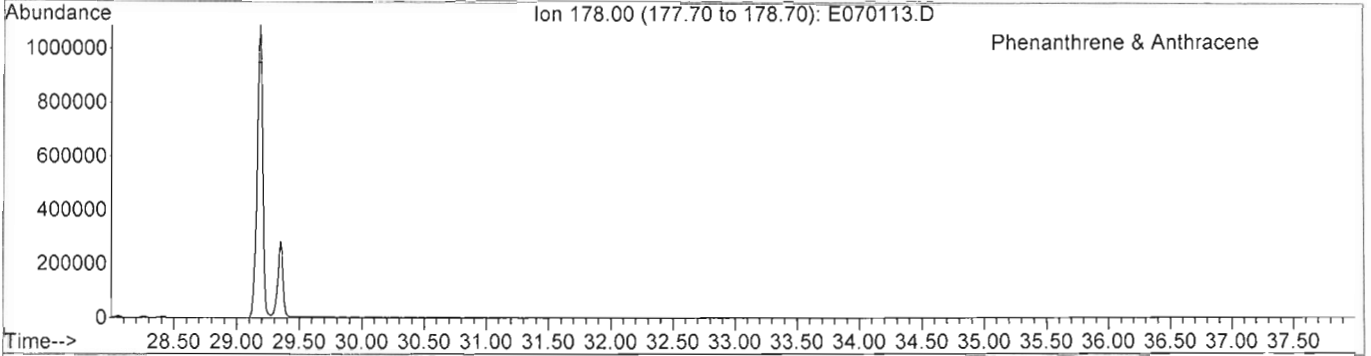
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Sample Name: SG100629-01DUPA-D2
Misc Info: Duplicate of Congaree Sed-1 - 100X



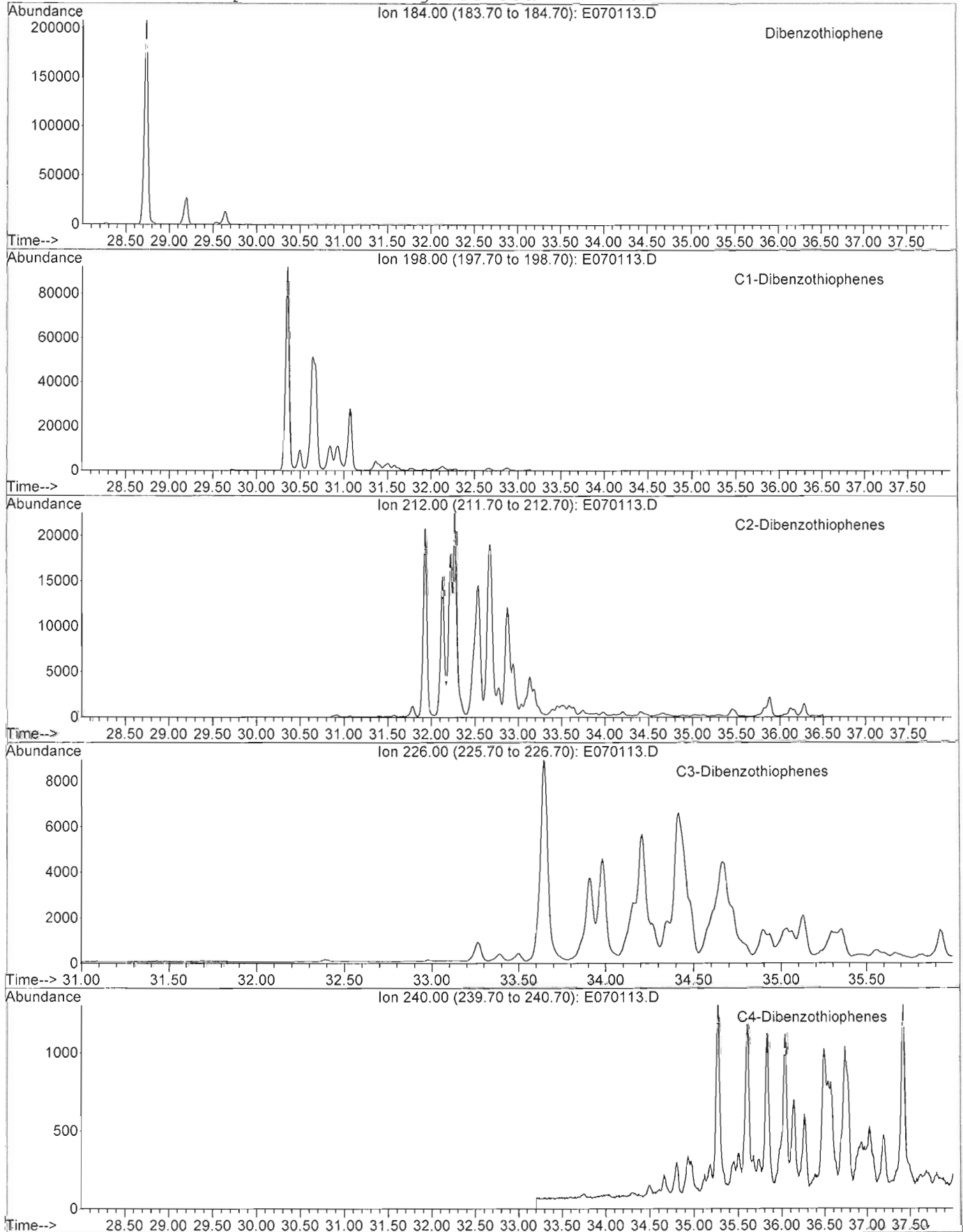
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070113.D
Date Acquired: 2 Jul 2010 5:06 am
Sample Name: SG100629-01DUPA-D2
Misc Info: Duplicate of Congaree Sed-1 - 100X



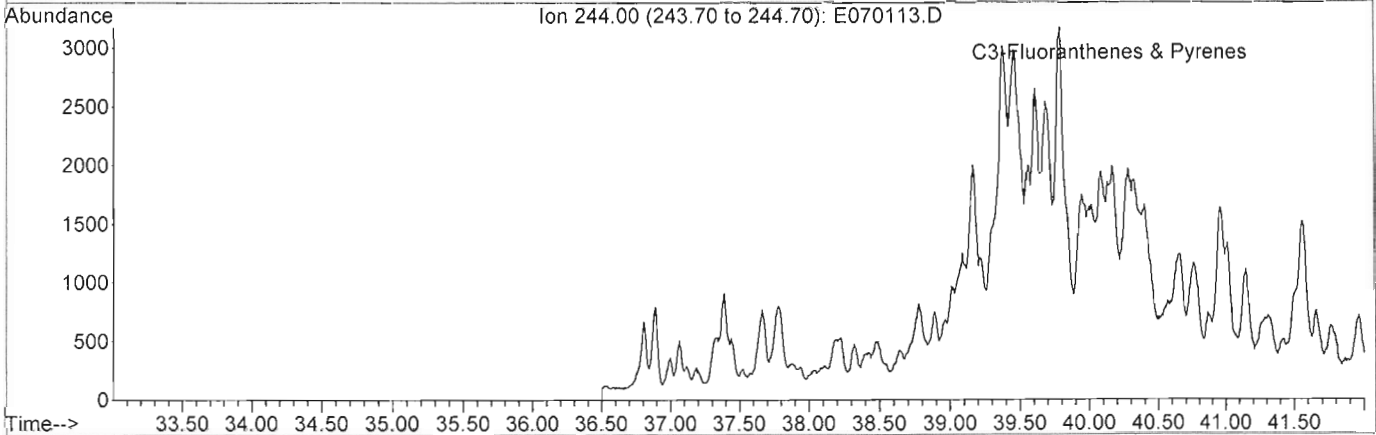
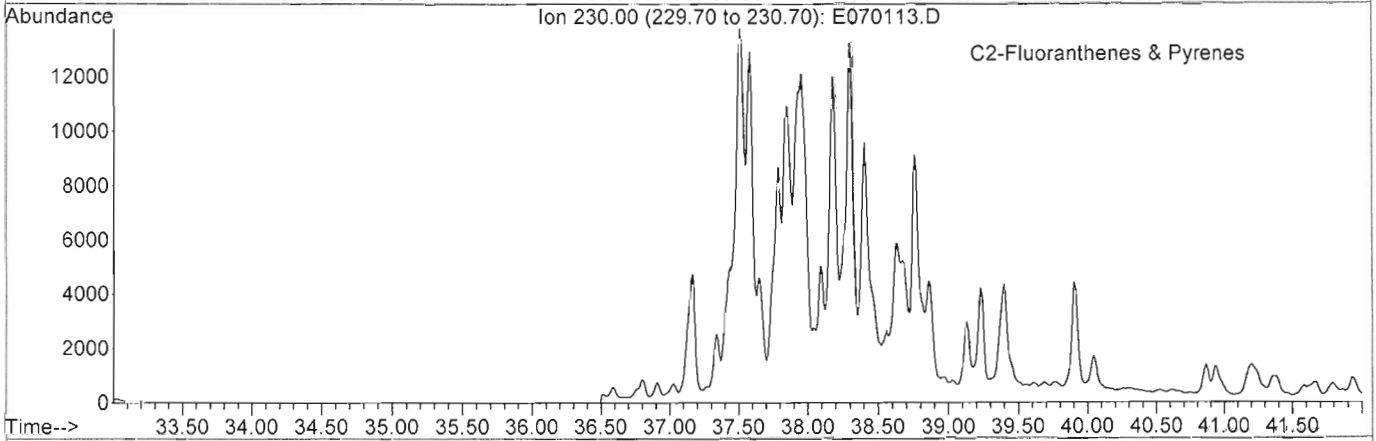
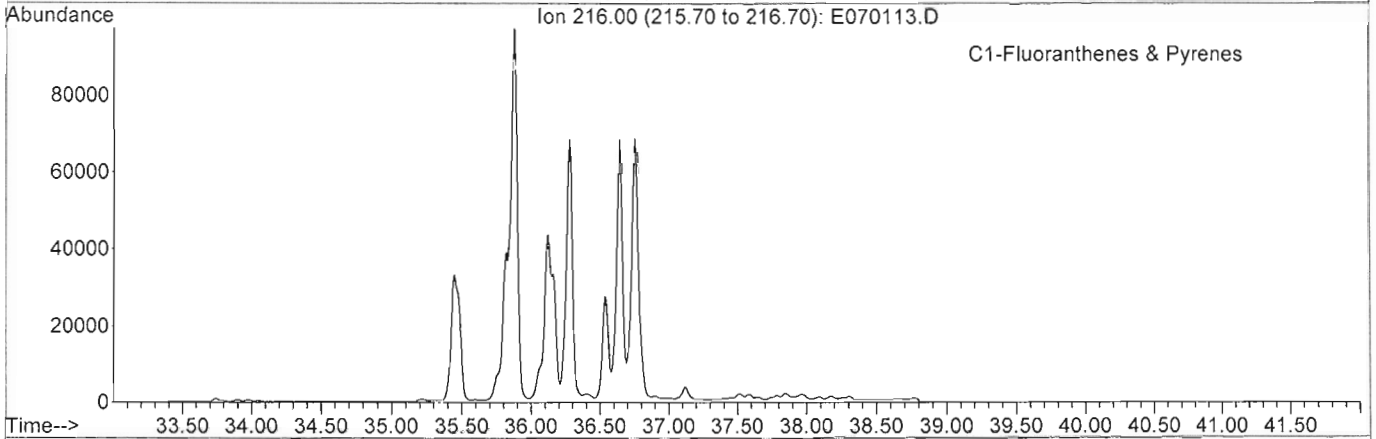
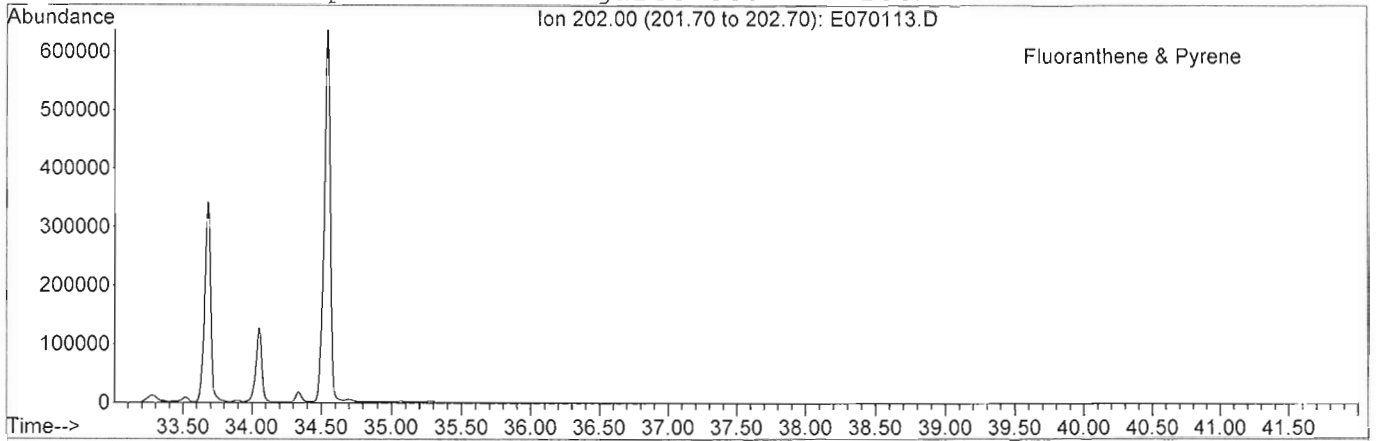
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Date Acquired: 2 Jul 2010 5:06 am
Sample Name: SG100629-01DUPA-D2
Misc Info: Duplicate of Congaree Sed-1 - 100X



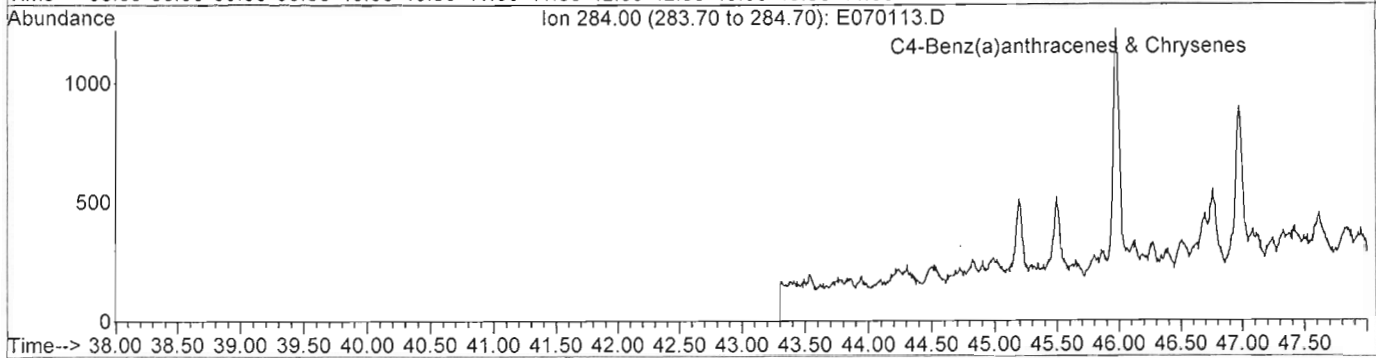
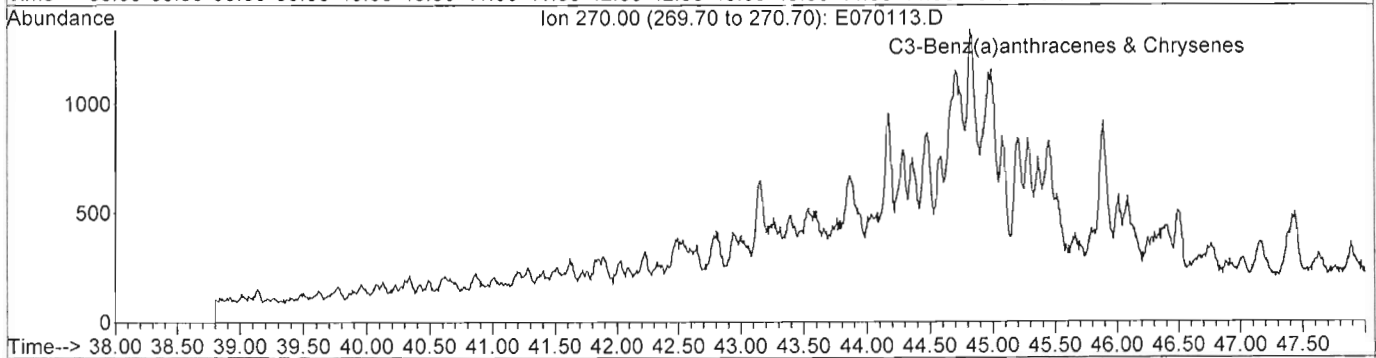
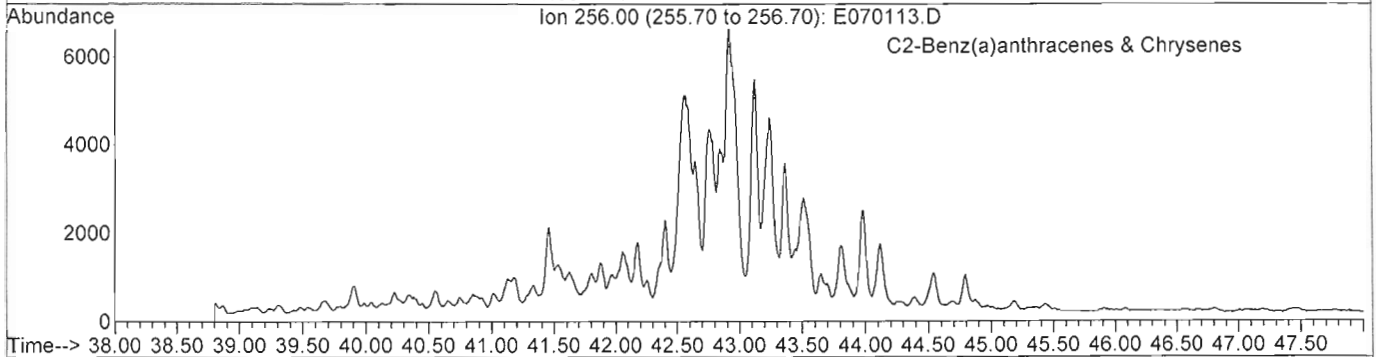
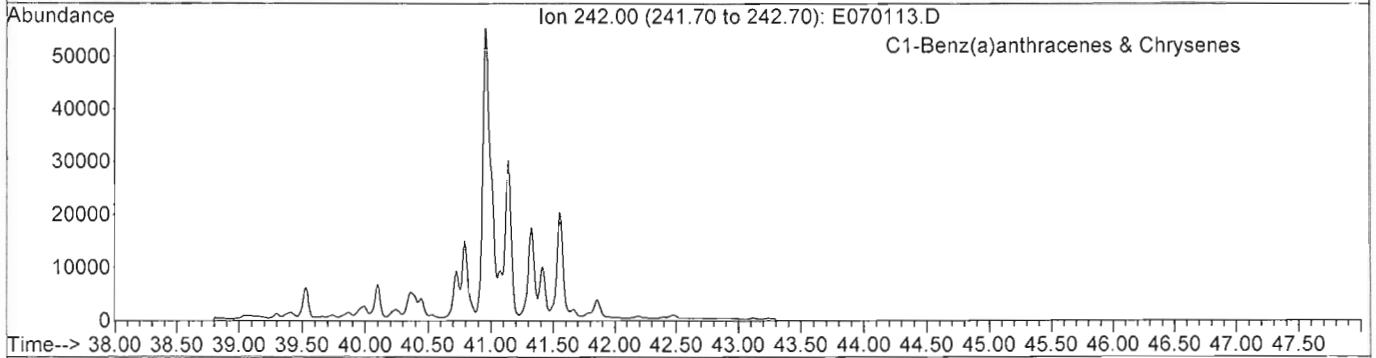
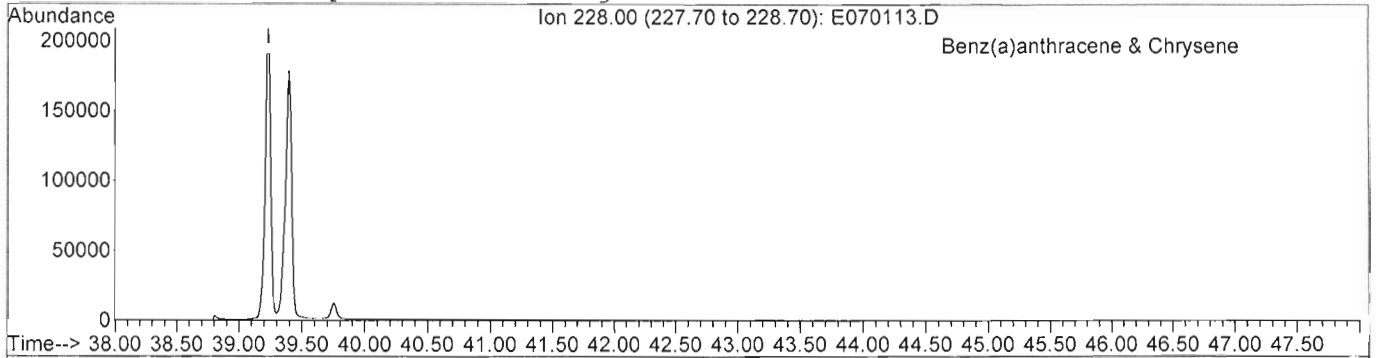
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070113.D
Date Acquired: 2 Jul 2010 5:06 am
Sample Name: SG100629-01DUPA-D2
Misc Info: Duplicate of Congaree Sed-1 - 100X



GC/MS EXTRACTED ION CHROMATOGRAM

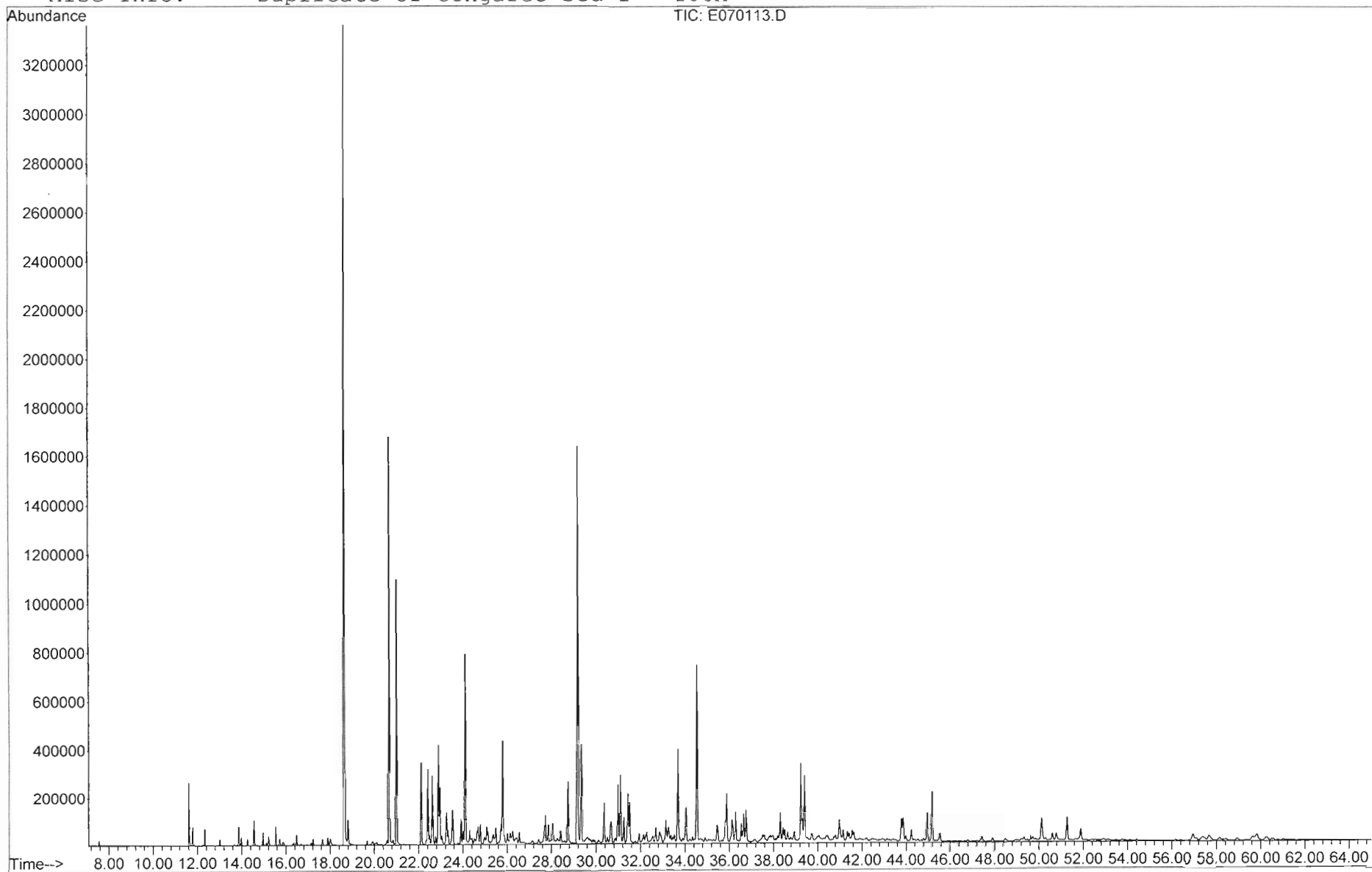
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Date Acquired: 2 Jul 2010 5:06 am
Sample Name: SG100629-01DUPA-D2
Misc Info: Duplicate of Congaree Sed-1 - 100X



META Environmental, Inc.

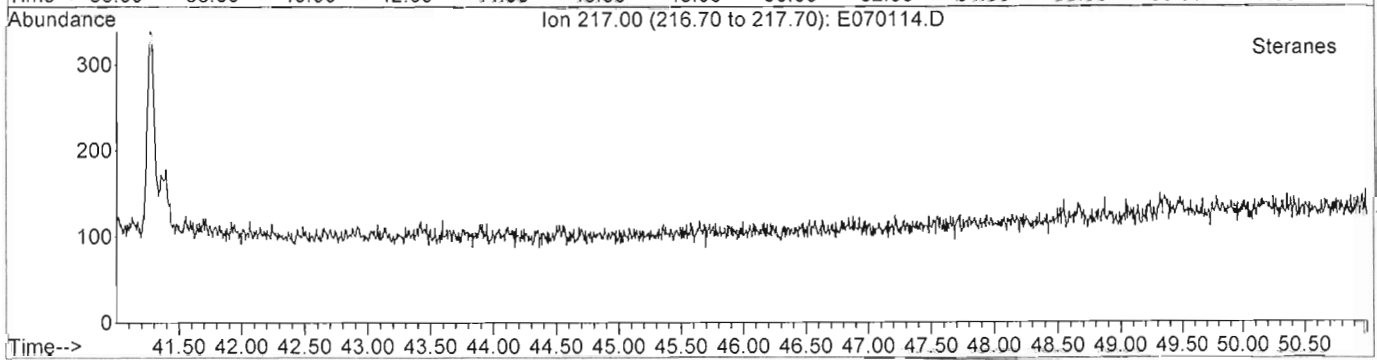
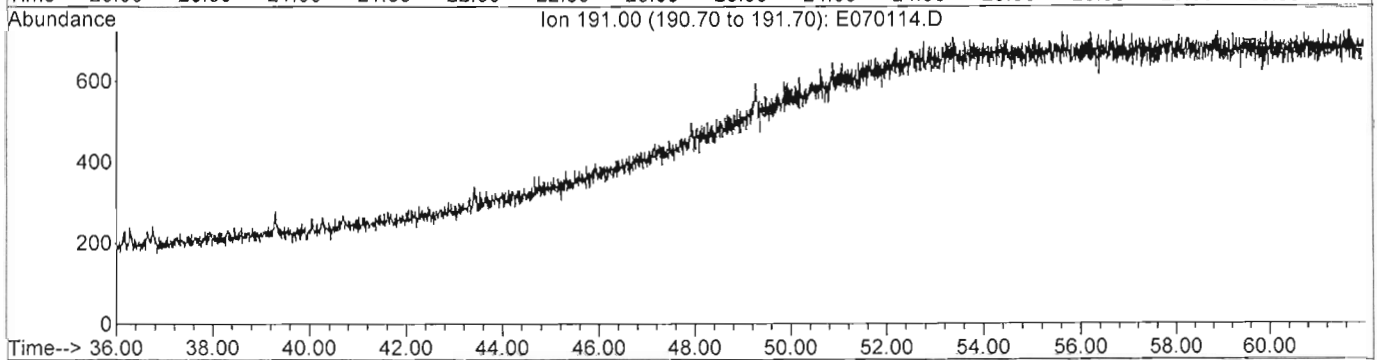
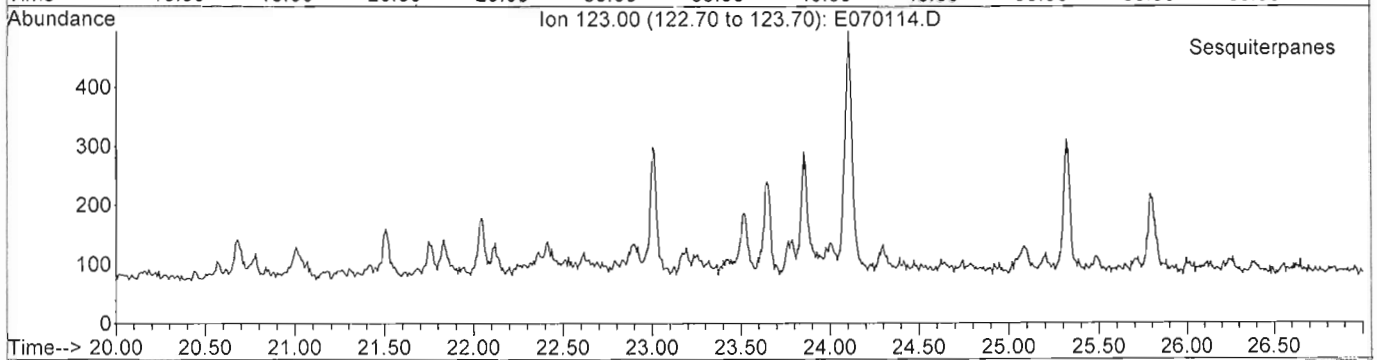
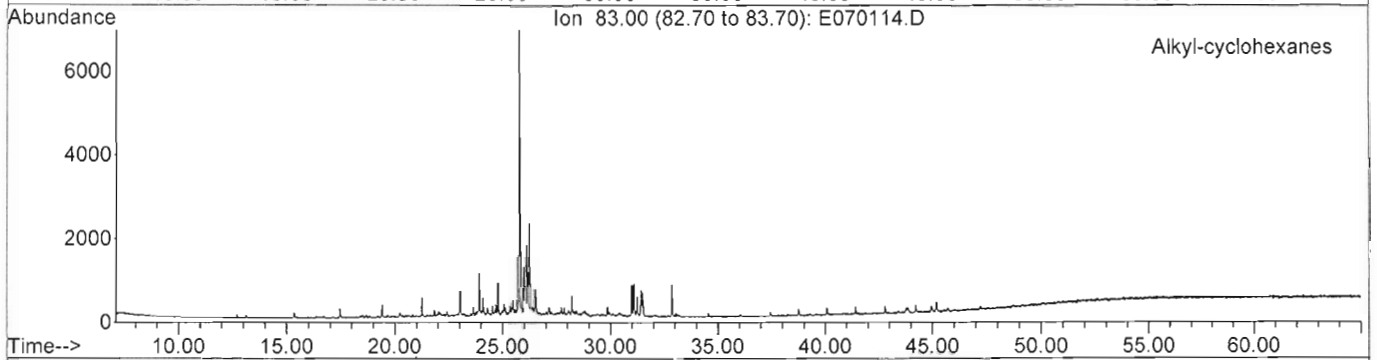
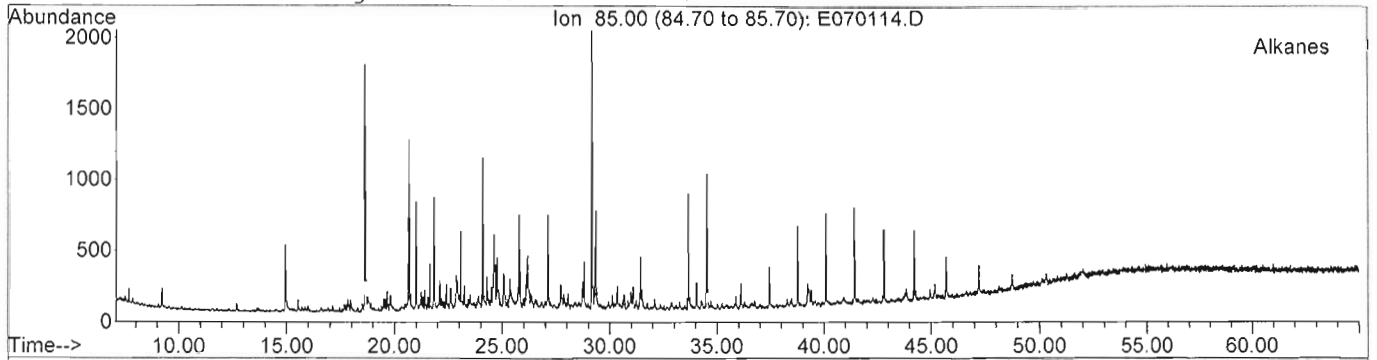
GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070113.D
Date Acquired: 2 Jul 2010 5:06 am
Sample Name: SG100629-01DUPA-D2
Misc Info: Duplicate of Congaree Sed-1 - 100X



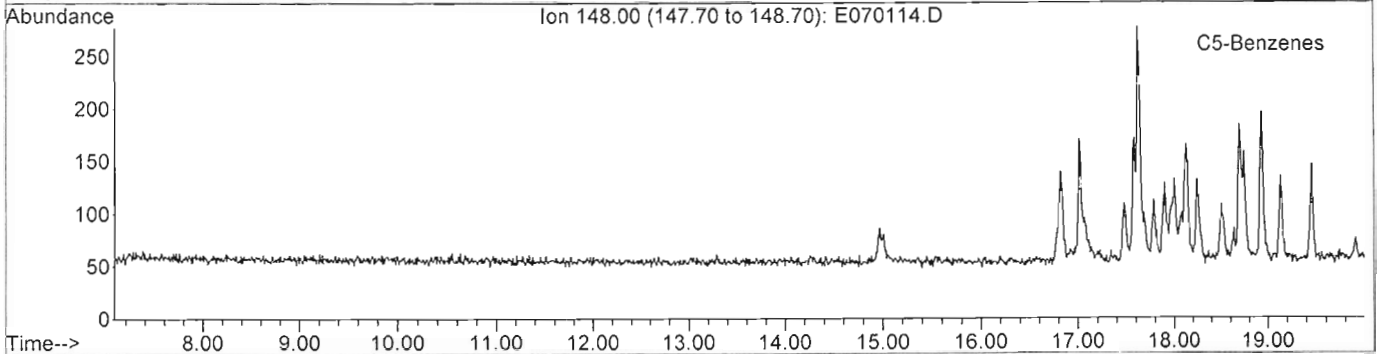
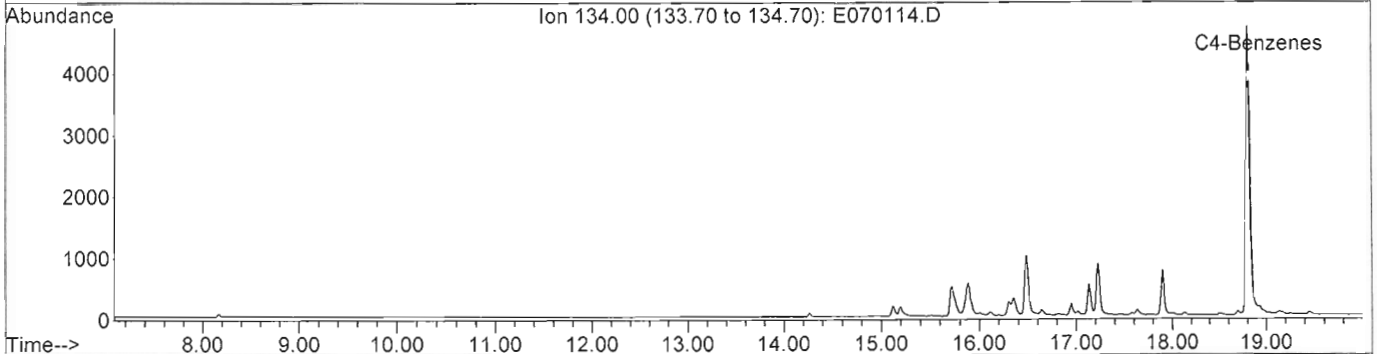
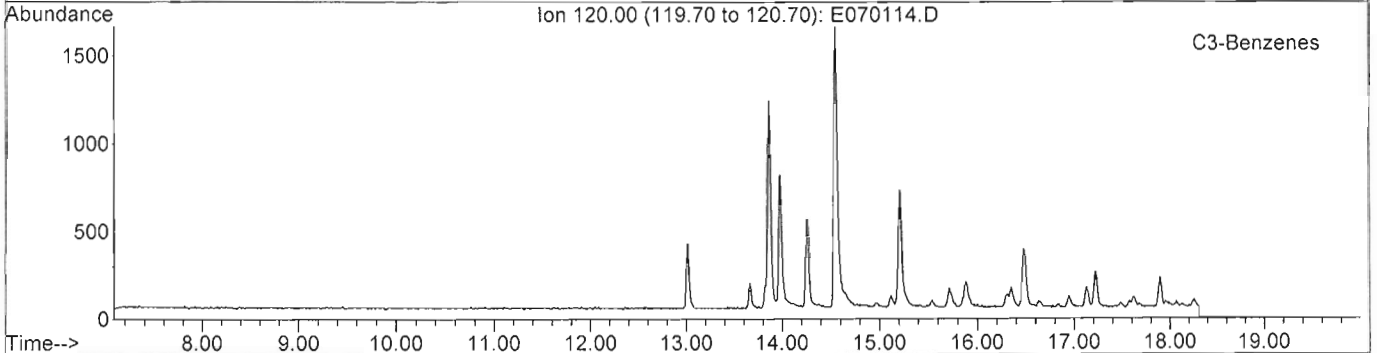
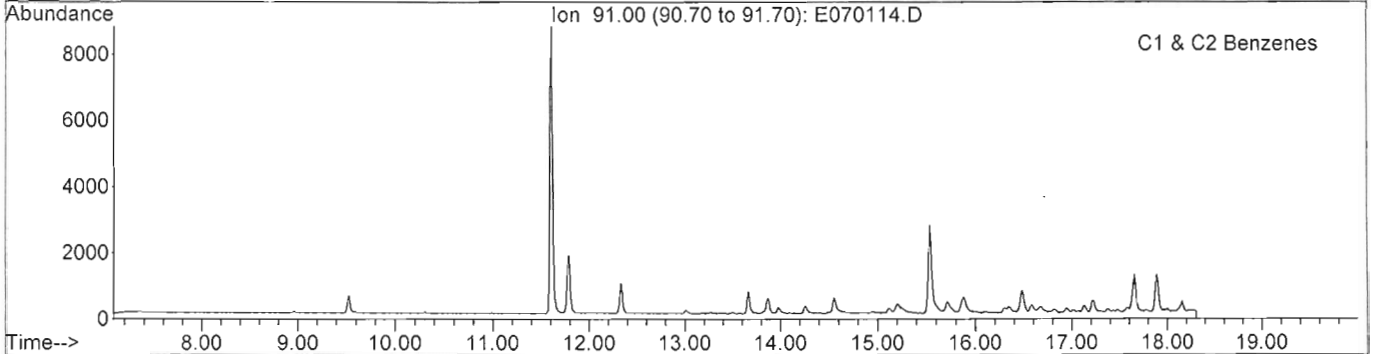
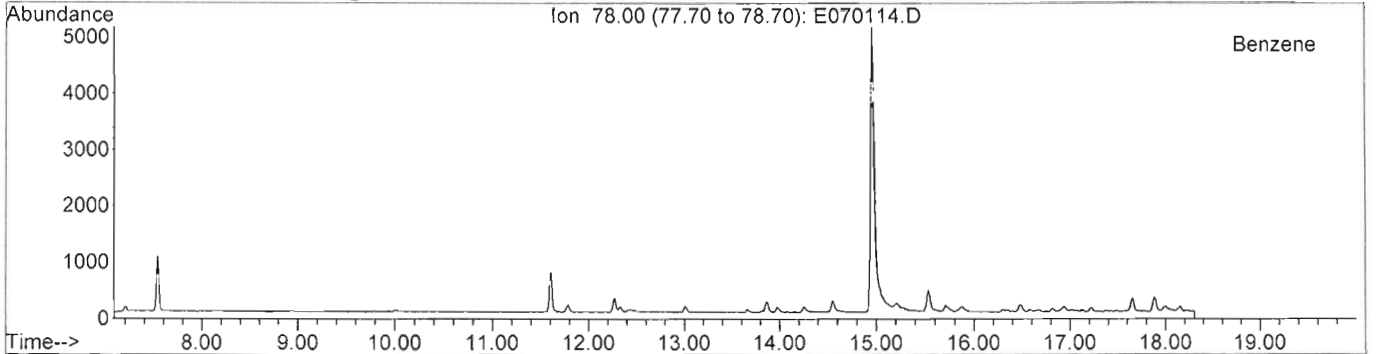
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070114.D
Date Acquired: 2 Jul 2010 6:23 am
Sample Name: SG100629-02A-D2
Misc Info: Congaree Sed-2 - 100X



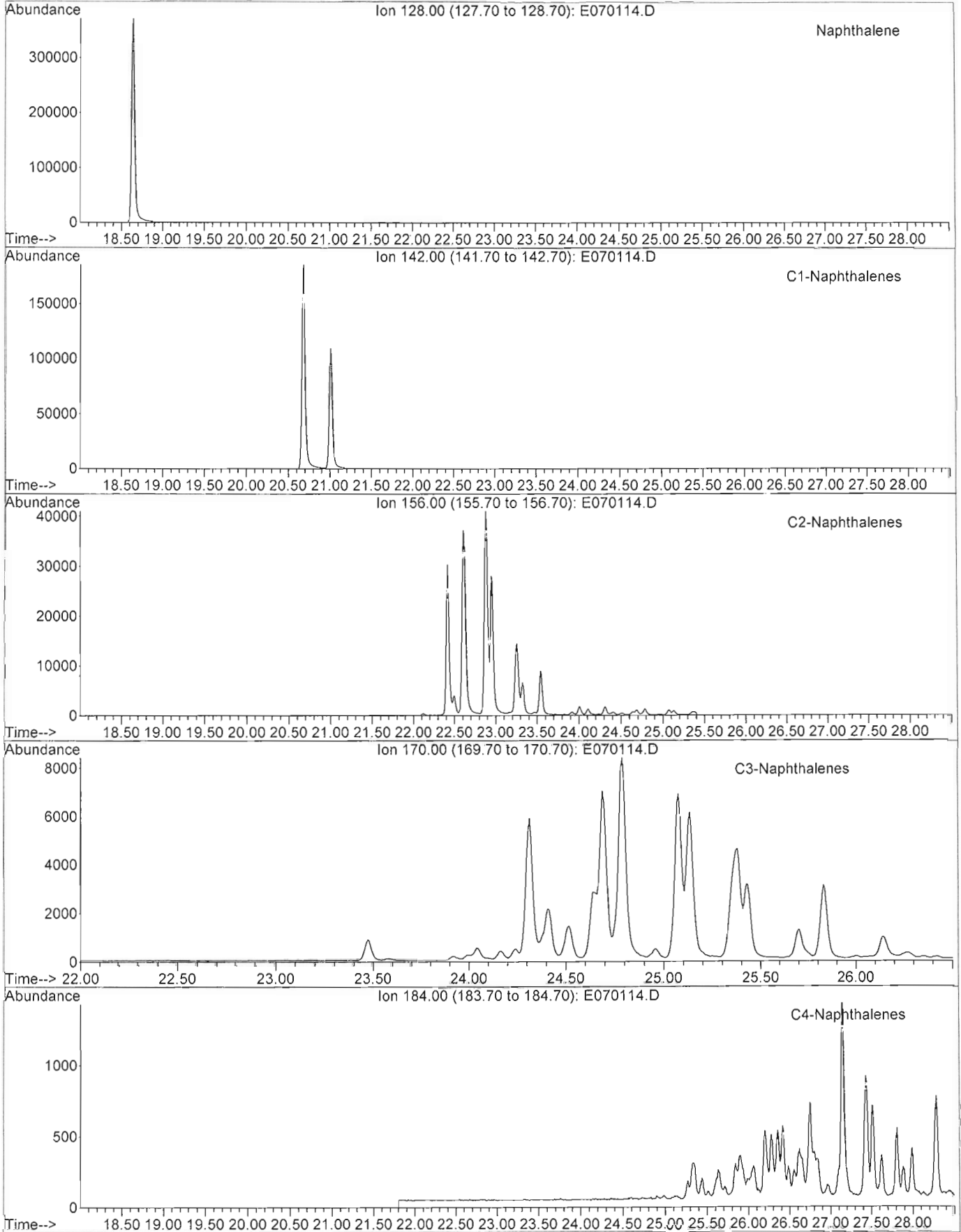
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070114.D
Date Acquired: 2 Jul 2010 6:23 am
Sample Name: SG100629-02A-D2
Misc Info: Congaree Sed-2 - 100X



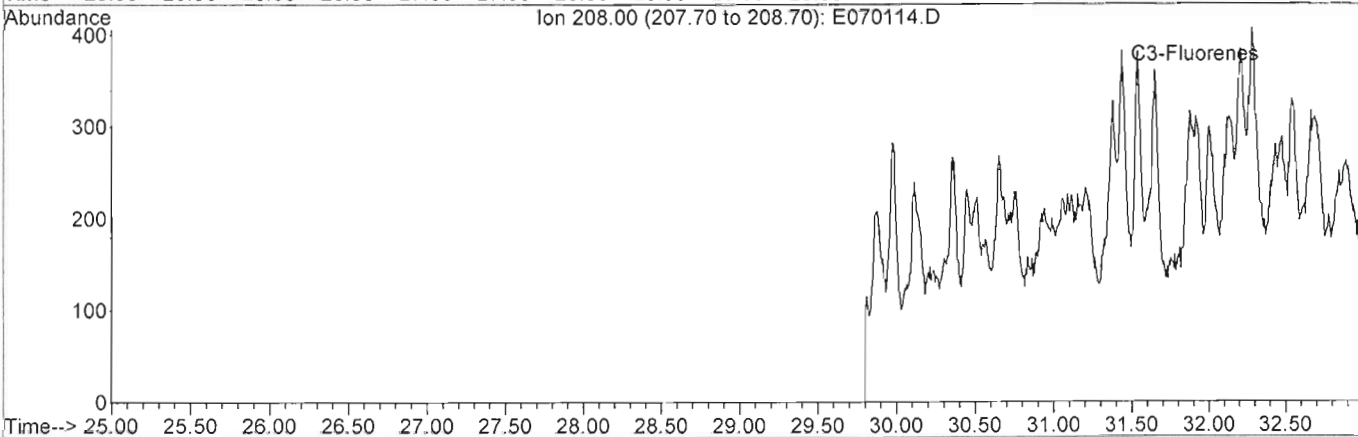
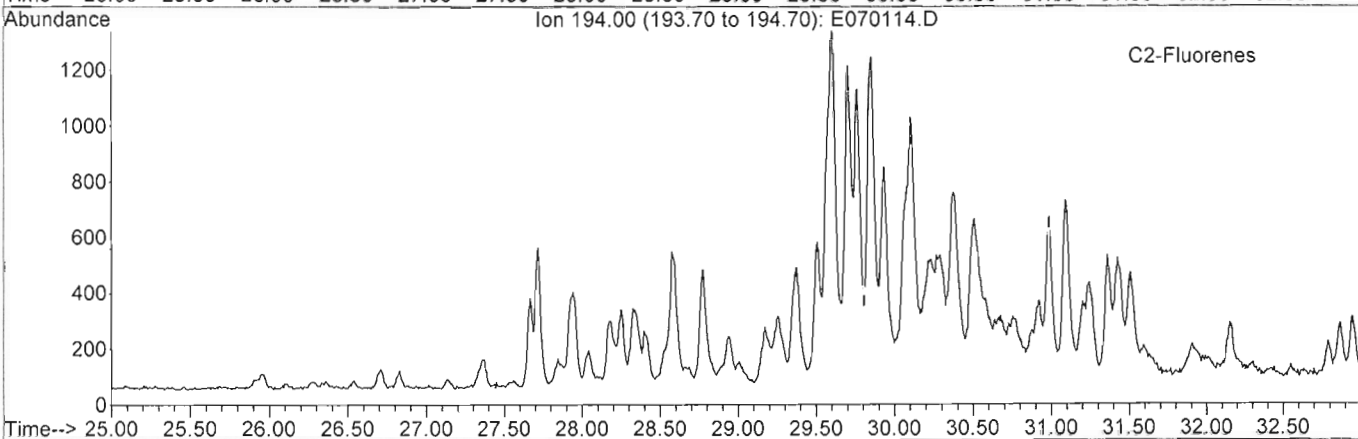
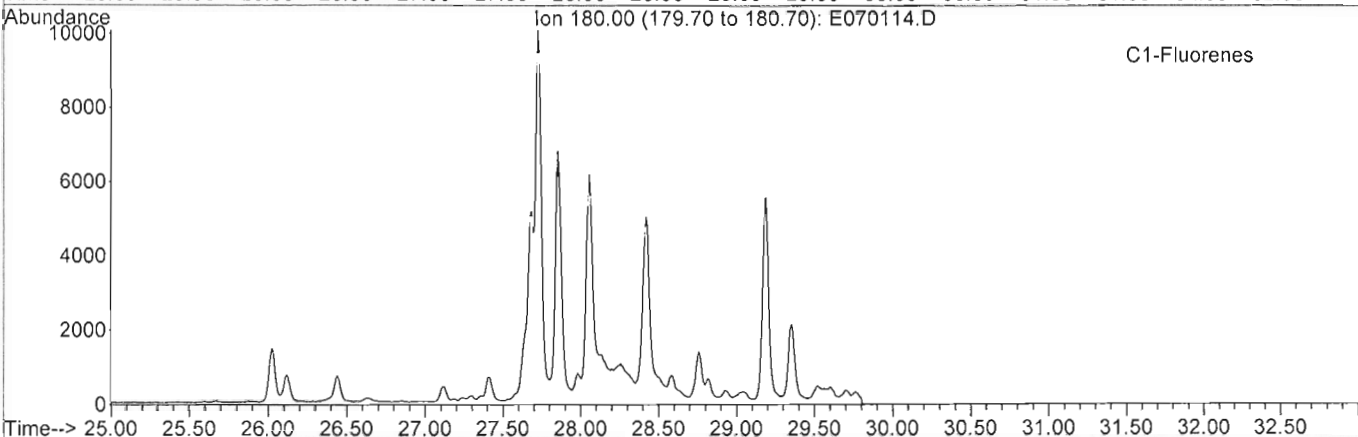
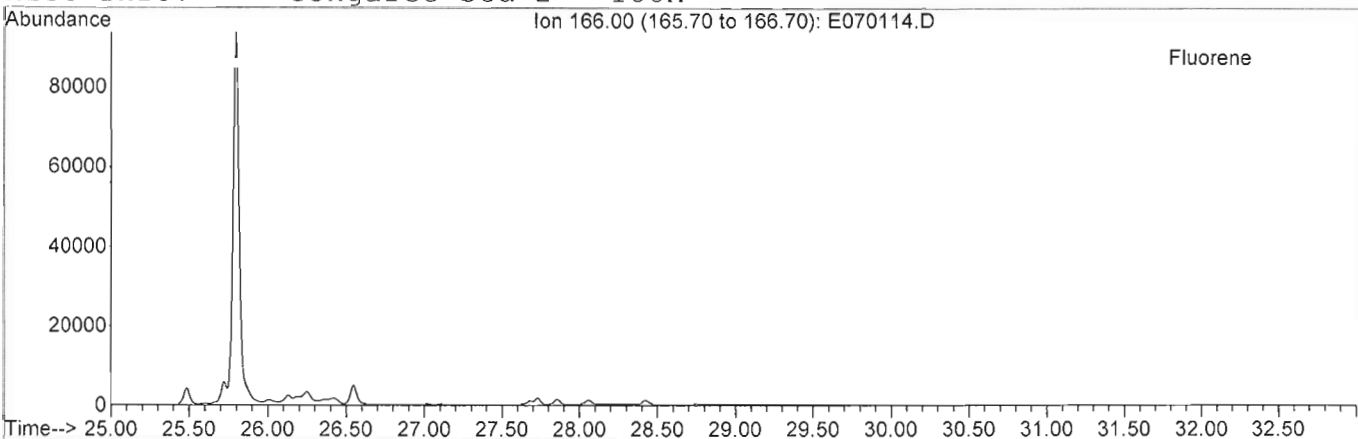
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070114.D
Date Acquired: 2 Jul 2010 6:23 am
Sample Name: SG100629-02A-D2
Misc Info: Congaree Sed-2 - 100X



GC/MS EXTRACTED ION CHROMATOGRAM

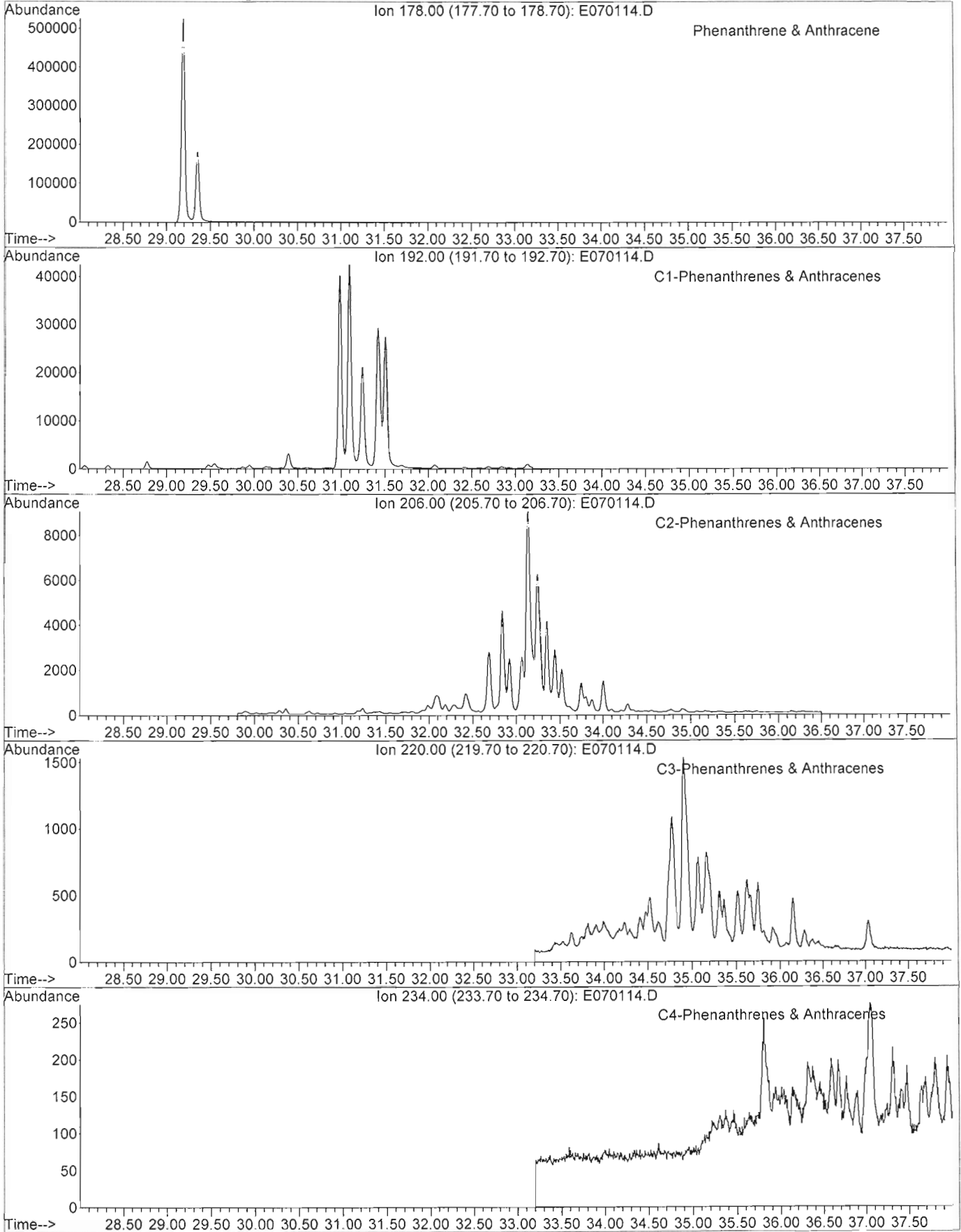
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META Environmental, Inc.

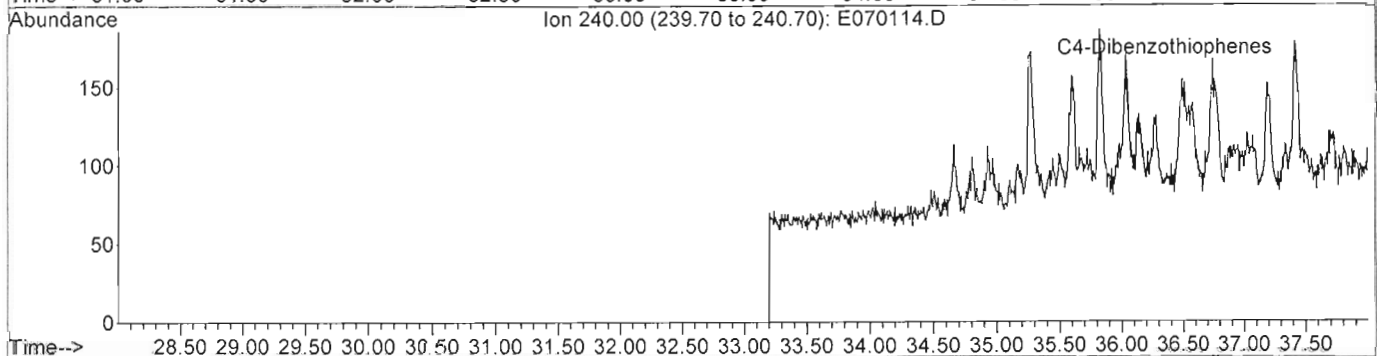
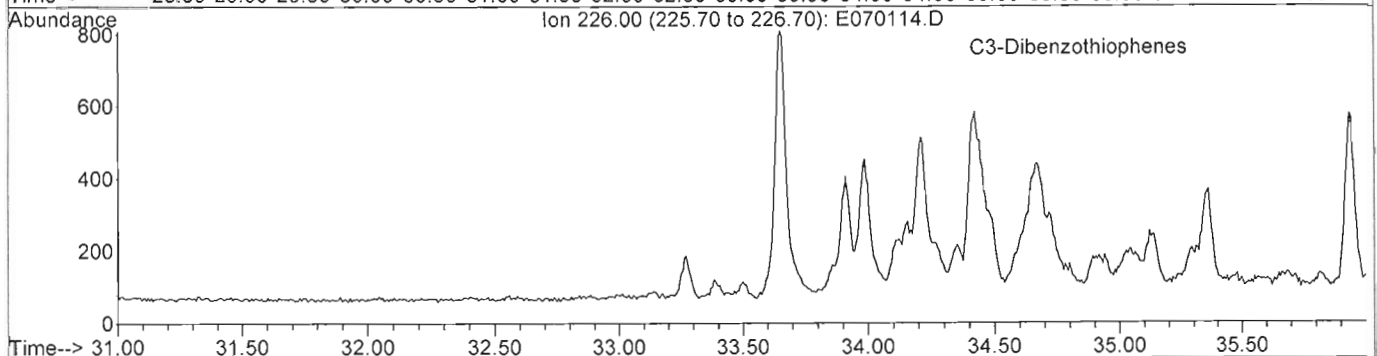
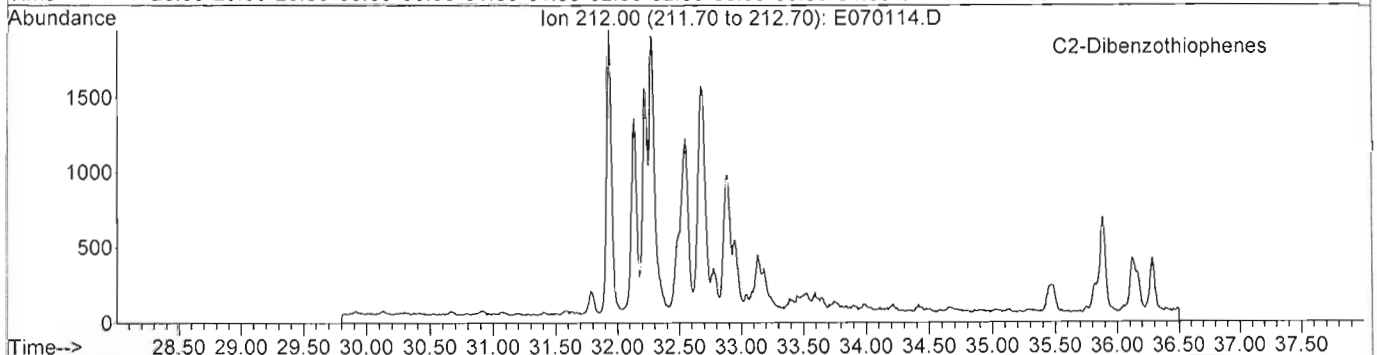
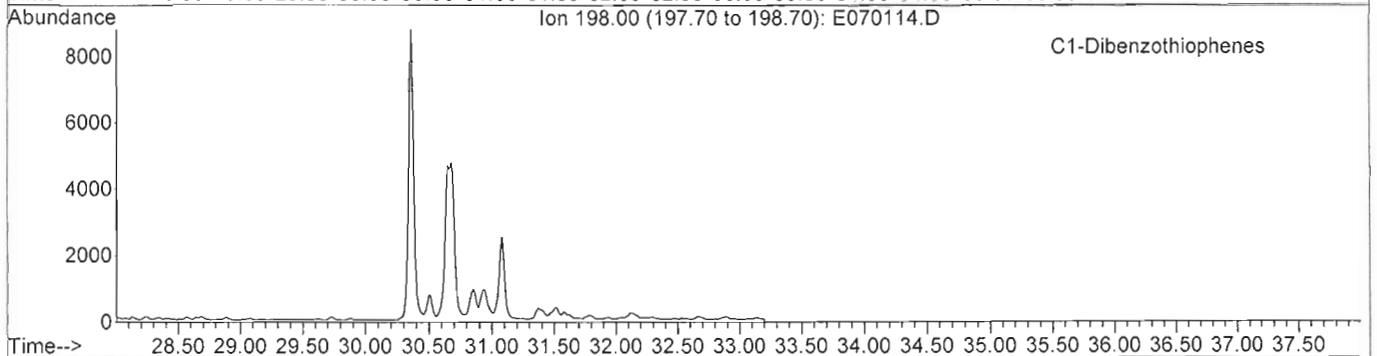
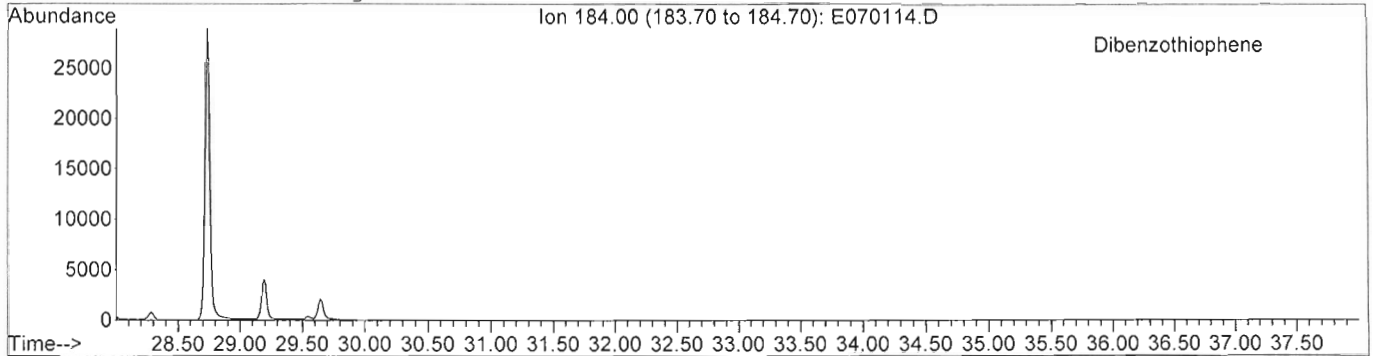
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070114.D
Date Acquired: 2 Jul 2010 6:23 am
Sample Name: SG100629-02A-D2
Misc Info: Congaree Sed-2 - 100X



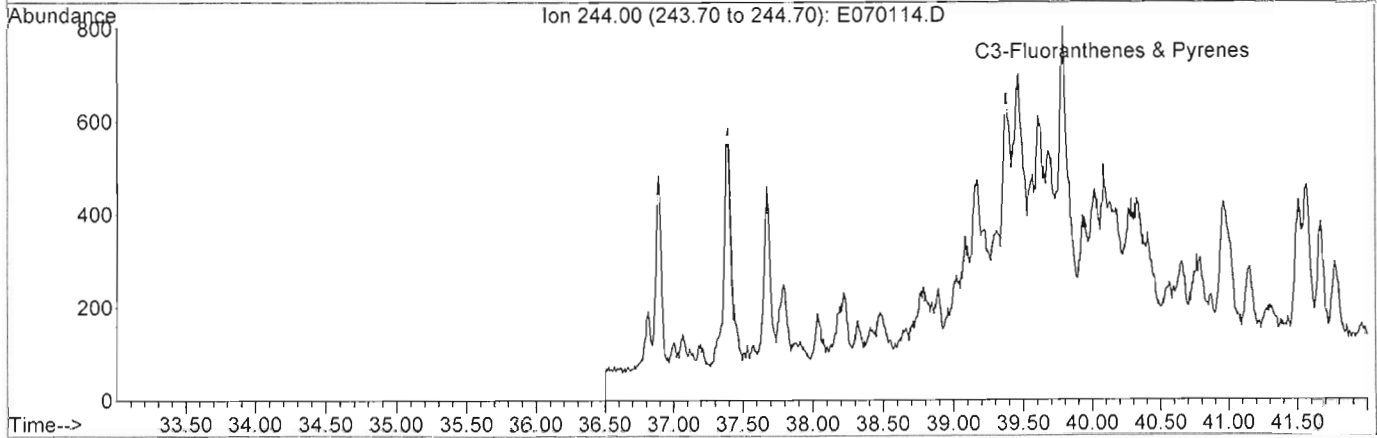
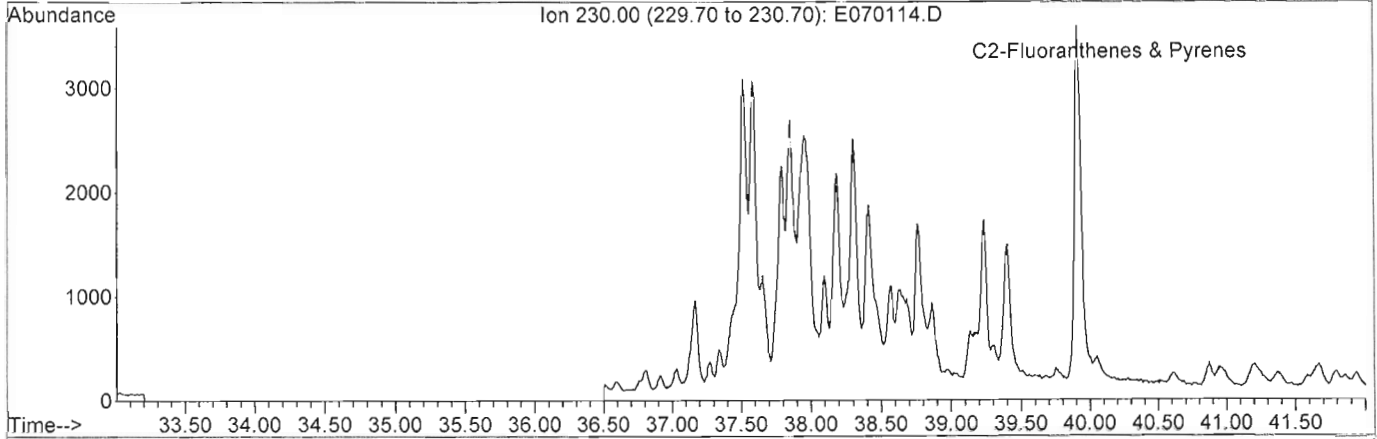
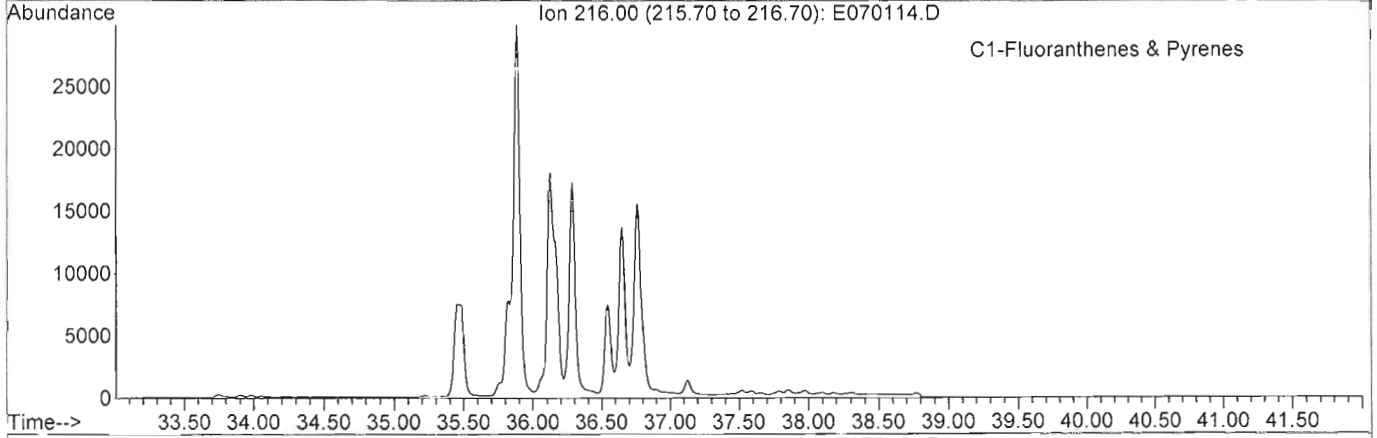
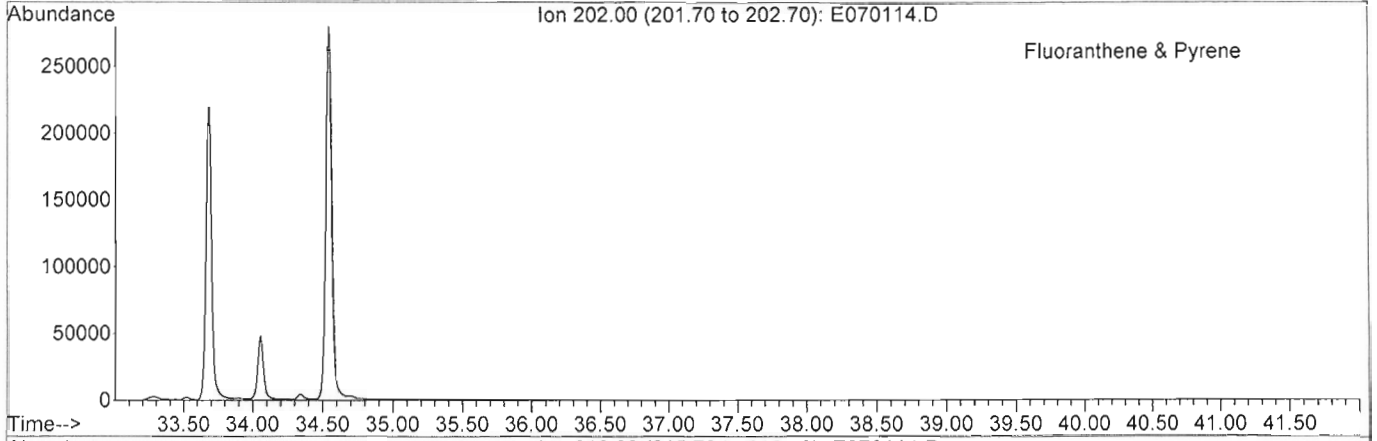
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070114.D
Date Acquired: 2 Jul 2010 6:23 am
Sample Name: SG100629-02A-D2
Misc Info: Congaree Sed-2 - 100X



GC/MS EXTRACTED ION CHROMATOGRAM

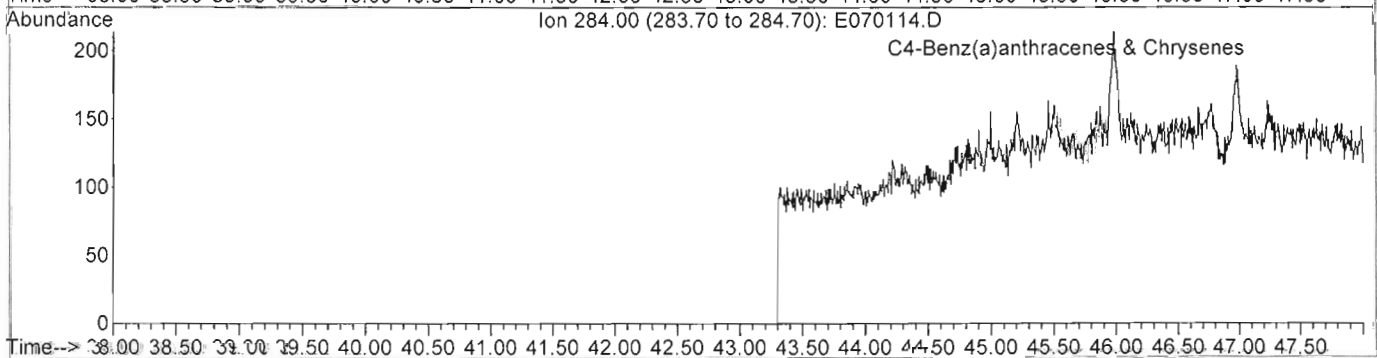
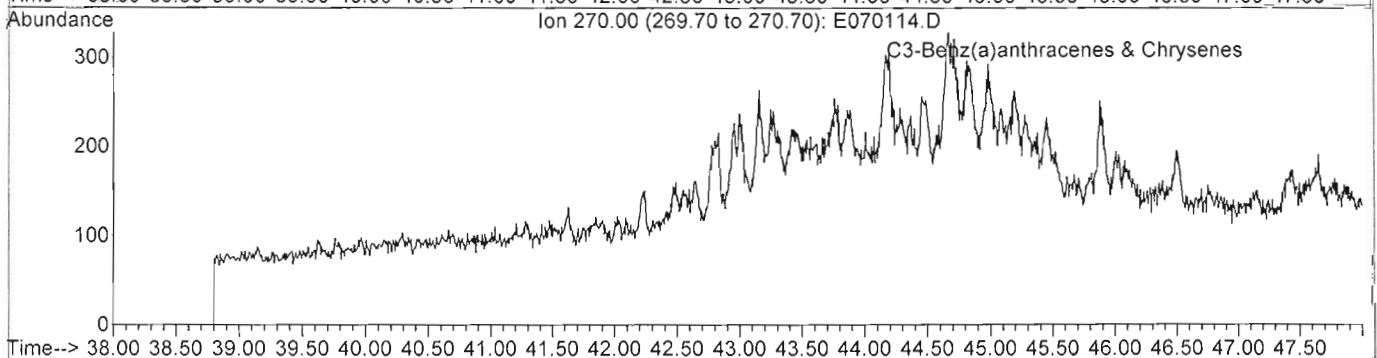
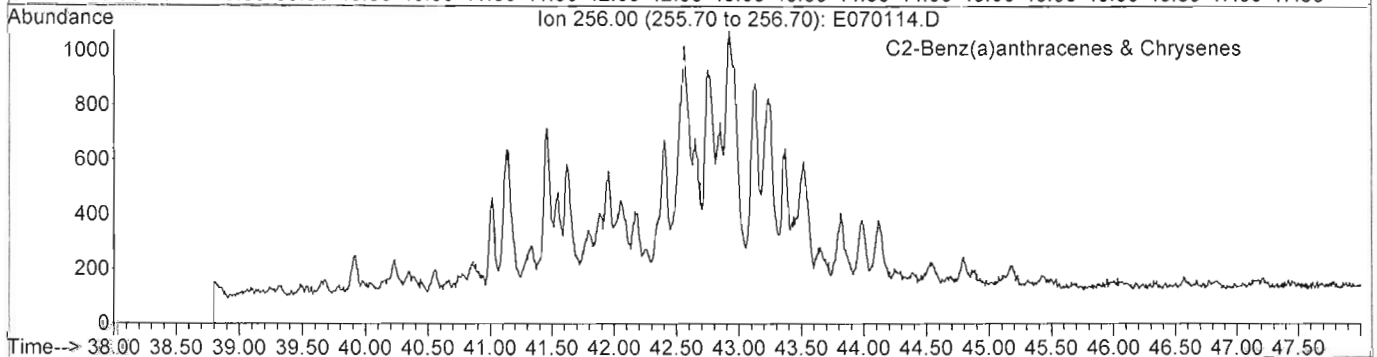
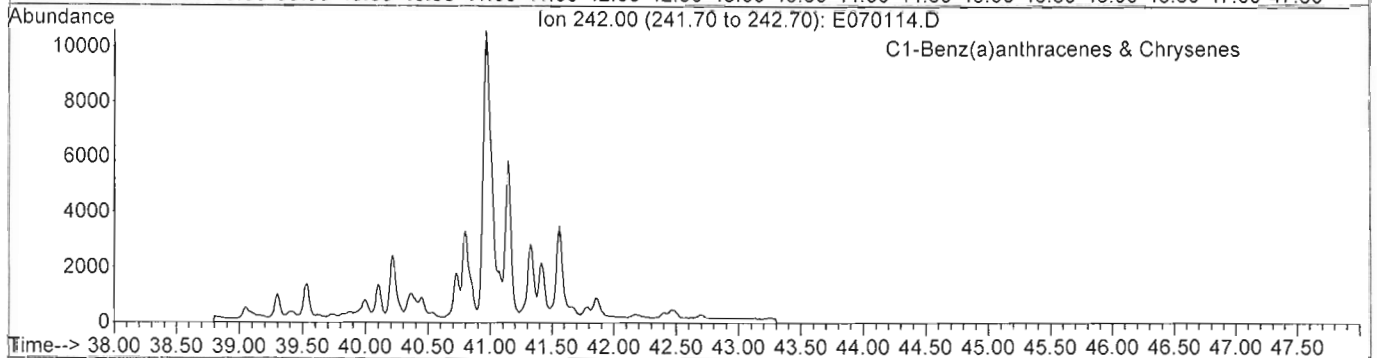
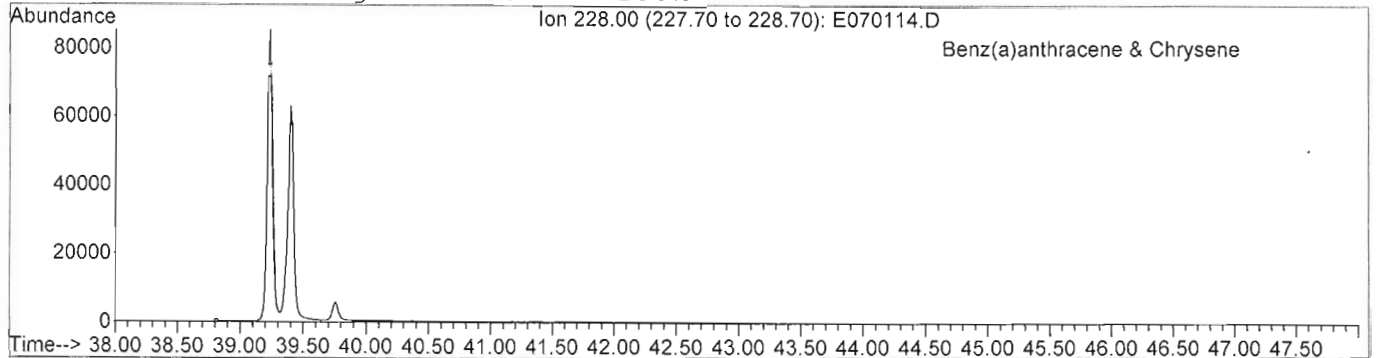
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Date Acquired: 2 Jul 2010 6:23 am
Sample Name: SG100629-02A-D2
Misc Info: Congaree Sed-2 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

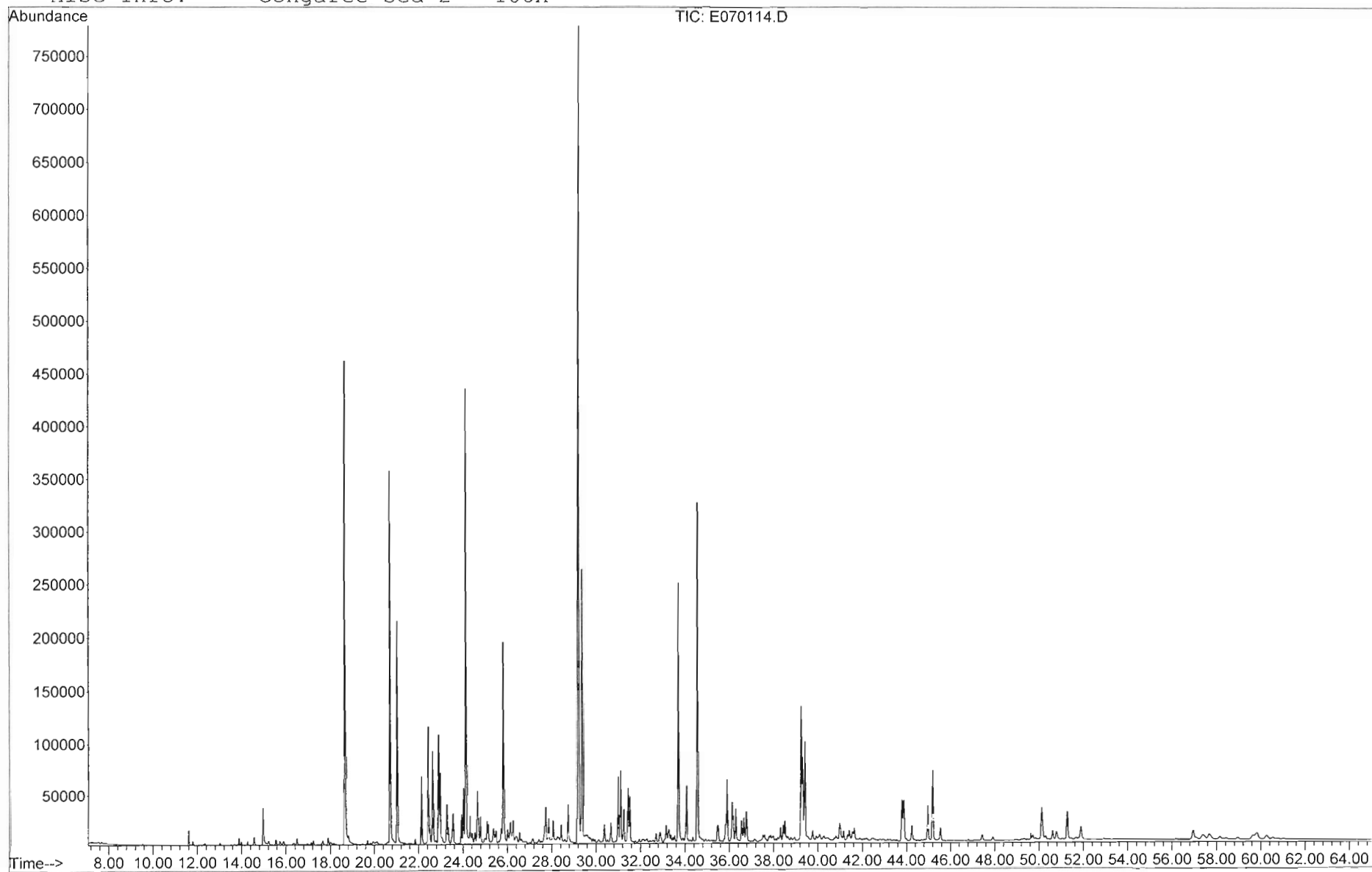
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Date Acquired: 2 Jul 2010 6:23 am
Sample Name: SG100629-02A-D2
Misc Info: Congaree Sed-2 - 100X



META Environmental, Inc.

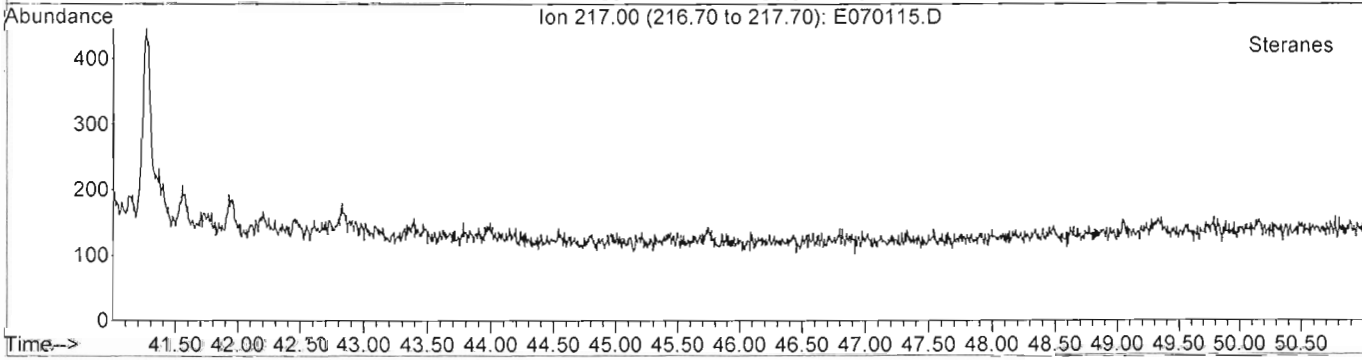
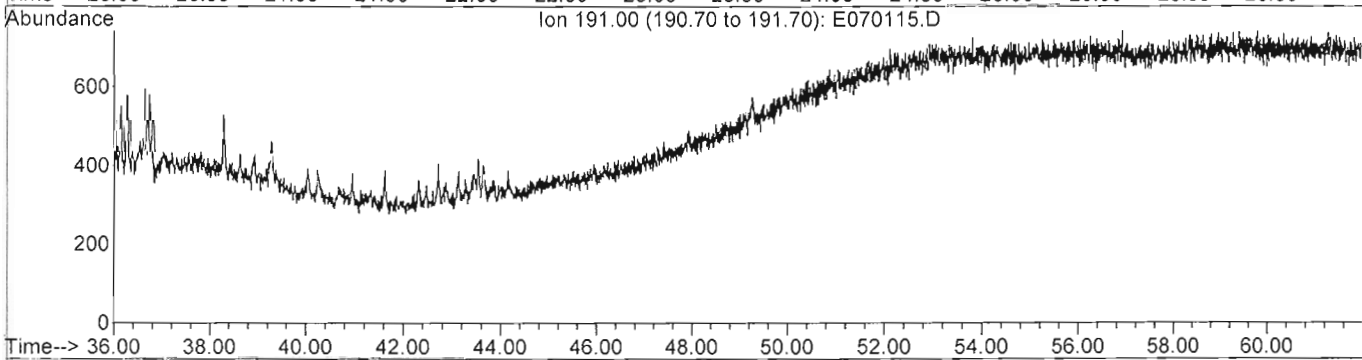
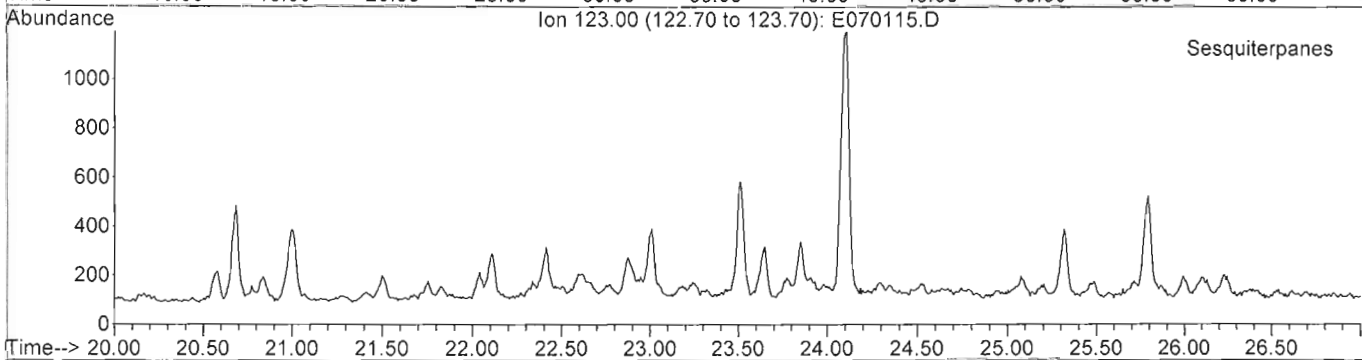
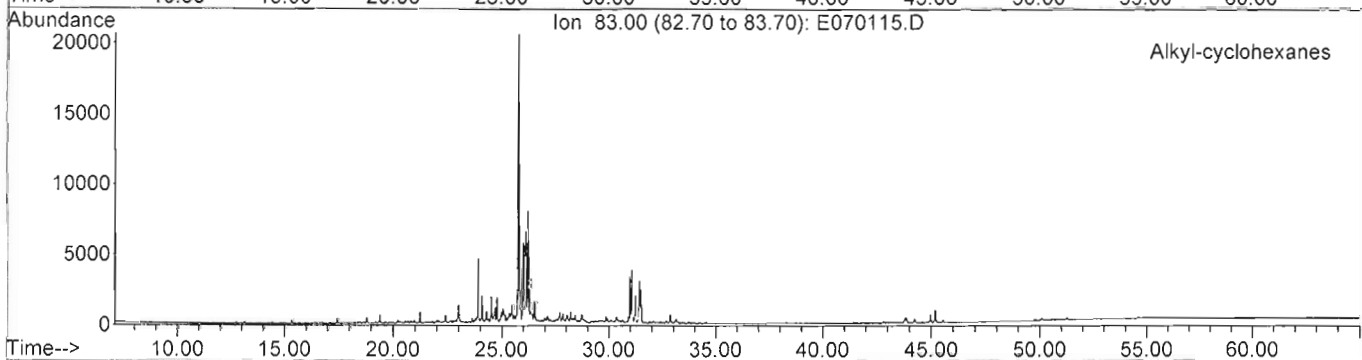
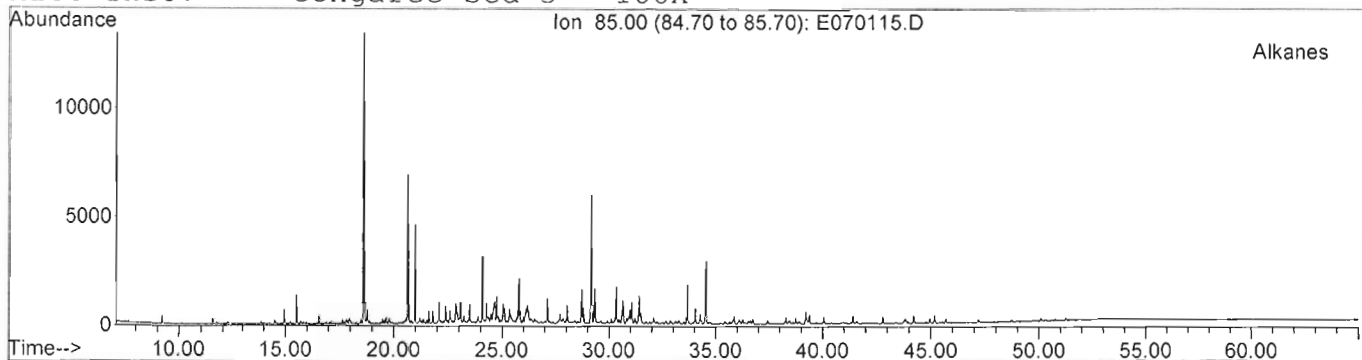
GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070114.D
Date Acquired: 2 Jul 2010 6:23 am
Sample Name: SG100629-02A-D2
Misc Info: Congaree Sed-2 - 100X



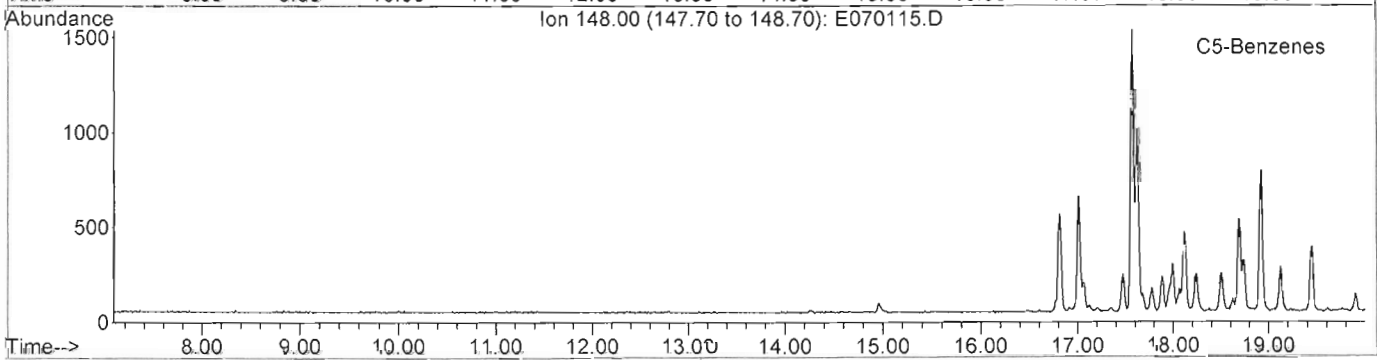
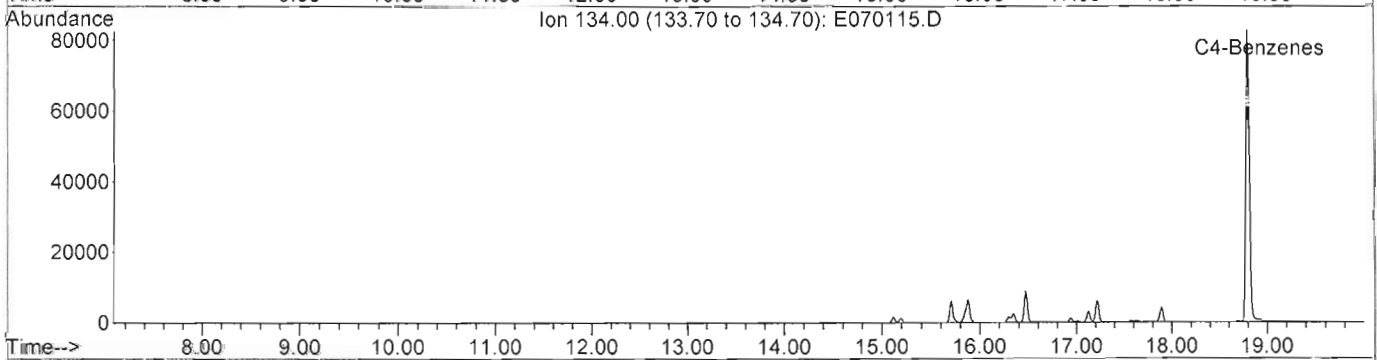
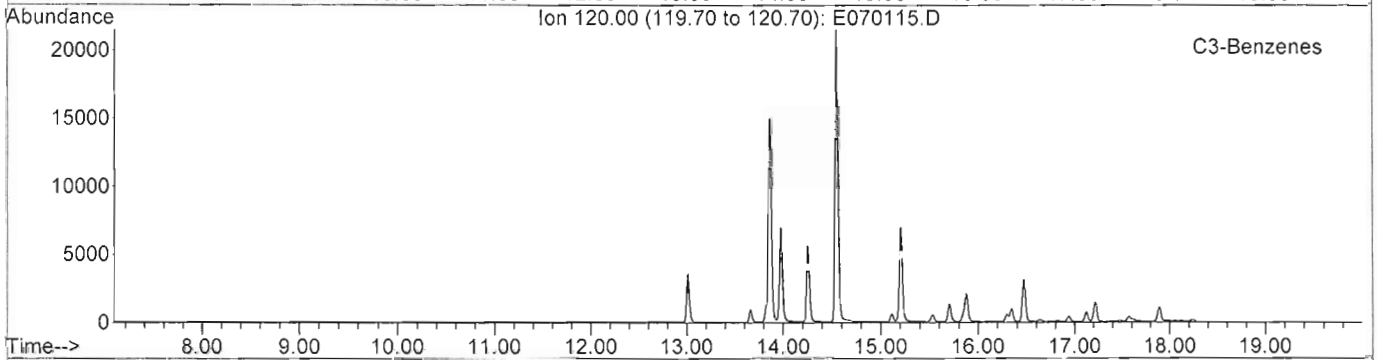
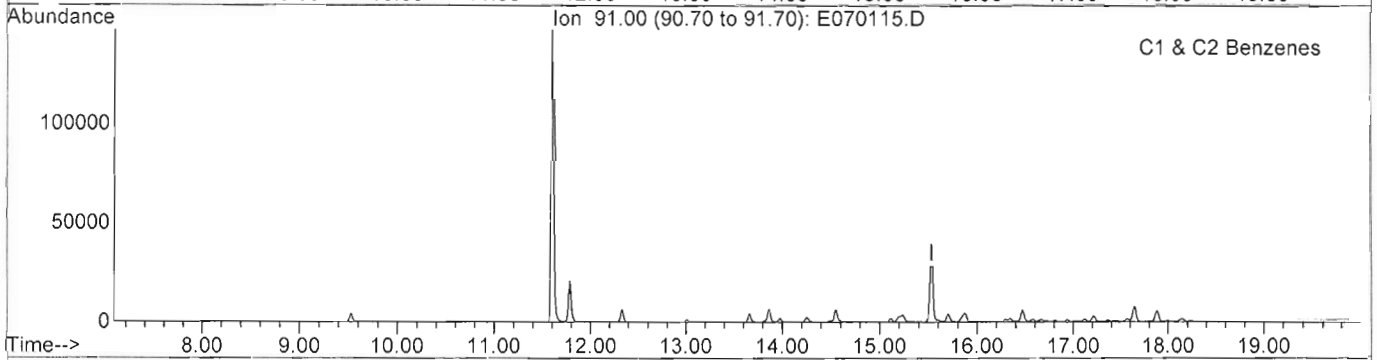
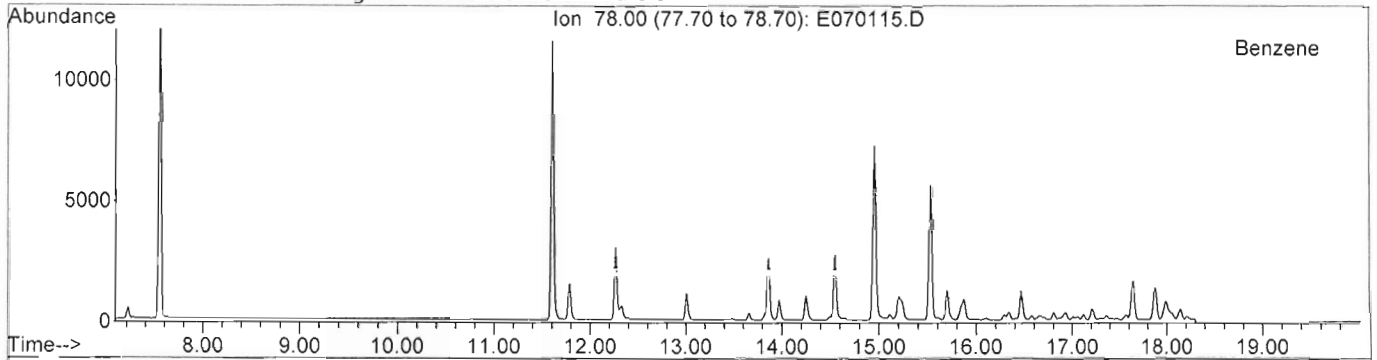
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



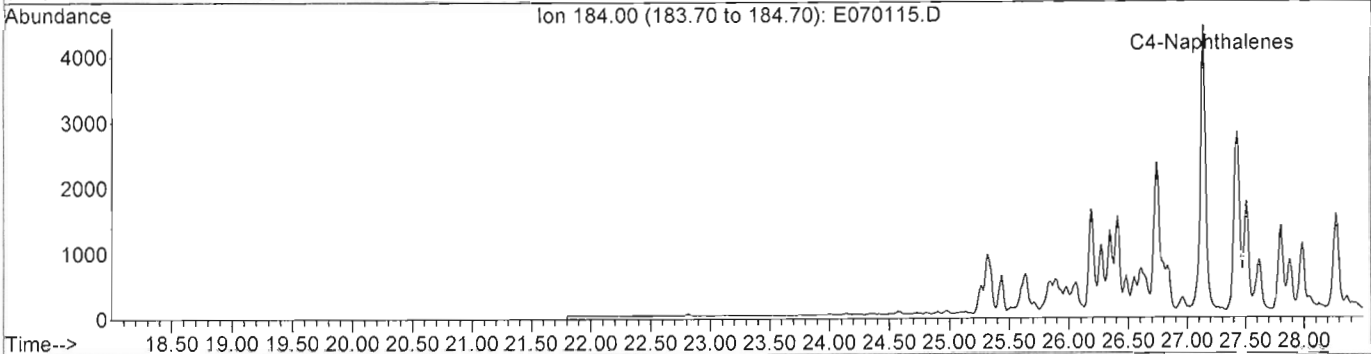
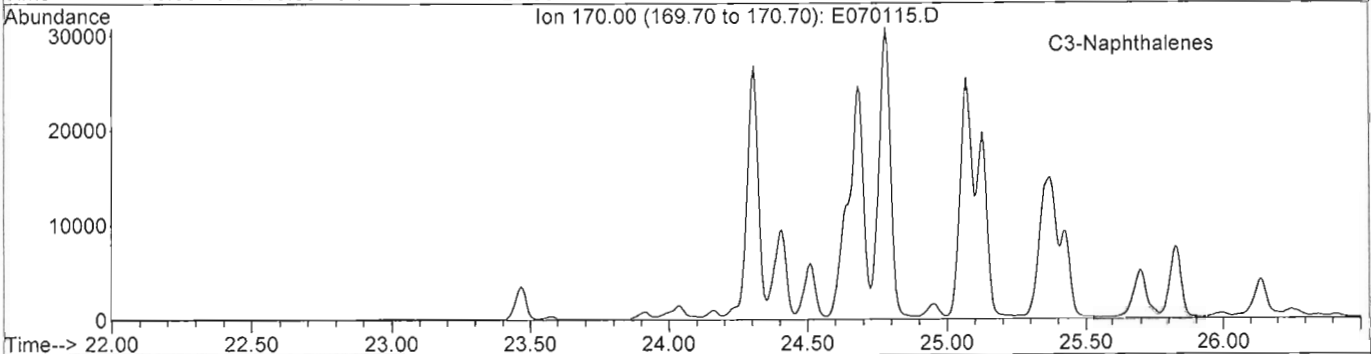
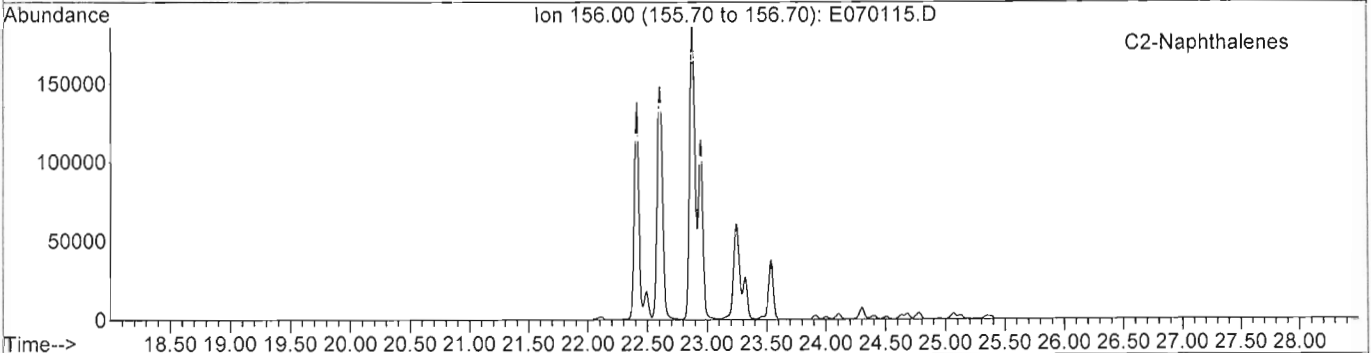
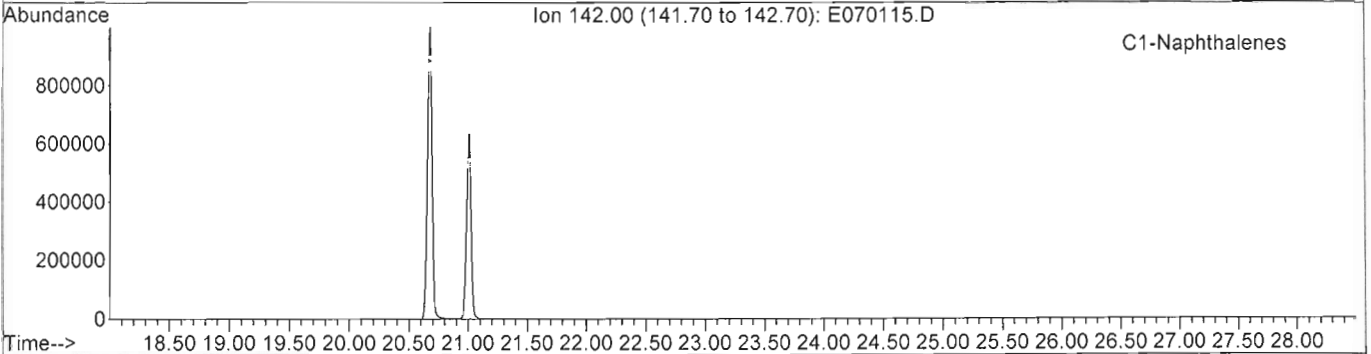
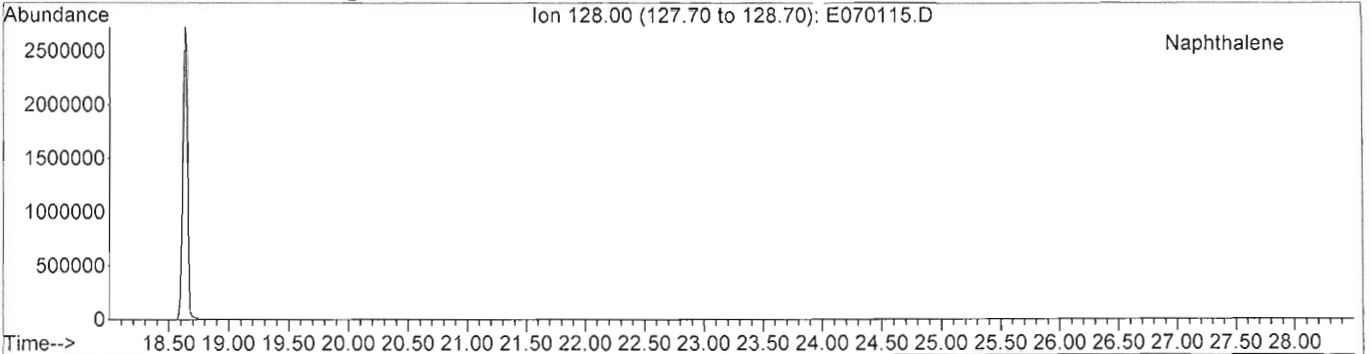
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



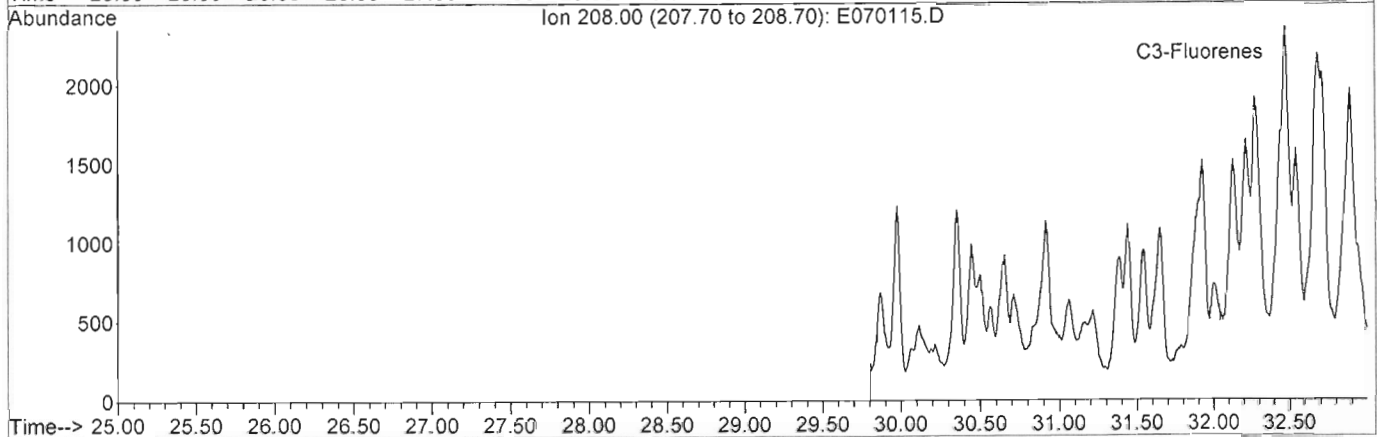
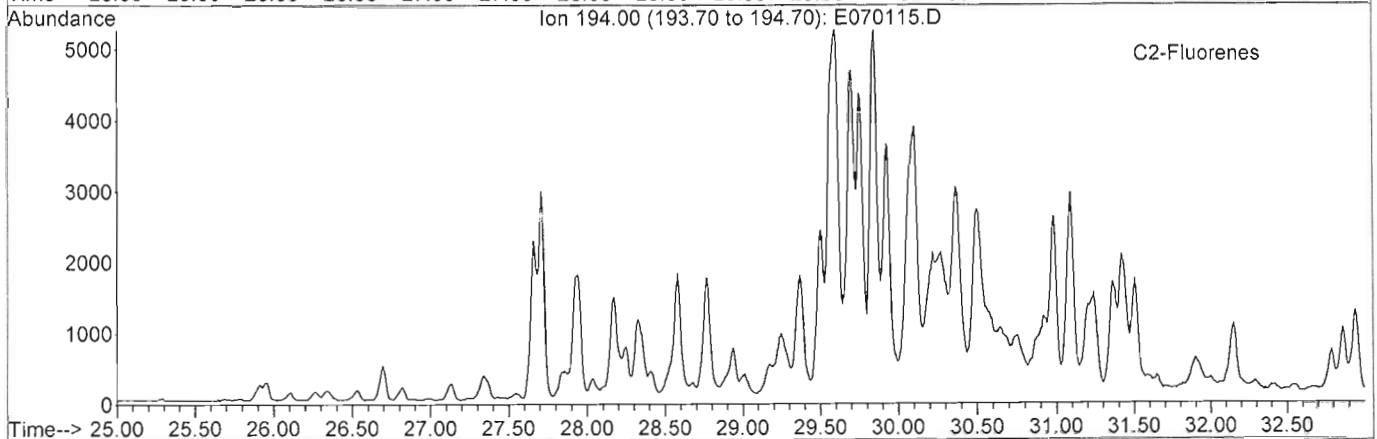
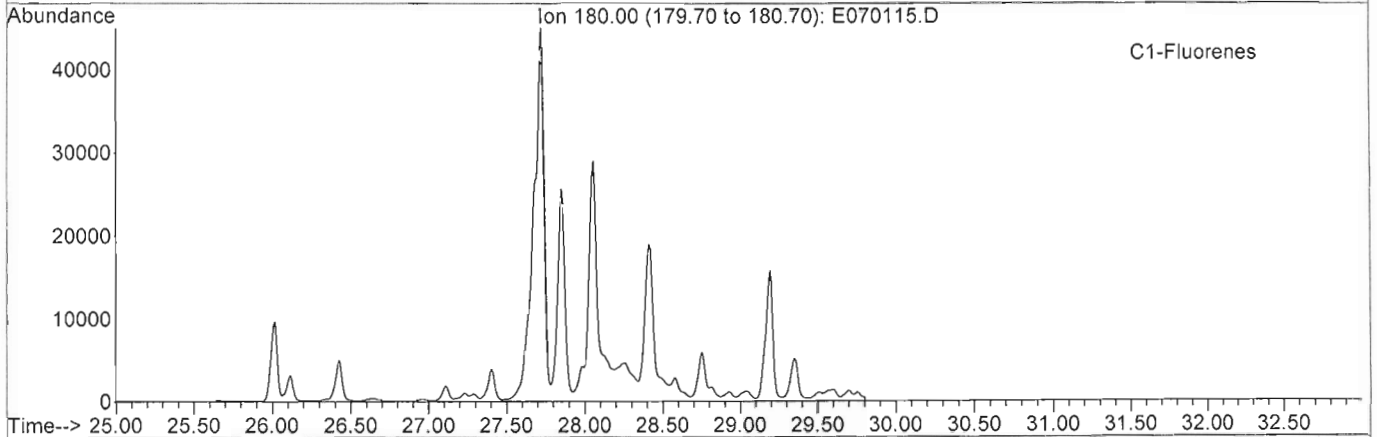
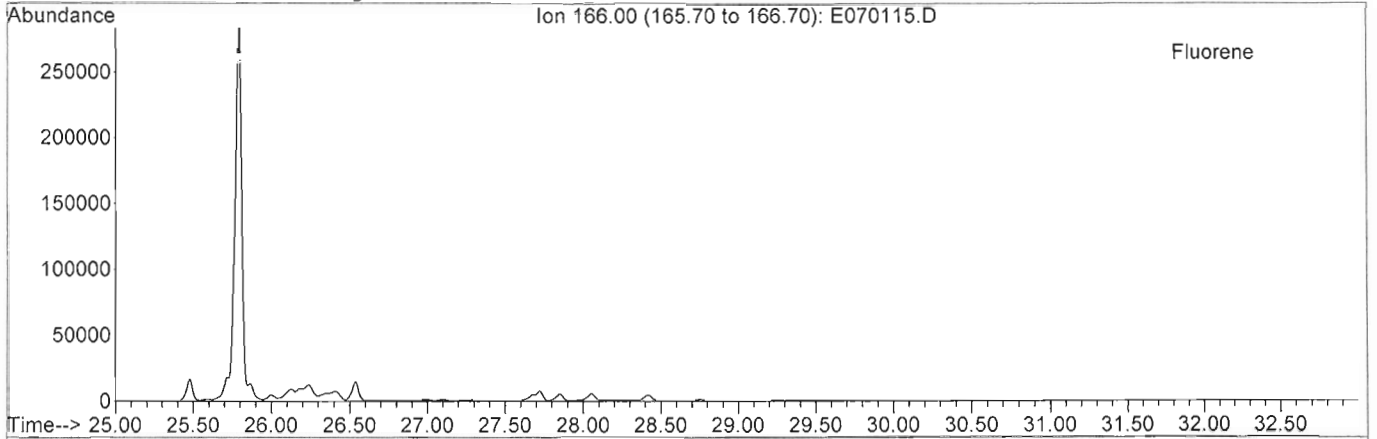
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



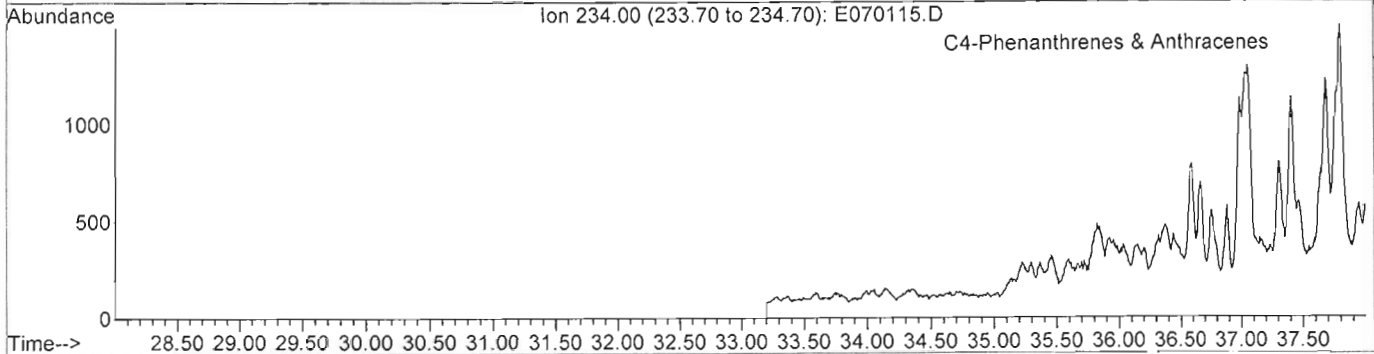
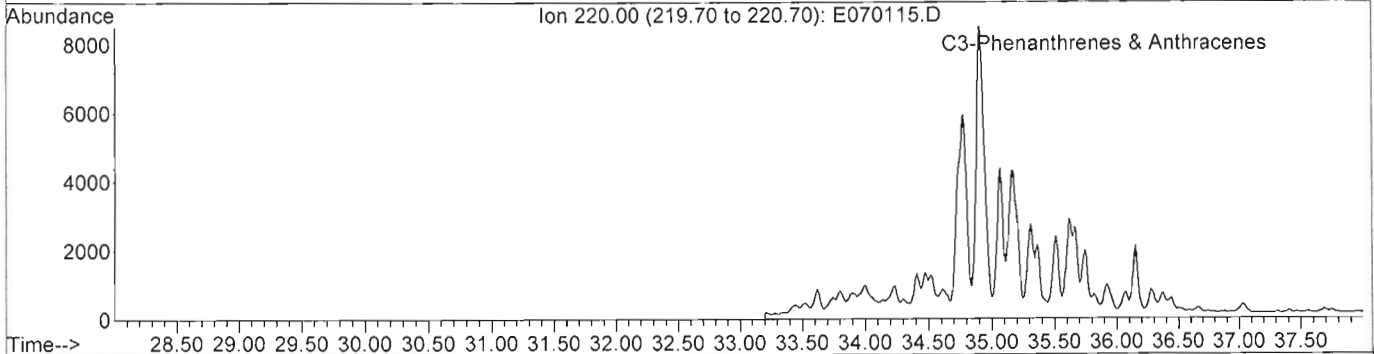
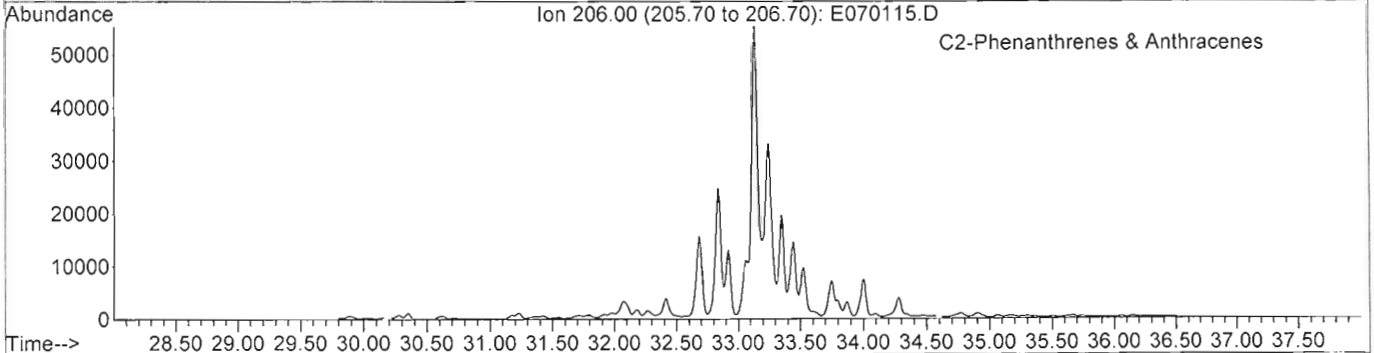
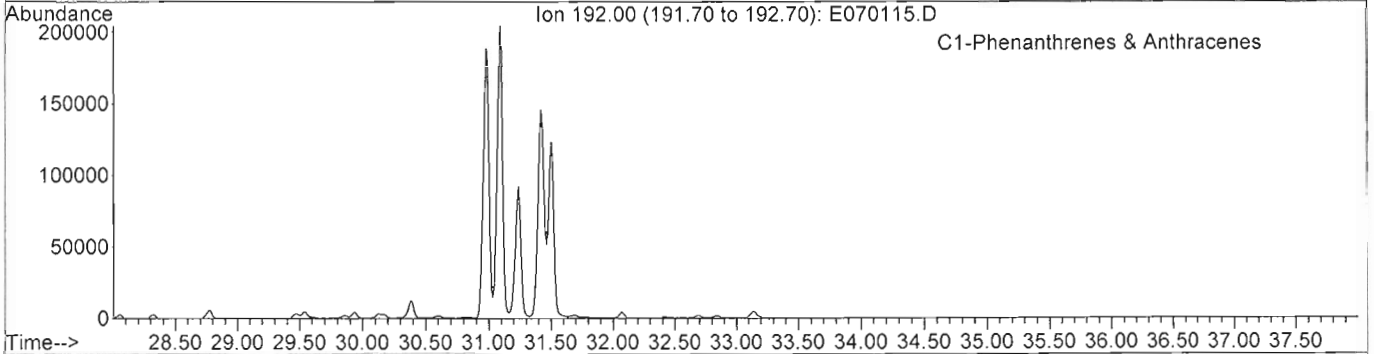
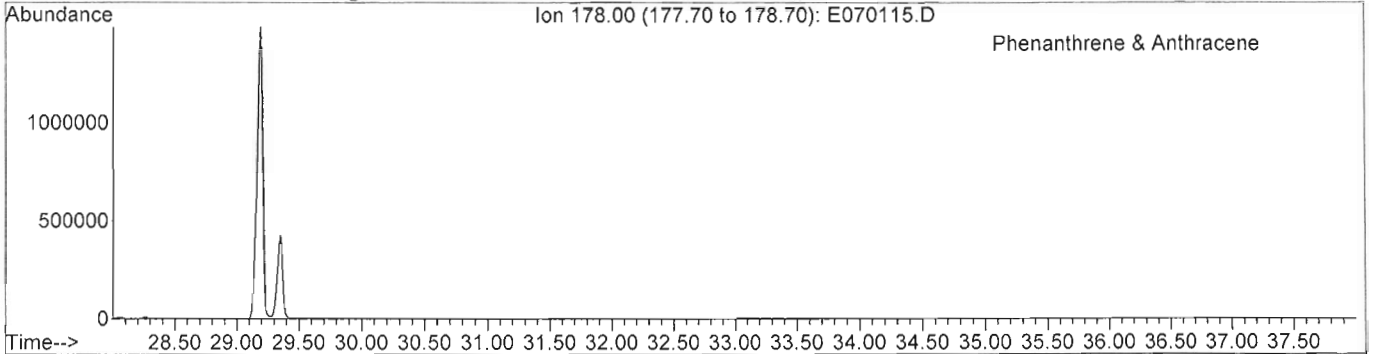
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



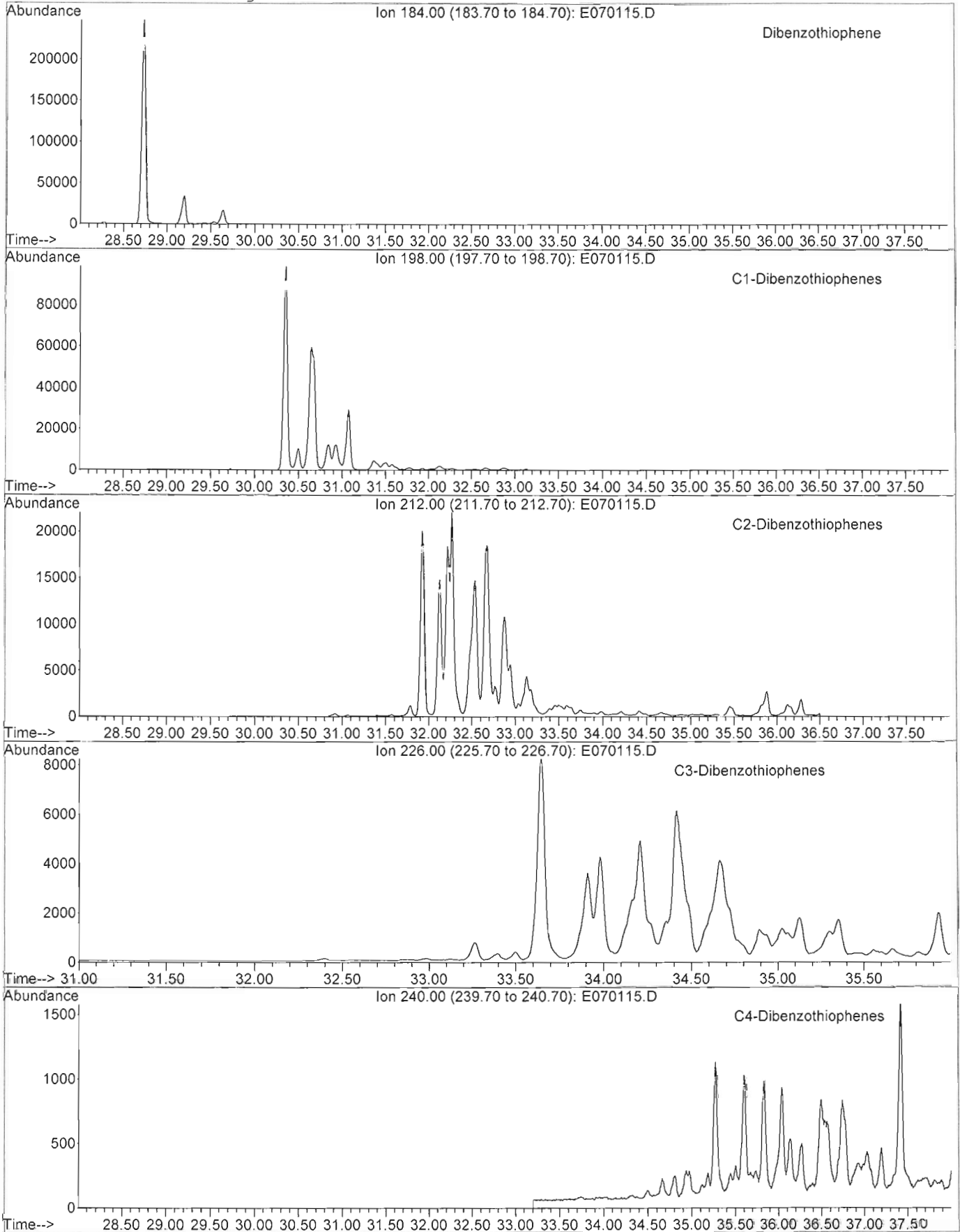
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



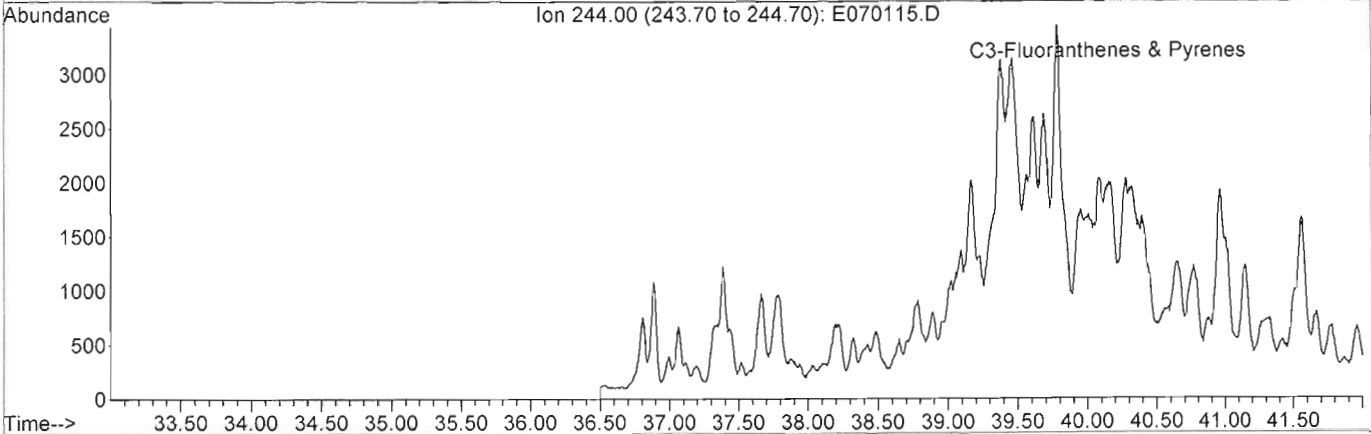
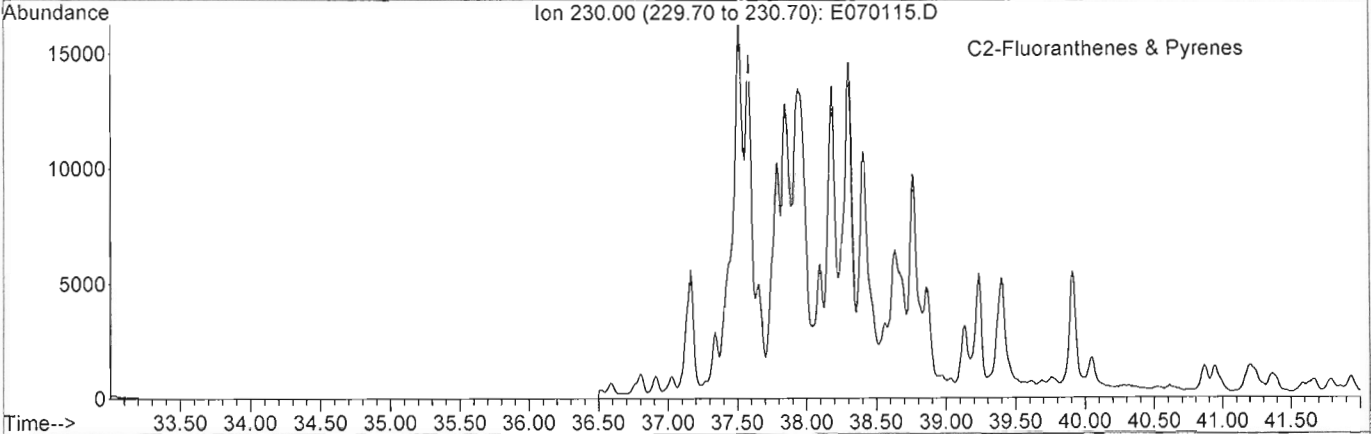
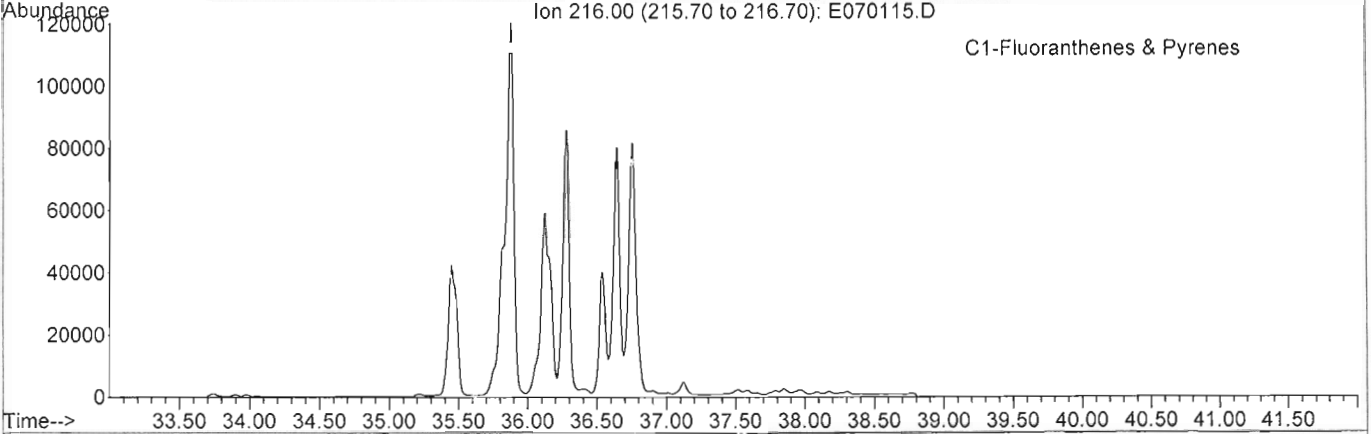
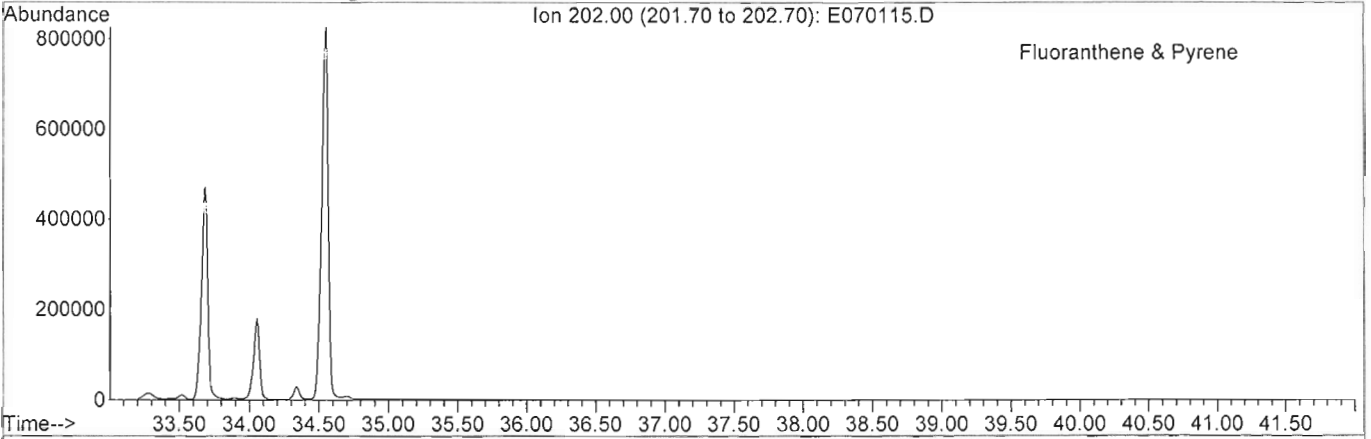
GC/MS EXTRACTED ION CHROMATOGRAM

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Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



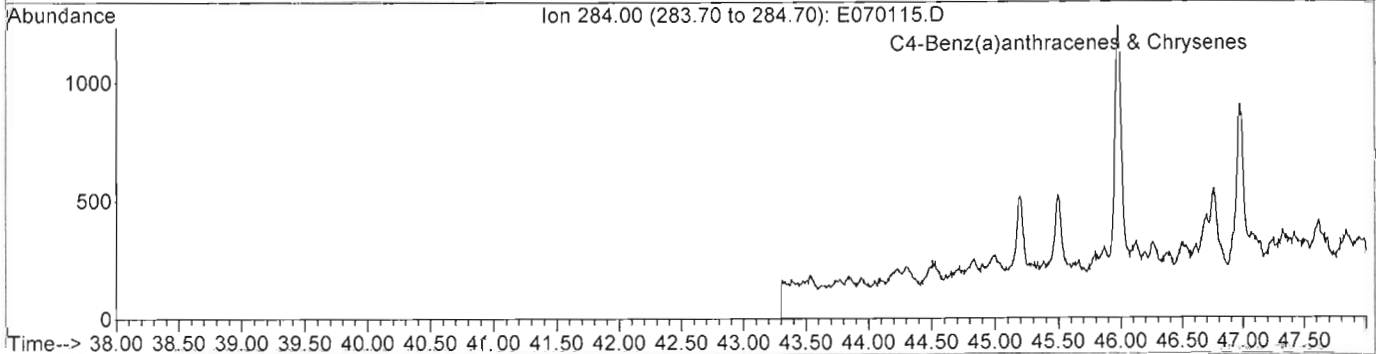
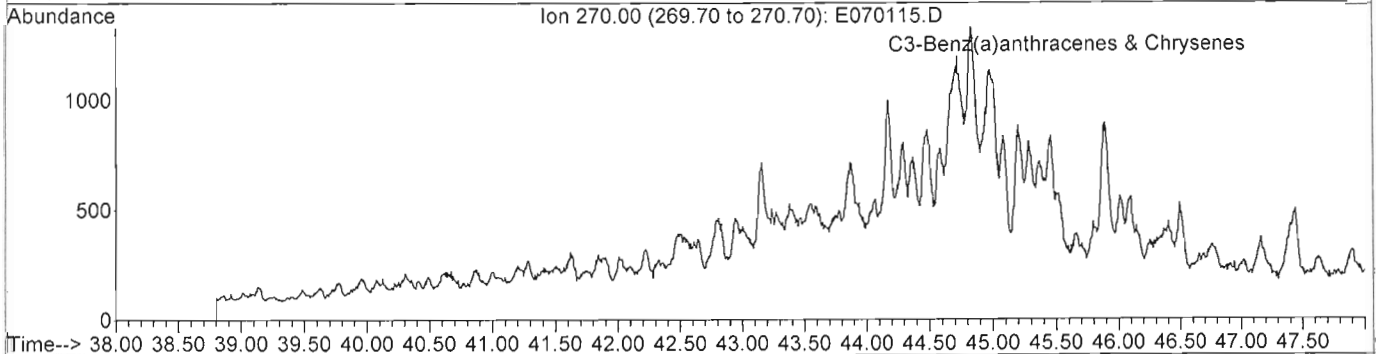
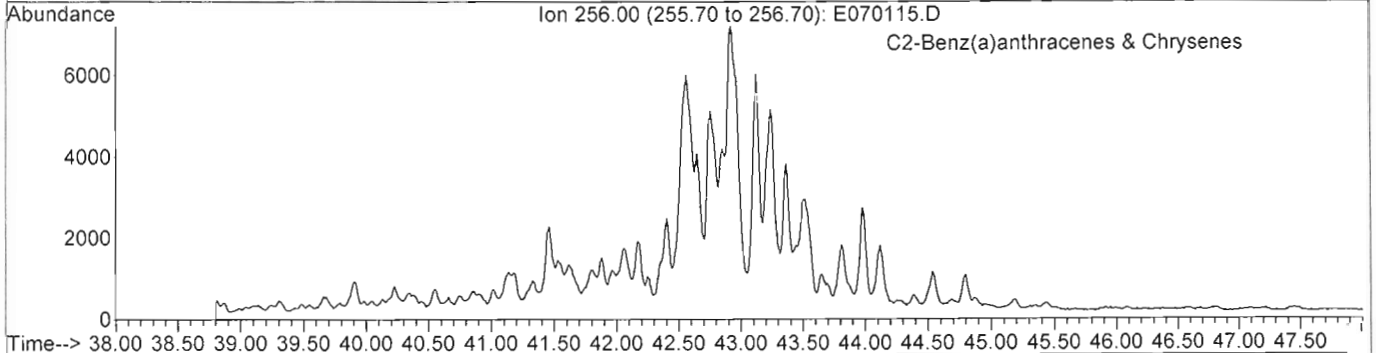
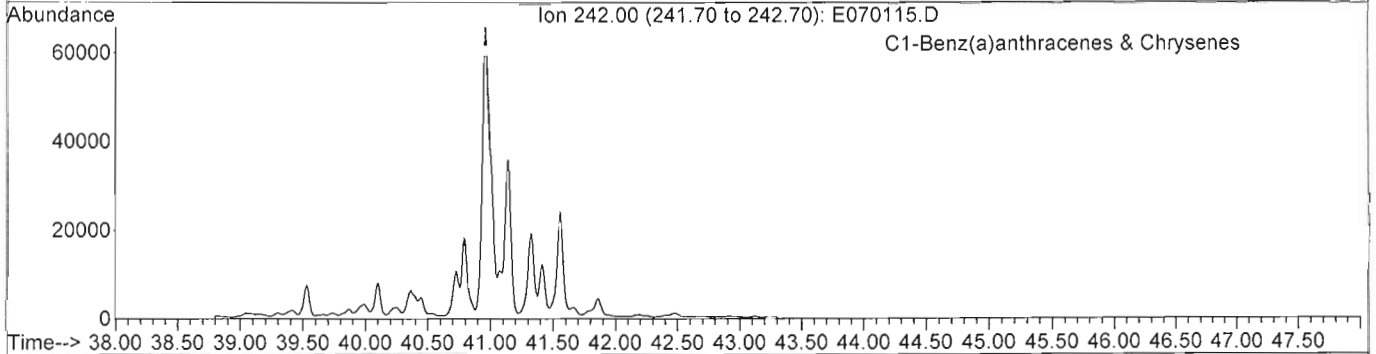
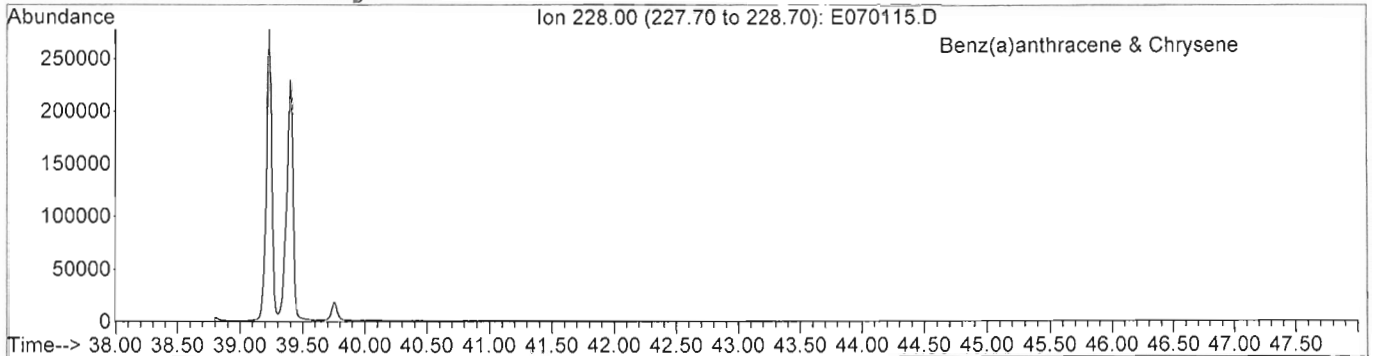
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



GC/MS EXTRACTED ION CHROMATOGRAM

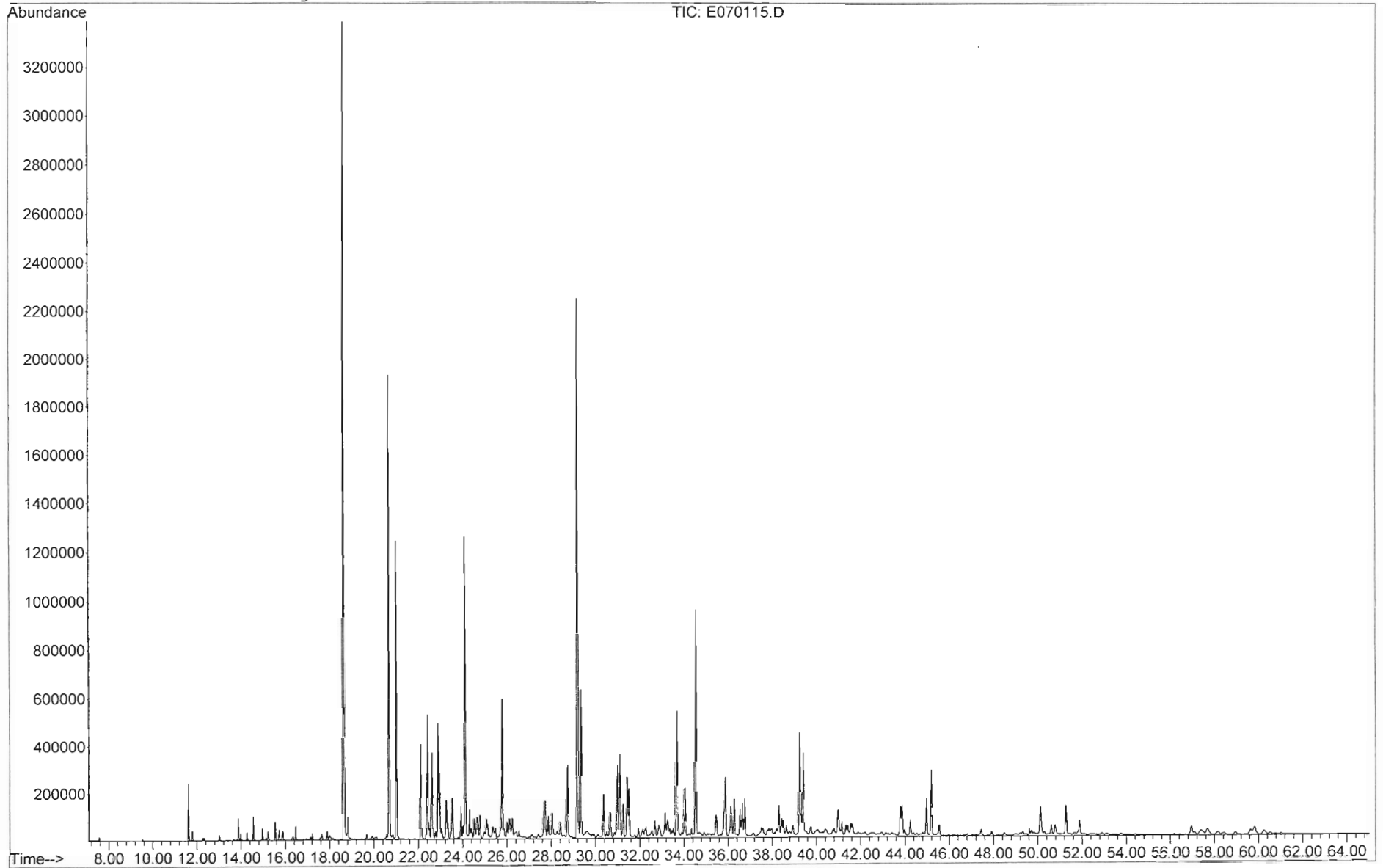
File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

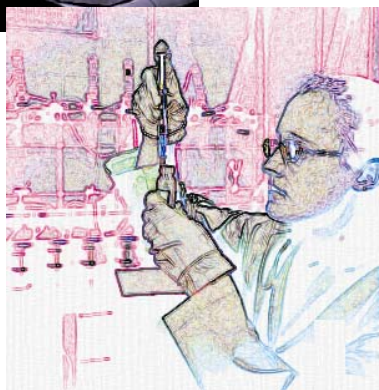
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Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



Environmental Laboratory Report

Congaree River

SDG: SG100629



Report To:

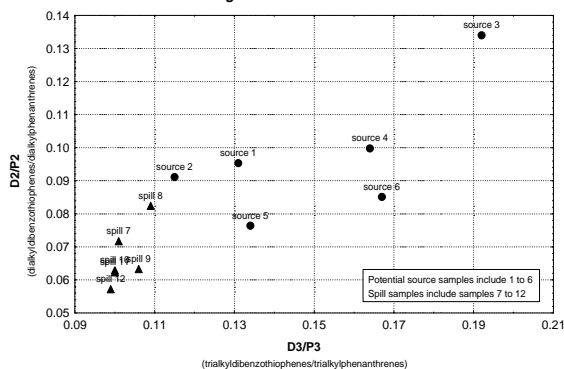
SCANA
1426 Main Street
MC 158
Columbia, SC 29218

Report By:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472

July 2, 2010

Figure 1. Double Ratio Plot



Identifying and allocating sources of pollutants in complex environments.

Final Laboratory Report

META Environmental, Inc.
 49 Clarendon Street
 Watertown, MA 02472
 Phone: 617-923-4662
 Fax: 617-923-4610
 E-Mail meta@metaenv.com



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

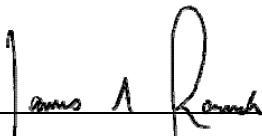
New York Certification Number: 11886

Certification

This certifies that this package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed herein. The results included in this data report relate only to the samples as received and analyzed by the laboratory.

This report shall not be reproduced except in full, without the written approval of the laboratory.


Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager and Quality Assurance Officer, as verified by the following signatures.



 James A. Roush
 Environmental Scientist, Laboratory Manager

July 2, 2010

Date



 David M. Mauro
 Senior Scientist, Quality Assurance Officer

July 2, 2010

Date

Sample Delivery Group Narrative

Project: Congaree River

Client: SCANA
1426 Main Street
MC 158
Columbia, SC 29218

Report Contact: Robert Apple

Dates of Receipt: June 29, 2010

Sample Summary: The samples received for this project are summarized in the attached sample login forms in Appendix A.

META Project Number: S08005

SDG No.: SG100629

Total Pages in Report: 76

Chain of Custody

There sediment samples were received in good condition. The internal temperature of the shipping container was within the recommended 0-6°C range and was as follows:

Samples received: 06/29/2010 4.6°C Ice present

Internal chain of custody procedures were followed after sample receipt. Samples were stored in a locked refrigerator. A sample custody logbook contains the record of sample removal from the secure sample storage area to the sample preparation laboratory. The custody record for the sample extracts is present on the sample extraction logbook page.

The disposal of samples and extracts will be authorized one month after the release of this data report. Sample disposal will be documented.

Methods

The sediment samples were prepared by solvent extraction (EPA 3570) using dichloromethane (DCM). The extracts were spiked with internal standard and analyzed by GC/FID (EPA 8100M) for fingerprinting and by GC/MS/SIM (EPA 8270M) for mono- and polycyclic aromatic hydrocarbons (MAHs and PAHs), alkyl PAH homologues and other selected compounds.

Results

Sample results are presented in several appendices which follow this narrative.

Appendix B: GC/FID Fingerprints

Appendix C: MAH/PAH Concentrations

Appendix D: Extended MAH/PAH Profiles - Histograms

Appendix E: Extracted Ion Current Profiles (EICPs)

Quality Control

Analyte Flags

The detection limits were determined as the sample equivalent of the lowest linear initial calibration standard. Analytes measured between 50% and 100% of the lowest standard were reported as "estimated" and flagged with the letter "J." Undetected analytes were reported as null and flagged with the letter, "U." Analytes marked with a "B" were detected in the associated blank and should be reviewed for a possible positive bias. No deviations were thought significant enough to compromise the integrity of the reported values.

Holding Times

All samples were extracted within holding times. The samples and extracts were stored at $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ prior to extraction and analysis. The extracts were analyzed within 40 days of sample preparation.

Surrogate Spikes

Extraction surrogates were added to all samples prior to extraction. All surrogate compounds were recovered within the 50%-120% acceptable criterion with the following exceptions; perylene-d12 was over-recovered in sample Congaree Sed-2; toluene-d8, phenanthrene-d10, and benzo(a)pyrene-d12 were under-recovered in sample Duplicate of Congaree Sed-1. The recovery issues were due to the high dilution (100x) that was performed on the extracts prior to analysis.

Blanks

Various MAHs and PAHs were detected below or just above the reporting limit (RL) in soil blank QC100630-SB. As these compounds were detected in the field sample at much higher relative concentrations (greater than 10x the blank levels) positive bias does not appear to be significant.

Blank Spikes

A blank spike sample was extracted with each analytical batch. Several MAHs and PAHs were over-recovered. The cause of the over-recovery was due to a low internal standard response in the QC sample.

Duplicates

Sample Congaree Sed-1 was extracted and analyzed in duplicate. Relative percent differences are reported with the sample results in Appendix C.

Internal Standards

Internal standards were recovered within acceptable QC limits (50%-200%) relative to the continuing calibration standards.

Other Sample-Specific QC

Even at 100x dilution, several compounds were detected above the calibration limit in samples Congaree Sed-1 and Congaree Sed-3. Those results have been flagged with “E”.

Results

The GC/FID fingerprints are provided in Appendix B. All samples appear to be tar-like materials.

The concentrations of PAHs and alkylated PAHs and quality control results are provided on the data summary sheets in Appendix C and D.

Copies of extracted ion current profiles (EICPs) are in Appendix E.

Appendix A

Chain of Custody



Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.

106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 109636

Client MTR	Report to Contact Cheryl Koshinski	Telephone No. / Fax No. / E-mail 412-829-9650 / 412-349-0350	Quote No.
Address 1600 Commerce Circle	Sampler's Signature <i>[Signature]</i>	Waybill No.	Page ____ of ____
City Trafford	State PA	Zip Code 15035	Analysis (Attach list if more space is needed.)
Project Name Huger Sediments	Printed Name Lucas Bevestorf		

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	G-Grab C-Composite	Matrix				No. of Containers by Preservative Type					Lot No.	Remarks / Cooler I.D.	
				Aqueous	Solid	Non-Aqueous	Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit			
Congaree Sed-1	6-28-10	14:30	G			XX									SG100629-01
Congaree Sed-2	6-28-10	15:00	G			XX									SG100629-02
Congaree Sed-3	6-28-10	15:20	G			XX									SG100629-03

Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison Unknown

Sample Disposal: Return to Client Disposal by Lab

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

Turn Around Time Required (Prior lab approval required for expedited TAT.): Standard Rush (Specify)

QC Requirements (Specify)

1. Relinquished by <i>[Signature]</i>	Date 6/28/10	Time 16:17	1. Received by <i>[Signature]</i>	Date	Time
2. Relinquished by <i>[Signature]</i>	Date 6/28/10	Time 17:20	2. Received by <i>[Signature]</i>	Date	Time
3. Relinquished by	Date	Time	3. Laboratory received by <i>[Signature]</i>	Date 6/29/10	Time 9:00 A.

Comments

LAB USE ONLY
Received on ice (Circle) Yes No Ice Pack

Receipt Temp. **4.6** °C

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
SG100629-01	Congaree Sed-1	Sediment	6/28/2010	6/29/2010	S08005-60	1 x 2oz & 1x 8oz jar		SCANA/MTR	Huger Sediments
SG100629-02	Congaree Sed-2	Sediment	6/28/2010	6/29/2010	S08005-60	2 x 4oz jar		SCANA/MTR	Huger Sediments
SG100629-03	Congaree Sed-3	Sediment	6/28/2010	6/29/2010	S08005-60	2 x 4oz jar		SCANA/MTR	Huger Sediments

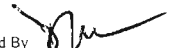
Logged By:



Date:

6/29/10

Reviewed By:



Date:

6/30/10

META Environmental, Inc.
Sample Receipt Checklist

Receipt date: 6/29/10
Login date: 6/29/10
Login personnel: Bryan Massa

Client Information:

Company Name: MTR
Project Manager: Cheryl YUSHINSKI
Project Name: HUGER Sediments

Shipping Information:

How were samples received? UPS FedEx DHL Other:
Number of coolers: 1
Internal temperature of coolers: 4.6
Was ice present? Yes No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? Yes / No
Was it signed? Yes / No
Was all project information present on the COC? Yes / No
Was a bill of lading or shipping label retained? Yes / No

Sample Information:

Number of sample containers: 6 ^{6/29/10 BSM}
Does this match the COC? Yes / No
Were all sample containers Intact? Yes / No
If no, list samples and problems: # of jars not listed on COC

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / NA

Comments:

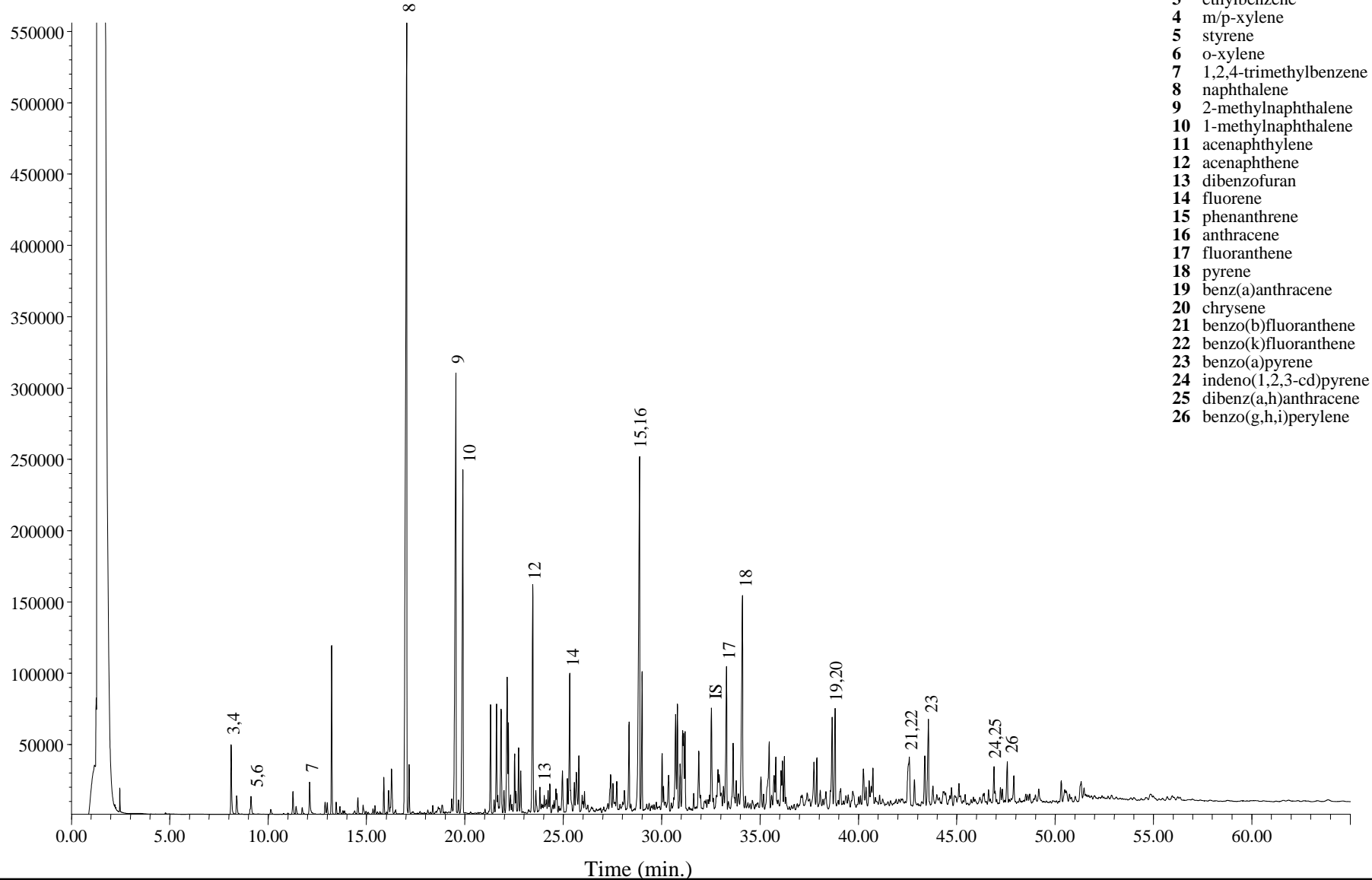
Custodian: [Signature]
Project Manager: [Signature]

Appendix B

GC/FID Fingerprints

GC/FID Fingerprint

C070109.D\FID2B



- 1 benzene
- 2 toluene
- 3 ethylbenzene
- 4 m/p-xylene
- 5 styrene
- 6 o-xylene
- 7 1,2,4-trimethylbenzene
- 8 naphthalene
- 9 2-methylnaphthalene
- 10 1-methylnaphthalene
- 11 acenaphthylene
- 12 acenaphthene
- 13 dibenzofuran
- 14 fluorene
- 15 phenanthrene
- 16 anthracene
- 17 fluoranthene
- 18 pyrene
- 19 benz(a)anthracene
- 20 chrysene
- 21 benzo(b)fluoranthene
- 22 benzo(k)fluoranthene
- 23 benzo(a)pyrene
- 24 indeno(1,2,3-cd)pyrene
- 25 dibenz(a,h)anthracene
- 26 benzo(g,h,i)perylene

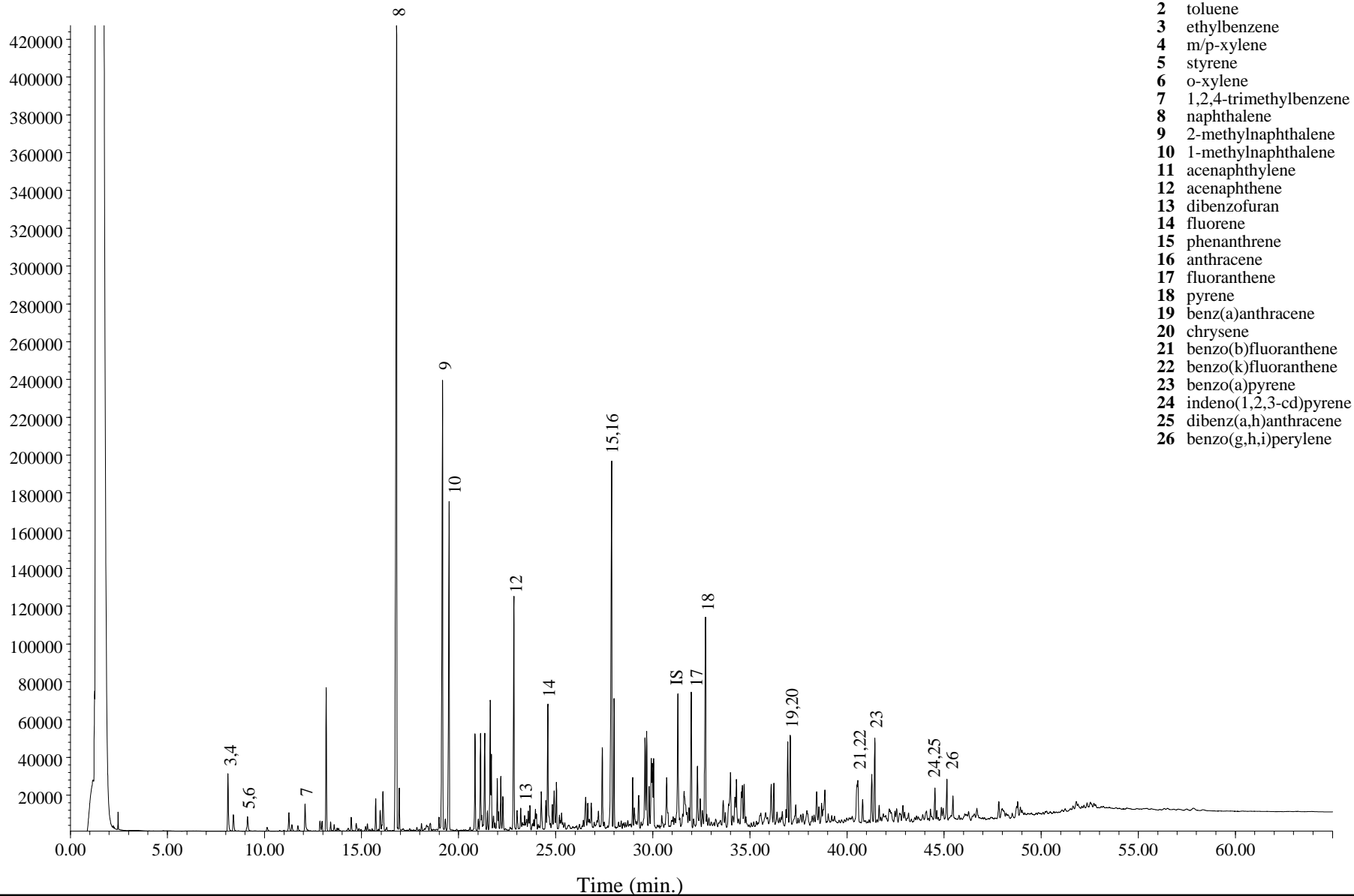
Extraction Date: 06/30/2010
Analysis Date: 07/02/2010

IS - 5 α -androstane
 SS1 - 2-fluorobiphenyl
 SS2 - o-terphenyl

Field ID: Congaree Sed-1
Laboratory ID: SG100629-01A-D
Method: EPA 8100M

GC/FID Fingerprint

C070110.D\FID2B



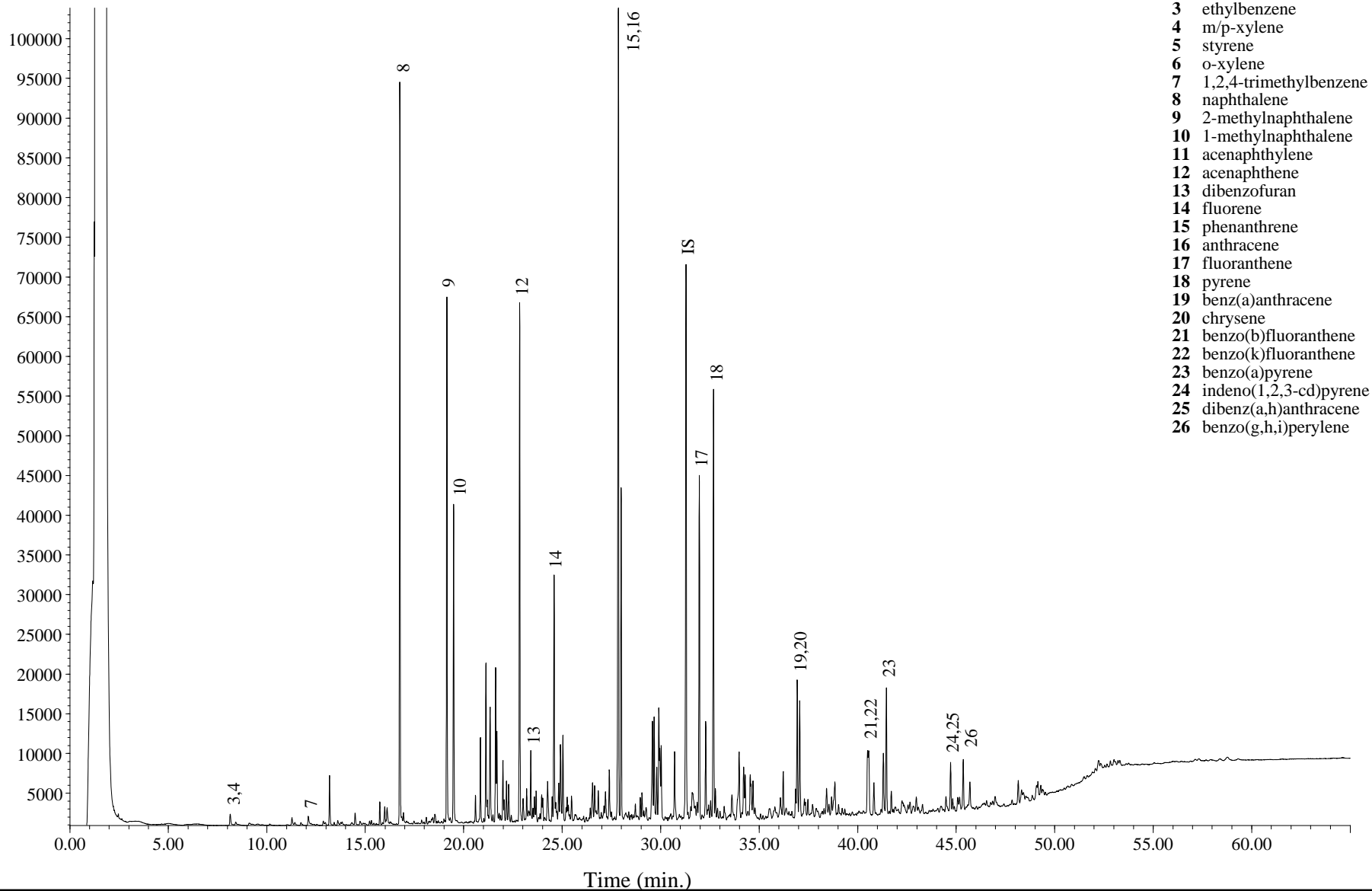
Extraction Date: 06/30/2010
Analysis Date: 07/02/2010

IS – 5 α -androstane
 SS1 – 2-fluorobiphenyl
 SS2 – o-terphenyl

Field ID: Congaree Sed-1
Laboratory ID: SG100629-01ADUP-D
Method: EPA 8100M

GC/FID Fingerprint

C070111.D\FID2B



- 1 benzene
- 2 toluene
- 3 ethylbenzene
- 4 m/p-xylene
- 5 styrene
- 6 o-xylene
- 7 1,2,4-trimethylbenzene
- 8 naphthalene
- 9 2-methylnaphthalene
- 10 1-methylnaphthalene
- 11 acenaphthylene
- 12 acenaphthene
- 13 dibenzofuran
- 14 fluorene
- 15 phenanthrene
- 16 anthracene
- 17 fluoranthene
- 18 pyrene
- 19 benz(a)anthracene
- 20 chrysene
- 21 benzo(b)fluoranthene
- 22 benzo(k)fluoranthene
- 23 benzo(a)pyrene
- 24 indeno(1,2,3-cd)pyrene
- 25 dibenz(a,h)anthracene
- 26 benzo(g,h,i)perylene

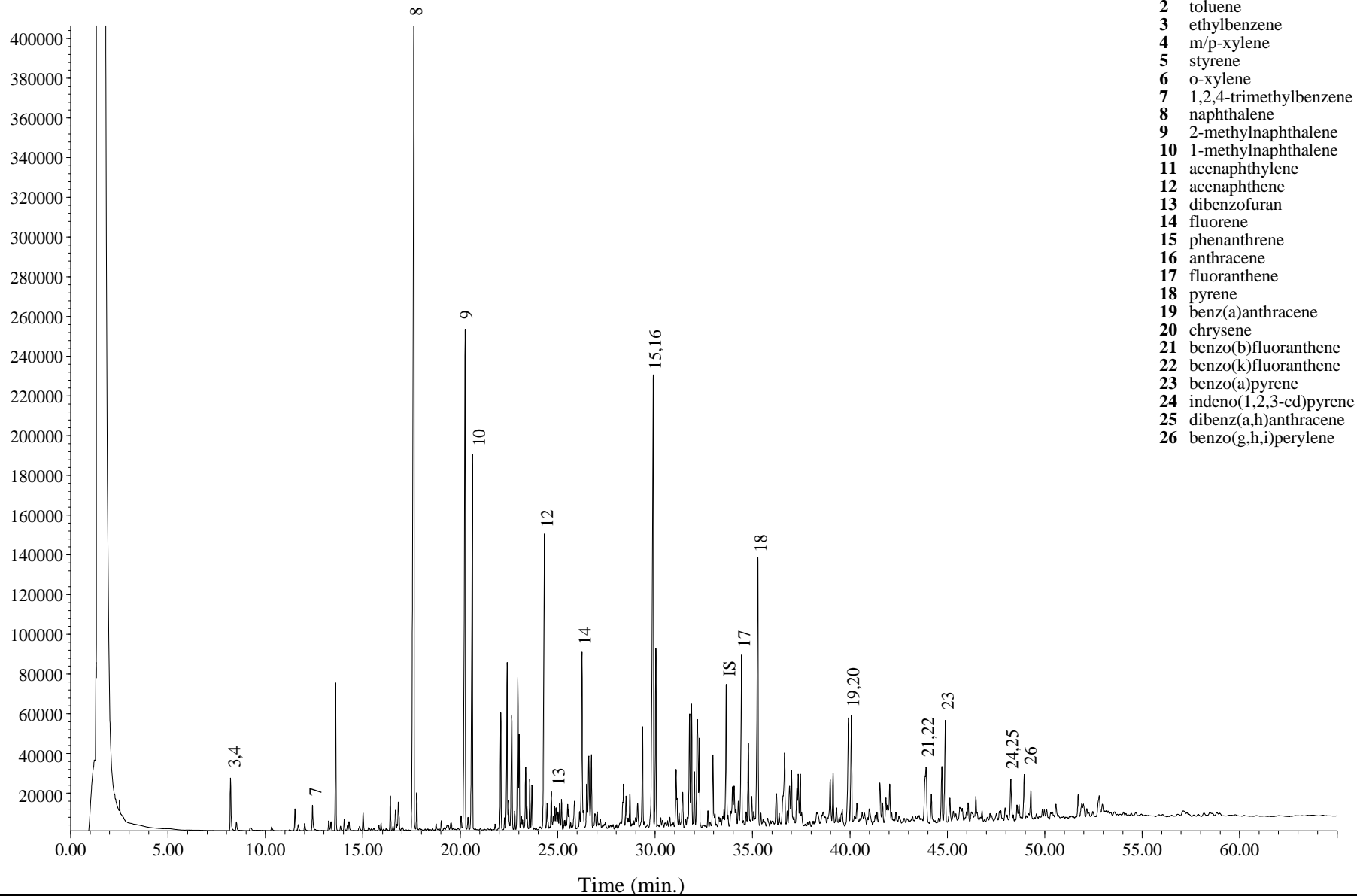
Extraction Date: 06/30/2010
Analysis Date: 07/02/2010

IS – 5 α -androstane
 SS1 – 2-fluorobiphenyl
 SS2 – o-terphenyl

Field ID: Congaree Sed-2
Laboratory ID: SG100629-02A-D
Method: EPA 8100M

GC/FID Fingerprint

C070112.D\FID2B



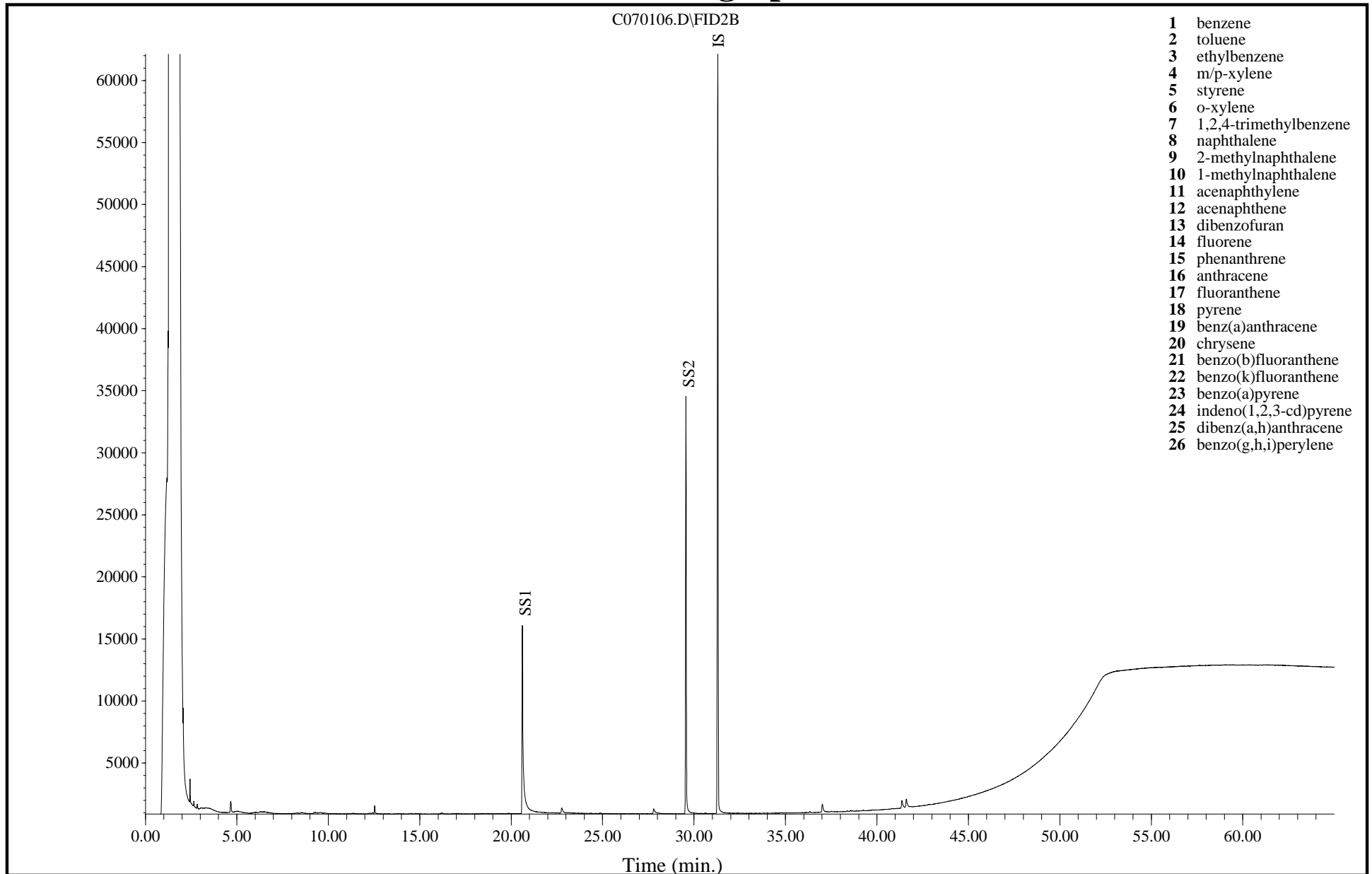
- 1 benzene
- 2 toluene
- 3 ethylbenzene
- 4 m/p-xylene
- 5 styrene
- 6 o-xylene
- 7 1,2,4-trimethylbenzene
- 8 naphthalene
- 9 2-methylnaphthalene
- 10 1-methylnaphthalene
- 11 acenaphthylene
- 12 acenaphthene
- 13 dibenzofuran
- 14 fluorene
- 15 phenanthrene
- 16 anthracene
- 17 fluoranthene
- 18 pyrene
- 19 benz(a)anthracene
- 20 chrysene
- 21 benzo(b)fluoranthene
- 22 benzo(k)fluoranthene
- 23 benzo(a)pyrene
- 24 indeno(1,2,3-cd)pyrene
- 25 dibenz(a,h)anthracene
- 26 benzo(g,h,i)perylene

Extraction Date: 06/30/2010
Analysis Date: 07/02/2010

IS – 5 α -androstane
 SS1 – 2-fluorobiphenyl
 SS2 – o-terphenyl

Field ID: Congaree Sed-3
Laboratory ID: SG100629-03A-D
Method: EPA 8100M

GC/FID Fingerprint



Extraction Date: 06/30/2010
Analysis Date: 07/01/2010

IS – 5 α -androstane
 SS1 – 2-fluorobiphenyl
 SS2 – o-terphenyl

Field ID: Soil Blank
Laboratory ID: QC100630-SB
Method: EPA 8100M

Appendix C

MAH/PAH Concentrations

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01A-D2		
File ID:	E070112.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.06
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
---------	-------------------------------	----	-----	----------

MAH & PAH COMPOUNDS:

Benzene	43.9 B	0.246	0.123	
Toluene	6.43 B	0.246	0.123	
Ethylbenzene	214 B	0.246	0.123	
m/p-Xylenes	65.4 B	0.246	0.123	
Styrene	11.7 B	0.246	0.123	
o-Xylene	58.9 B	0.246	0.123	
Isopropylbenzene	22.2	0.246	0.123	
n-Propylbenzene	4.7 B	0.246	0.123	
1,3,5-Trimethylbenzene	28.8 B	0.246	0.123	
1,2,4-Trimethylbenzene	90.2 B	0.246	0.123	
t-Butylbenzene	U	0.246	0.123	
sec-Butylbenzene	0.223 J	0.246	0.123	
p-Isopropyltoluene	11.7	0.246	0.123	
n-Butylbenzene	2.27 B	0.246	0.123	
C1 - Benzene	5.05 B	0.246	0.123	
C2 - Benzene	218 B	0.246	0.123	
C3 - Benzene	171 B	0.246	0.123	
C4 - Benzene	106	0.246	0.123	
C5 - Benzene	17.6	0.246	0.123	
trans-Decalin	0.405	0.246	0.123	
cis-Decalin	0.357	0.246	0.123	
Naphthalene	3,710 EB	0.246	0.123	
2-Methylnaphthalene	1,870 EB	0.246	0.123	
1-Methylnaphthalene	1,170 EB	0.246	0.123	
C1 - Naphthalene	1,920 EB	0.246	0.123	
C2 - Naphthalene	862	0.246	0.123	
C3 - Naphthalene	212	0.246	0.123	
C4 - Naphthalene	43.0	0.246	0.123	
Acenaphthylene	146	0.246	0.123	
Acenaphthene	644	0.246	0.123	
Dibenzofuran	37.2	0.246	0.123	
Fluorene	405	0.246	0.123	
C1 - Fluorene	218	0.246	0.123	
C2 - Fluorene	88.7	0.246	0.123	
C3 - Fluorene	36.8	0.246	0.123	
Phenanthrene	1,510 E	0.246	0.123	
Anthracene	385	0.246	0.123	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01A-D2		
File ID:	E070112.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.06
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	801	0.246	0.123	
C2 - Phenanthrene/Anthracene	282	0.246	0.123	
C3 - Phenanthrene/Anthracene	68.8	0.246	0.123	
C4 - Phenanthrene/Anthracene	20.4	0.246	0.123	
Dibenzothiophene	299	0.246	0.123	
C1 - Dibenzothiophene	358	0.246	0.123	
C2 - Dibenzothiophene	240	0.246	0.123	
C3 - Dibenzothiophene	89.6	0.246	0.123	
C4 - Dibenzothiophene	20.1	0.246	0.123	
Benzo(b)naphtho(2,1-d)thiophene	114	0.246	0.123	
Fluoranthene	417	0.246	0.123	
Pyrene	737 B	0.246	0.123	
C1 - Fluoranthene/Pyrene	641	0.246	0.123	
C2 - Fluoranthene/Pyrene	209	0.246	0.123	
C3 - Fluoranthene/Pyrene	60.8	0.246	0.123	
Benz(a)anthracene	270	0.246	0.123	
Chrysene*	287	0.246	0.123	
C1 - Benz(a)anthracene/Chrysene	224	0.246	0.123	
C2 - Benz(a)anthracene/Chrysene	82.7	0.246	0.123	
C3 - Benz(a)anthracene/Chrysene	26.0	0.246	0.123	
C4 - Benz(a)anthracene/Chrysene	11.4	0.246	0.123	
Benzo(b)fluoranthene	123 B	0.246	0.123	
Benzo(j/k)fluoranthene	153 B	0.246	0.123	
Benzo(e)pyrene	171 B	0.246	0.123	
Benzo(a)pyrene	320 B	0.246	0.123	
Perylene	54.0	0.246	0.123	
Indeno(1,2,3-cd)pyrene	116	0.246	0.123	
Dibenz(a,h)anthracene	47.0	0.246	0.123	
Benzo(g,h,i)perylene	159 B	0.246	0.123	
Coronene	39.8	0.246	0.123	
Retene	U	0.246	0.123	
Benzo(b/c)fluorenes	84.6	0.246	0.123	
2-Methylpyrene	85.7	0.246	0.123	
4-Methylpyrene	84.5	0.246	0.123	
1-Methylpyrene	96.9	0.246	0.123	
Heptadecane	BU	0.246	0.123	
Pristane	7.07	0.246	0.123	
Octadecane	BU	0.246	0.123	
Phytane	4.09	0.246	0.123	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01A-D2		
File ID:	E070112.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.06
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	1.99	0.246	0.123	
2,6,10-trimethyltridecane	3.84	0.246	0.123	
Norpristane	3.82	0.246	0.123	
Total PAH (16)	9,430	0.246	0.123	
Total PAH (42)	16,500	0.246	0.123	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	82	50 - 120
Phenanthrene-d10	80	50 - 120
Benzo(a)pyrene-d12	83	50 - 120
Perylene-d12	83	50 - 120

NA - Not applicable.

B - Analyte detected in the Blank.

J - Estimated value; detected between the RL and DL.

U - Analyte not detected above DL.

D - Analyte reported from a diluted extract.

E - Estimate, result detected above calibration range.

I - Concentration/Peak ID uncertain due to potential interference.

RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.

EDL - Estimated detection limit is 50% of RL.

* - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-2

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-02A-D2		
File ID:	E070114.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.34
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
---------	-------------------------------	----	-----	----------

MAH & PAH COMPOUNDS:

Benzene	1.22 B	0.230	0.115	
Toluene	0.555 B	0.230	0.115	
Ethylbenzene	6.64 B	0.230	0.115	
m/p-Xylenes	1.82 B	0.230	0.115	
Styrene	0.807 B	0.230	0.115	
o-Xylene	0.953 B	0.230	0.115	
Isopropylbenzene	1.25	0.230	0.115	
n-Propylbenzene	0.477 B	0.230	0.115	
1,3,5-Trimethylbenzene	1.84 B	0.230	0.115	
1,2,4-Trimethylbenzene	4.31 B	0.230	0.115	
t-Butylbenzene	U	0.230	0.115	
sec-Butylbenzene	U	0.230	0.115	
p-Isopropyltoluene	0.965	0.230	0.115	
n-Butylbenzene	0.708 B	0.230	0.115	
C1 - Benzene	0.467 B	0.230	0.115	
C2 - Benzene	6.11 B	0.230	0.115	
C3 - Benzene	10.4 B	0.230	0.115	
C4 - Benzene	12.3	0.230	0.115	
C5 - Benzene	4.26	0.230	0.115	
trans-Decalin	0.238	0.230	0.115	
cis-Decalin	U	0.230	0.115	
Naphthalene	291 B	0.230	0.115	
2-Methylnaphthalene	231 B	0.230	0.115	
1-Methylnaphthalene	134 B	0.230	0.115	
C1 - Naphthalene	231 B	0.230	0.115	
C2 - Naphthalene	141	0.230	0.115	
C3 - Naphthalene	42.2	0.230	0.115	
C4 - Naphthalene	10.4	0.230	0.115	
Acenaphthylene	10.5	0.230	0.115	
Acenaphthene	194	0.230	0.115	
Dibenzofuran	30.6	0.230	0.115	
Fluorene	98.8	0.230	0.115	
C1 - Fluorene	29.7	0.230	0.115	
C2 - Fluorene	13.2	0.230	0.115	
C3 - Fluorene	4.49	0.230	0.115	
Phenanthrene	365	0.230	0.115	
Anthracene	142	0.230	0.115	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-2

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-02A-D2		
File ID:	E070114.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.34
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	121	0.230	0.115	
C2 - Phenanthrene/Anthracene	34.5	0.230	0.115	
C3 - Phenanthrene/Anthracene	7.47	0.230	0.115	
C4 - Phenanthrene/Anthracene	1.99	0.230	0.115	
Dibenzothiophene	22.6	0.230	0.115	
C1 - Dibenzothiophene	18.7	0.230	0.115	
C2 - Dibenzothiophene	11.4	0.230	0.115	
C3 - Dibenzothiophene	4.54	0.230	0.115	
C4 - Dibenzothiophene	1.24	0.230	0.115	
Benzo(b)naphtho(2,1-d)thiophene	6.14	0.230	0.115	
Fluoranthene	145	0.230	0.115	
Pyrene	178 B	0.230	0.115	
C1 - Fluoranthene/Pyrene	96.5	0.230	0.115	
C2 - Fluoranthene/Pyrene	21.6	0.230	0.115	
C3 - Fluoranthene/Pyrene	6.72	0.230	0.115	
Benz(a)anthracene	40.2	0.230	0.115	
Chrysene*	54.1	0.230	0.115	
C1 - Benz(a)anthracene/Chrysene	23.6	0.230	0.115	
C2 - Benz(a)anthracene/Chrysene	8.18	0.230	0.115	
C3 - Benz(a)anthracene/Chrysene	2.61	0.230	0.115	
C4 - Benz(a)anthracene/Chrysene	1.58	0.230	0.115	
Benzo(b)fluoranthene	29.1 B	0.230	0.115	
Benzo(j/k)fluoranthene	38.0 B	0.230	0.115	
Benzo(e)pyrene	29.5 B	0.230	0.115	
Benzo(a)pyrene	60.0 B	0.230	0.115	
Perylene	11.4	0.230	0.115	
Indeno(1,2,3-cd)pyrene	23.6	0.230	0.115	
Dibenz(a,h)anthracene	7.8	0.230	0.115	
Benzo(g,h,i)perylene	27.1 B	0.230	0.115	
Coronene	7.61	0.230	0.115	
Retene	0.623	0.230	0.115	
Benzo(b/c)fluorenes	18.0	0.230	0.115	
2-Methylpyrene	11.9	0.230	0.115	
4-Methylpyrene	9.6	0.230	0.115	
1-Methylpyrene	12.6	0.230	0.115	
Heptadecane	2.39 B	0.230	0.115	
Pristane	3.03	0.230	0.115	
Octadecane		0.230	0.115	BU
Phytane	1.12	0.230	0.115	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-2

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-02A-D2		
File ID:	E070114.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.34
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.952	0.230	0.115	
2,6,10-trimethyltridecane	1.62	0.230	0.115	
Norpristane	1.39	0.230	0.115	
Total PAH (16)	1,700	0.230	0.115	
Total PAH (42)	2,630	0.230	0.115	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	101	50 - 120
Phenanthrene-d10	101	50 - 120
Benzo(a)pyrene-d12	113	50 - 120
Perylene-d12	155	50 - 120

NA - Not applicable.

B - Analyte detected in the Blank.

J - Estimated value; detected between the RL and DL.

U - Analyte not detected above DL.

D - Analyte reported from a diluted extract.

E - Estimate, result detected above calibration range.

I - Concentration/Peak ID uncertain due to potential interference.

RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.

EDL - Estimated detection limit is 50% of RL.

* - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-3

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-03A-D2		
File ID:	E070115.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.18
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
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MAH & PAH COMPOUNDS:

Benzene	17.0 B	0.239	0.120	
Toluene	4.33 B	0.239	0.120	
Ethylbenzene	113 B	0.239	0.120	
m/p-Xylenes	20.3 B	0.239	0.120	
Styrene	9.44 B	0.239	0.120	
o-Xylene	6.12 B	0.239	0.120	
Isopropylbenzene	12.5	0.239	0.120	
n-Propylbenzene	2.91 B	0.239	0.120	
1,3,5-Trimethylbenzene	16.0 B	0.239	0.120	
1,2,4-Trimethylbenzene	49.9 B	0.239	0.120	
t-Butylbenzene	U	0.239	0.120	
sec-Butylbenzene	0.198 J	0.239	0.120	
p-Isopropyltoluene	6.67	0.239	0.120	
n-Butylbenzene	4.17 B	0.239	0.120	
C1 - Benzene	3.52 B	0.239	0.120	
C2 - Benzene	87.4 B	0.239	0.120	
C3 - Benzene	102 B	0.239	0.120	
C4 - Benzene	83.6	0.239	0.120	
C5 - Benzene	16.7	0.239	0.120	
trans-Decalin	0.422	0.239	0.120	
cis-Decalin	U	0.239	0.120	
Naphthalene	2,240 EB	0.239	0.120	
2-Methylnaphthalene	1,320 EB	0.239	0.120	
1-Methylnaphthalene	792 B	0.239	0.120	
C1 - Naphthalene	1,330 B	0.239	0.120	
C2 - Naphthalene	652	0.239	0.120	
C3 - Naphthalene	165	0.239	0.120	
C4 - Naphthalene	30.6	0.239	0.120	
Acenaphthylene	85.8	0.239	0.120	
Acenaphthene	642	0.239	0.120	
Dibenzofuran	33.4	0.239	0.120	
Fluorene	336	0.239	0.120	
C1 - Fluorene	111	0.239	0.120	
C2 - Fluorene	56.4	0.239	0.120	
C3 - Fluorene	23.6	0.239	0.120	
Phenanthrene	1,250 E	0.239	0.120	
Anthracene	355	0.239	0.120	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-3

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-03A-D2		
File ID:	E070115.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.18
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	623	0.239	0.120	
C2 - Phenanthrene/Anthracene	194	0.239	0.120	
C3 - Phenanthrene/Anthracene	44.0	0.239	0.120	
C4 - Phenanthrene/Anthracene	11.8	0.239	0.120	
Dibenzothiophene	224	0.239	0.120	
C1 - Dibenzothiophene	240	0.239	0.120	
C2 - Dibenzothiophene	143	0.239	0.120	
C3 - Dibenzothiophene	48.8	0.239	0.120	
C4 - Dibenzothiophene	9.89	0.239	0.120	
Benzo(b)naphtho(2,1-d)thiophene	75.4	0.239	0.120	
Fluoranthene	350	0.239	0.120	
Pyrene	607 B	0.239	0.120	
C1 - Fluoranthene/Pyrene	481	0.239	0.120	
C2 - Fluoranthene/Pyrene	139	0.239	0.120	
C3 - Fluoranthene/Pyrene	36.0	0.239	0.120	
Benz(a)anthracene	207	0.239	0.120	
Chrysene*	216	0.239	0.120	
C1 - Benz(a)anthracene/Chrysene	154	0.239	0.120	
C2 - Benz(a)anthracene/Chrysene	54.4	0.239	0.120	
C3 - Benz(a)anthracene/Chrysene	13.9	0.239	0.120	
C4 - Benz(a)anthracene/Chrysene	6.62	0.239	0.120	
Benzo(b)fluoranthene	92.3 B	0.239	0.120	
Benzo(j/k)fluoranthene	117 B	0.239	0.120	
Benzo(e)pyrene	125 B	0.239	0.120	
Benzo(a)pyrene	232 B	0.239	0.120	
Perylene	39.8	0.239	0.120	
Indeno(1,2,3-cd)pyrene	84.6	0.239	0.120	
Dibenz(a,h)anthracene	33.0	0.239	0.120	
Benzo(g,h,i)perylene	115 B	0.239	0.120	
Coronene	29.1	0.239	0.120	
Retene	1.55	0.239	0.120	
Benzo(b/c)fluorenes	65.4	0.239	0.120	
2-Methylpyrene	64.3	0.239	0.120	
4-Methylpyrene	60.6	0.239	0.120	
1-Methylpyrene	69.6	0.239	0.120	
Heptadecane	BU	0.239	0.120	
Pristane	6.3	0.239	0.120	
Octadecane	BU	0.239	0.120	
Phytane	2.78	0.239	0.120	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Congaree Sed-3

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-03A-D2		
File ID:	E070115.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.18
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	1.99	0.239	0.120	
2,6,10-trimethyltridecane	3.4	0.239	0.120	
Norpristane	3.88	0.239	0.120	
Total PAH (16)	6,960	0.239	0.120	
Total PAH (42)	12,000	0.239	0.120	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	75	50 - 120
Phenanthrene-d10	77	50 - 120
Benzo(a)pyrene-d12	91	50 - 120
Perylene-d12	103	50 - 120

NA - Not applicable.

B - Analyte detected in the Blank.

J - Estimated value; detected between the RL and DL.

U - Analyte not detected above DL.

D - Analyte reported from a diluted extract.

E - Estimate, result detected above calibration range.

I - Concentration/Peak ID uncertain due to potential interference.

RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.

EDL - Estimated detection limit is 50% of RL.

* - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SB		
File ID:	E070110.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
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MAH & PAH COMPOUNDS:

Benzene	0.002	0.002	0.001	
Toluene	0.002	0.002	0.001	
Ethylbenzene	0.001 J	0.002	0.001	
m/p-Xylenes	0.001 J	0.002	0.001	
Styrene	0.002 J	0.002	0.001	
o-Xylene	0.001 J	0.002	0.001	
Isopropylbenzene	U	0.002	0.001	
n-Propylbenzene	0.001 J	0.002	0.001	
1,3,5-Trimethylbenzene	0.001 J	0.002	0.001	
1,2,4-Trimethylbenzene	0.001 J	0.002	0.001	
t-Butylbenzene	U	0.002	0.001	
sec-Butylbenzene	U	0.002	0.001	
p-Isopropyltoluene	U	0.002	0.001	
n-Butylbenzene	0.001 J	0.002	0.001	
C1 - Benzene	0.002	0.002	0.001	
C2 - Benzene	0.002	0.002	0.001	
C3 - Benzene	0.004	0.002	0.001	
C4 - Benzene	U	0.002	0.001	
C5 - Benzene	U	0.002	0.001	
trans-Decalin	U	0.002	0.001	
cis-Decalin	U	0.002	0.001	
Naphthalene	0.001 J	0.002	0.001	
2-Methylnaphthalene	0.001 J	0.002	0.001	
1-Methylnaphthalene	0.001 J	0.002	0.001	
C1 - Naphthalene	0.001 J	0.002	0.001	
C2 - Naphthalene	U	0.002	0.001	
C3 - Naphthalene	U	0.002	0.001	
C4 - Naphthalene	U	0.002	0.001	
Acenaphthylene	U	0.002	0.001	
Acenaphthene	U	0.002	0.001	
Dibenzofuran	U	0.002	0.001	
Fluorene	U	0.002	0.001	
C1 - Fluorene	U	0.002	0.001	
C2 - Fluorene	U	0.002	0.001	
C3 - Fluorene	U	0.002	0.001	
Phenanthrene	U	0.002	0.001	
Anthracene	U	0.002	0.001	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SB		
File ID:	E070110.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	U	0.002	0.001	
C2 - Phenanthrene/Anthracene	U	0.002	0.001	
C3 - Phenanthrene/Anthracene	U	0.002	0.001	
C4 - Phenanthrene/Anthracene	U	0.002	0.001	
Dibenzothiophene	U	0.002	0.001	
C1 - Dibenzothiophene	U	0.002	0.001	
C2 - Dibenzothiophene	U	0.002	0.001	
C3 - Dibenzothiophene	U	0.002	0.001	
C4 - Dibenzothiophene	U	0.002	0.001	
Benzo(b)naphtho(2,1-d)thiophene	U	0.002	0.001	
Fluoranthene	U	0.002	0.001	
Pyrene	0.001 J	0.002	0.001	
C1 - Fluoranthene/Pyrene	U	0.002	0.001	
C2 - Fluoranthene/Pyrene	U	0.002	0.001	
C3 - Fluoranthene/Pyrene	U	0.002	0.001	
Benz(a)anthracene	U	0.002	0.001	
Chrysene*	U	0.002	0.001	
C1 - Benz(a)anthracene/Chrysene	U	0.002	0.001	
C2 - Benz(a)anthracene/Chrysene	U	0.002	0.001	
C3 - Benz(a)anthracene/Chrysene	U	0.002	0.001	
C4 - Benz(a)anthracene/Chrysene	U	0.002	0.001	
Benzo(b)fluoranthene	0.001 J	0.002	0.001	
Benzo(j/k)fluoranthene	0.001 J	0.002	0.001	
Benzo(e)pyrene	0.001 J	0.002	0.001	
Benzo(a)pyrene	0.001 J	0.002	0.001	
Perylene	U	0.002	0.001	
Indeno(1,2,3-cd)pyrene	U	0.002	0.001	
Dibenz(a,h)anthracene	U	0.002	0.001	
Benzo(g,h,i)perylene	0.001 J	0.002	0.001	
Coronene	U	0.002	0.001	
Retene	U	0.002	0.001	
Benzo(b/c)fluorenes	U	0.002	0.001	
2-Methylpyrene	U	0.002	0.001	
4-Methylpyrene	U	0.002	0.001	
1-Methylpyrene	U	0.002	0.001	
Heptadecane	0.002	0.002	0.001	
Pristane	U	0.002	0.001	
Octadecane	0.003	0.002	0.001	
Phytane	U	0.002	0.001	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SB		
File ID:	E070110.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldecane	U	0.002	0.001	
2,6,10-trimethyltridecane	U	0.002	0.001	
Norpristane	U	0.002	0.001	
Total PAH (16)	0.006	0.002	0.001	
Total PAH (42)	0.008	0.002	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	98	50 - 120
Phenanthrene-d10	88	50 - 120
Benzo(a)pyrene-d12	112	50 - 120
Perylene-d12	110	50 - 120

NA - Not applicable.

B - Analyte detected in the Blank.

J - Estimated value; detected between the RL and DL.

U - Analyte not detected above DL.

D - Analyte reported from a diluted extract.

E - Estimate, result detected above calibration range.

I - Concentration/Peak ID uncertain due to potential interference.

RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.

EDL - Estimated detection limit is 50% of RL.

* - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank Spike

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SBS		
File ID:	E070111.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount				% Recovery
Benzene	2.00	2.48 B	0.002	0.001	124
Toluene	2.00	2.47 B	0.002	0.001	124
Ethylbenzene	2.00	2.18 B	0.002	0.001	109
m/p-Xylenes	2.00	2.14 B	0.002	0.001	107
Styrene	2.00	2.44 B	0.002	0.001	122
o-Xylene	2.00	2.25 B	0.002	0.001	113
Isopropylbenzene	2.00	2.29	0.002	0.001	115
n-Propylbenzene	2.00	2.37 B	0.002	0.001	119
1,3,5-Trimethylbenzene	2.00	2.38 B	0.002	0.001	119
1,2,4-Trimethylbenzene	2.00	2.31 B	0.002	0.001	116
t-Butylbenzene		U	0.002	0.001	
sec-Butylbenzene	2.00	2.36	0.002	0.001	118
p-Isopropyltoluene	2.00	2.38	0.002	0.001	119
n-Butylbenzene	2.00	2.41 B	0.002	0.001	121
C1 - Benzene		BU	0.002	0.001	
C2 - Benzene		BU	0.002	0.001	
C3 - Benzene		BU	0.002	0.001	
C4 - Benzene		U	0.002	0.001	
C5 - Benzene		U	0.002	0.001	
trans-Decalin		U	0.002	0.001	
cis-Decalin		U	0.002	0.001	
Naphthalene	2.00	2.46 B	0.002	0.001	123
2-Methylnaphthalene	2.00	2.52 B	0.002	0.001	126
1-Methylnaphthalene	2.00	2.45 B	0.002	0.001	123
C1 - Naphthalene		BU	0.002	0.001	
C2 - Naphthalene		U	0.002	0.001	
C3 - Naphthalene		U	0.002	0.001	
C4 - Naphthalene		U	0.002	0.001	
Acenaphthylene	2.00	2.54	0.002	0.001	127
Acenaphthene	2.00	2.52	0.002	0.001	126
Dibenzofuran	2.00	2.56	0.002	0.001	128
Fluorene	2.00	2.58	0.002	0.001	129
C1 - Fluorene		U	0.002	0.001	
C2 - Fluorene		U	0.002	0.001	
C3 - Fluorene		U	0.002	0.001	
Phenanthrene	2.00	2.48	0.002	0.001	124
Anthracene	2.00	2.35	0.002	0.001	118

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Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SBS		
File ID:	E070111.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene		U	0.002	0.001	
C2 - Phenanthrene/Anthracene		U	0.002	0.001	
C3 - Phenanthrene/Anthracene		U	0.002	0.001	
C4 - Phenanthrene/Anthracene		U	0.002	0.001	
Dibenzothiophene	2.00	2.53	0.002	0.001	127
C1 - Dibenzothiophene		U	0.002	0.001	
C2 - Dibenzothiophene		U	0.002	0.001	
C3 - Dibenzothiophene		U	0.002	0.001	
C4 - Dibenzothiophene		U	0.002	0.001	
Benzo(b)naphtho(2,1-d)thiophene		U	0.002	0.001	
Fluoranthene	2.00	2.5	0.002	0.001	125
Pyrene	2.00	2.45 B	0.002	0.001	123
C1 - Fluoranthene/Pyrene		U	0.002	0.001	
C2 - Fluoranthene/Pyrene		U	0.002	0.001	
C3 - Fluoranthene/Pyrene		U	0.002	0.001	
Benz(a)anthracene	2.00	2.5	0.002	0.001	125
Chrysene*	2.00	2.58	0.002	0.001	129
C1 - Benz(a)anthracene/Chrysene		U	0.002	0.001	
C2 - Benz(a)anthracene/Chrysene		U	0.002	0.001	
C3 - Benz(a)anthracene/Chrysene		U	0.002	0.001	
C4 - Benz(a)anthracene/Chrysene		U	0.002	0.001	
Benzo(b)fluoranthene	2.00	2.72 B	0.002	0.001	136
Benzo(j/k)fluoranthene	2.00	2.73 B	0.002	0.001	137
Benzo(e)pyrene	2.00	2.61 B	0.002	0.001	131
Benzo(a)pyrene	2.00	2.64 B	0.002	0.001	132
Perylene		U	0.002	0.001	
Indeno(1,2,3-cd)pyrene	2.00	2.8	0.002	0.001	140
Dibenz(a,h)anthracene	2.00	2.85	0.002	0.001	143
Benzo(g,h,i)perylene	2.00	2.71 B	0.002	0.001	136
Coronene		U	0.002	0.001	
Retene		U	0.002	0.001	
Benzo(b/c)fluorenes		U	0.002	0.001	
2-Methylpyrene		U	0.002	0.001	
4-Methylpyrene		U	0.002	0.001	
1-Methylpyrene		U	0.002	0.001	
Heptadecane		BU	0.002	0.001	
Pristane		U	0.002	0.001	
Octadecane		BU	0.002	0.001	
Phytane		U	0.002	0.001	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank Spike

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC100630-SBS		
File ID:	E070111.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/30/2010	Sample Size (g):	5.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	U	0.002	0.001	
2,6,10-trimethyltridecane	U	0.002	0.001	
Norpristane	U	0.002	0.001	

Extraction Surrogate Recoveries (%)

		Limits
Toluene-d8	112	50 - 120
Phenanthrene-d10	114	50 - 120
Benzo(a)pyrene-d12	136	50 - 120
Perylene-d12	130	50 - 120

NA - Not applicable.

B - Analyte detected in the Blank.

J - Estimated value; detected between the RL and DL.

U - Analyte not detected above DL.

D - Analyte reported from a diluted extract.

E - Estimate, result detected above calibration range.

I - Concentration/Peak ID uncertain due to potential interference.

RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.

EDL - Estimated detection limit is 50% of RL.

* - Triphenylene is known to coelute with this compound.

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Duplicate of Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01DUPA-D2		
File ID:	E070113.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.13
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				RPD
Benzene	22.1 B	0.242	0.121	66.1
Toluene	1.47 B	0.242	0.121	125.6
Ethylbenzene	124 B	0.242	0.121	53.3
m/p-Xylenes	40.4 B	0.242	0.121	47.3
Styrene	4.04 B	0.242	0.121	97.3
o-Xylene	34.1 B	0.242	0.121	53.3
Isopropylbenzene	12.8	0.242	0.121	53.7
n-Propylbenzene	2.61 B	0.242	0.121	57.2
1,3,5-Trimethylbenzene	16.6 B	0.242	0.121	53.7
1,2,4-Trimethylbenzene	52.0 B	0.242	0.121	53.7
t-Butylbenzene	U	0.242	0.121	NA
sec-Butylbenzene	0.135 J	0.242	0.121	49.2
p-Isopropyltoluene	6.78	0.242	0.121	53.2
n-Butylbenzene	1.22 B	0.242	0.121	60.2
C1 - Benzene	1.22 B	0.242	0.121	122.2
C2 - Benzene	128 B	0.242	0.121	52
C3 - Benzene	99.3 B	0.242	0.121	53.1
C4 - Benzene	60.8	0.242	0.121	54.2
C5 - Benzene	9.78	0.242	0.121	57.1
trans-Decalin	0.240 J	0.242	0.121	51.2
cis-Decalin	U	0.242	0.121	NA
Naphthalene	2,140 EB	0.242	0.121	53.7
2-Methylnaphthalene	1,070 EB	0.242	0.121	54.4
1-Methylnaphthalene	666 B	0.242	0.121	54.9
C1 - Naphthalene	1,100 B	0.242	0.121	54.3
C2 - Naphthalene	488	0.242	0.121	55.4
C3 - Naphthalene	120	0.242	0.121	55.4
C4 - Naphthalene	24.8	0.242	0.121	53.7
Acenaphthylene	72.0	0.242	0.121	67.9
Acenaphthene	371	0.242	0.121	53.8
Dibenzofuran	21.1	0.242	0.121	55.2
Fluorene	229	0.242	0.121	55.5
C1 - Fluorene	116	0.242	0.121	61.1
C2 - Fluorene	50.4	0.242	0.121	55.1
C3 - Fluorene	21.5	0.242	0.121	52.5
Phenanthrene	869	0.242	0.121	53.9
Anthracene	222	0.242	0.121	53.7

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Duplicate of Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01DUPA-D2		
File ID:	E070113.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.13
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	465	0.242	0.121	53.1
C2 - Phenanthrene/Anthracene	161	0.242	0.121	54.6
C3 - Phenanthrene/Anthracene	39.2	0.242	0.121	54.8
C4 - Phenanthrene/Anthracene	12.4	0.242	0.121	48.8
Dibenzothiophene	175	0.242	0.121	52.3
C1 - Dibenzothiophene	209	0.242	0.121	52.6
C2 - Dibenzothiophene	140	0.242	0.121	52.6
C3 - Dibenzothiophene	52.7	0.242	0.121	51.9
C4 - Dibenzothiophene	10.7	0.242	0.121	61
Benzo(b)naphtho(2,1-d)thiophene	66.2	0.242	0.121	53.1
Fluoranthene	244	0.242	0.121	52.3
Pyrene	432 B	0.242	0.121	52.2
C1 - Fluoranthene/Pyrene	371	0.242	0.121	53.4
C2 - Fluoranthene/Pyrene	120	0.242	0.121	54.1
C3 - Fluoranthene/Pyrene	33.9	0.242	0.121	56.8
Benz(a)anthracene	154	0.242	0.121	54.7
Chrysene*	163	0.242	0.121	55.1
C1 - Benz(a)anthracene/Chrysene	125	0.242	0.121	56.7
C2 - Benz(a)anthracene/Chrysene	46.6	0.242	0.121	55.8
C3 - Benz(a)anthracene/Chrysene	13.4	0.242	0.121	64
C4 - Benz(a)anthracene/Chrysene	7.23	0.242	0.121	44.8
Benzo(b)fluoranthene	70.9 B	0.242	0.121	53.7
Benzo(j/k)fluoranthene	84.8 B	0.242	0.121	57.4
Benzo(e)pyrene	96.8 B	0.242	0.121	55.4
Benzo(a)pyrene	179 B	0.242	0.121	56.5
Perylene	30.3	0.242	0.121	56.2
Indeno(1,2,3-cd)pyrene	65.1	0.242	0.121	56.2
Dibenz(a,h)anthracene	26.1	0.242	0.121	57.2
Benzo(g,h,i)perylene	89.5 B	0.242	0.121	55.9
Coronene	23.1	0.242	0.121	53.1
Retene	U	0.242	0.121	NA
Benzo(b/c)fluorenes	47.5	0.242	0.121	56.2
2-Methylpyrene	49.6	0.242	0.121	53.4
4-Methylpyrene	50.0	0.242	0.121	51.3
1-Methylpyrene	55.4	0.242	0.121	54.5
Heptadecane	3.36 B	0.242	0.121	#VALUE!
Pristane	4.25	0.242	0.121	49.8
Octadecane	5.34 B	0.242	0.121	#VALUE!
Phytane	2.52	0.242	0.121	47.5

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Duplicate of Congaree Sed-1

Client:	SCANA/MTR	Preparation Method:	EPA 3570
Project:	Huger St.	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	SG100629-01DUPA-D2		
File ID:	E070113.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/28/2010	Decanted:	None
Date Received:	6/29/2010		
Date Prepared:	6/30/2010	Sample Size (g):	4.13
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	7/2/2010	Extract Volume (µl):	2000
Instrument:	EI Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	100
		Injection Volume (µl):	1.00
Batch QC:	QC100630-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	1.09	0.242	0.121	58.4
2,6,10-trimethyltridecane	2.52	0.242	0.121	41.5
Norpristane	2.53	0.242	0.121	40.6
Total PAH (16)	5,410	0.242	0.121	54.2
Total PAH (42)	9,460	0.242	0.121	54.2

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	43	50 - 120
Phenanthrene-d10	39	50 - 120
Benzo(a)pyrene-d12	48	50 - 120
Perylene-d12	80	50 - 120

NA - Not applicable.

B - Analyte detected in the Blank.

J - Estimated value; detected between the RL and DL.

U - Analyte not detected above DL.

D - Analyte reported from a diluted extract.

E - Estimate, result detected above calibration range.

I - Concentration/Peak ID uncertain due to potential interference.

RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.

EDL - Estimated detection limit is 50% of RL.

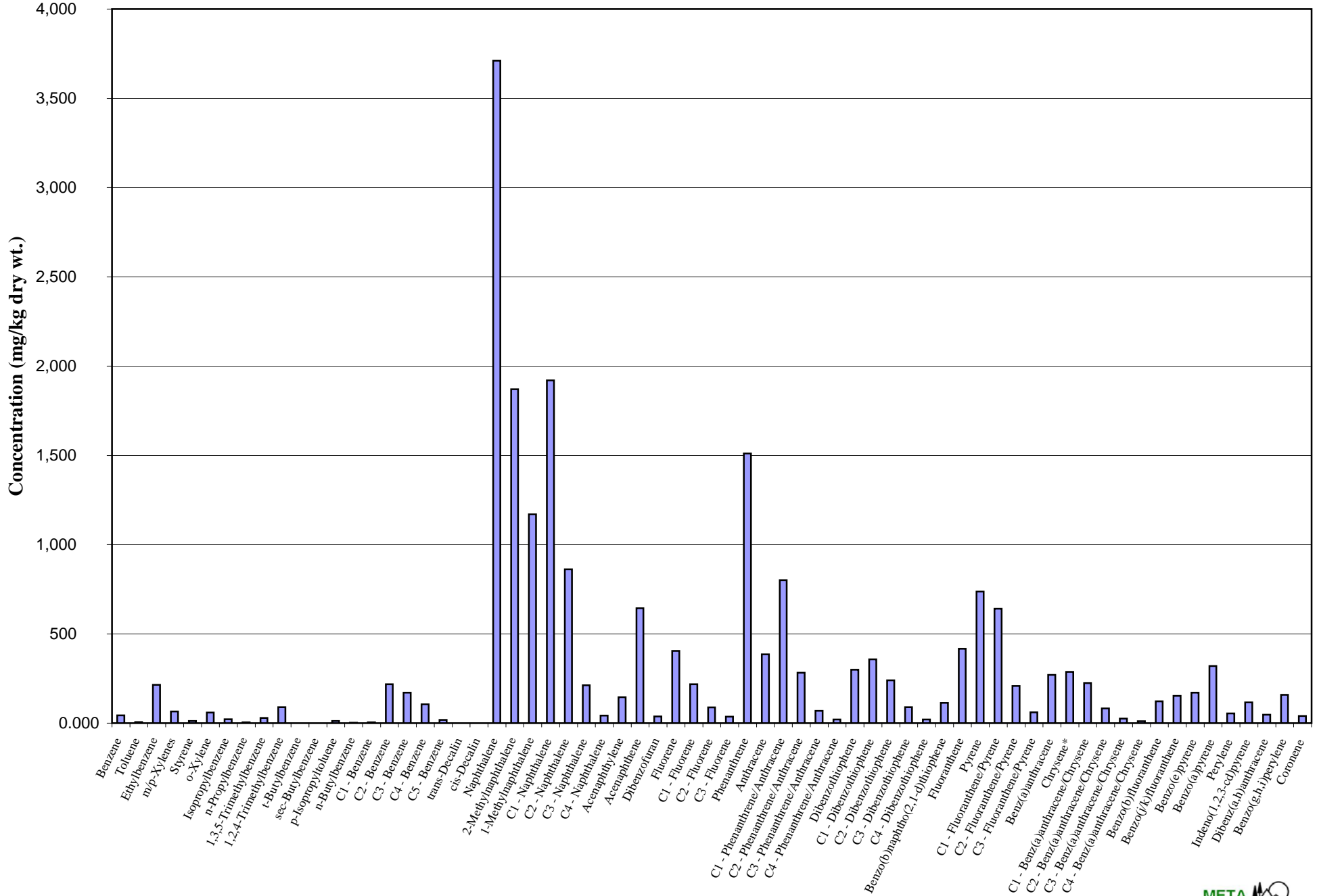
* - Triphenylene is known to coelute with this compound.

Appendix D

Extended MAH/PAH Profiles – Histograms

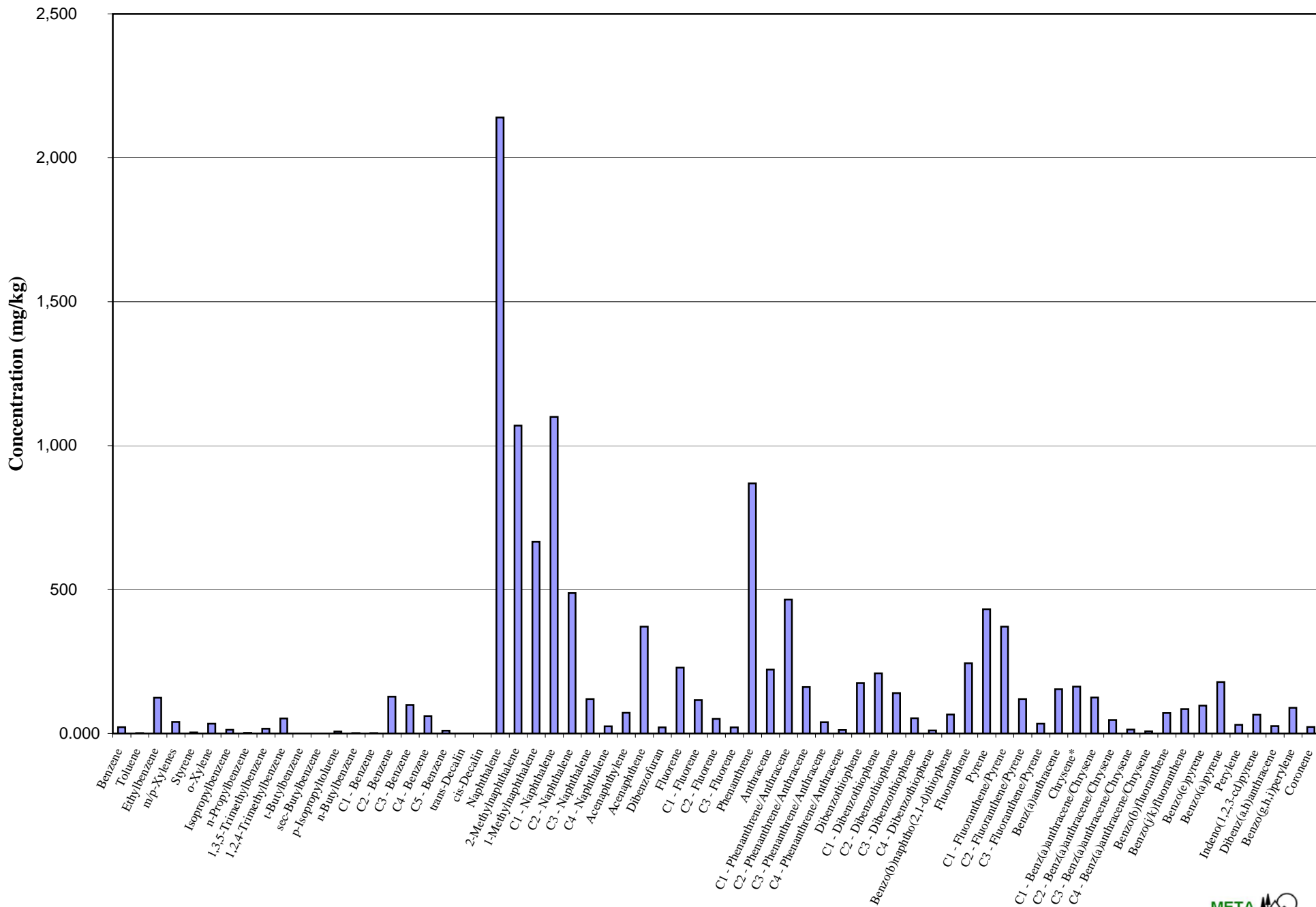
Congaree Sed-1

SG100629-01A-D2



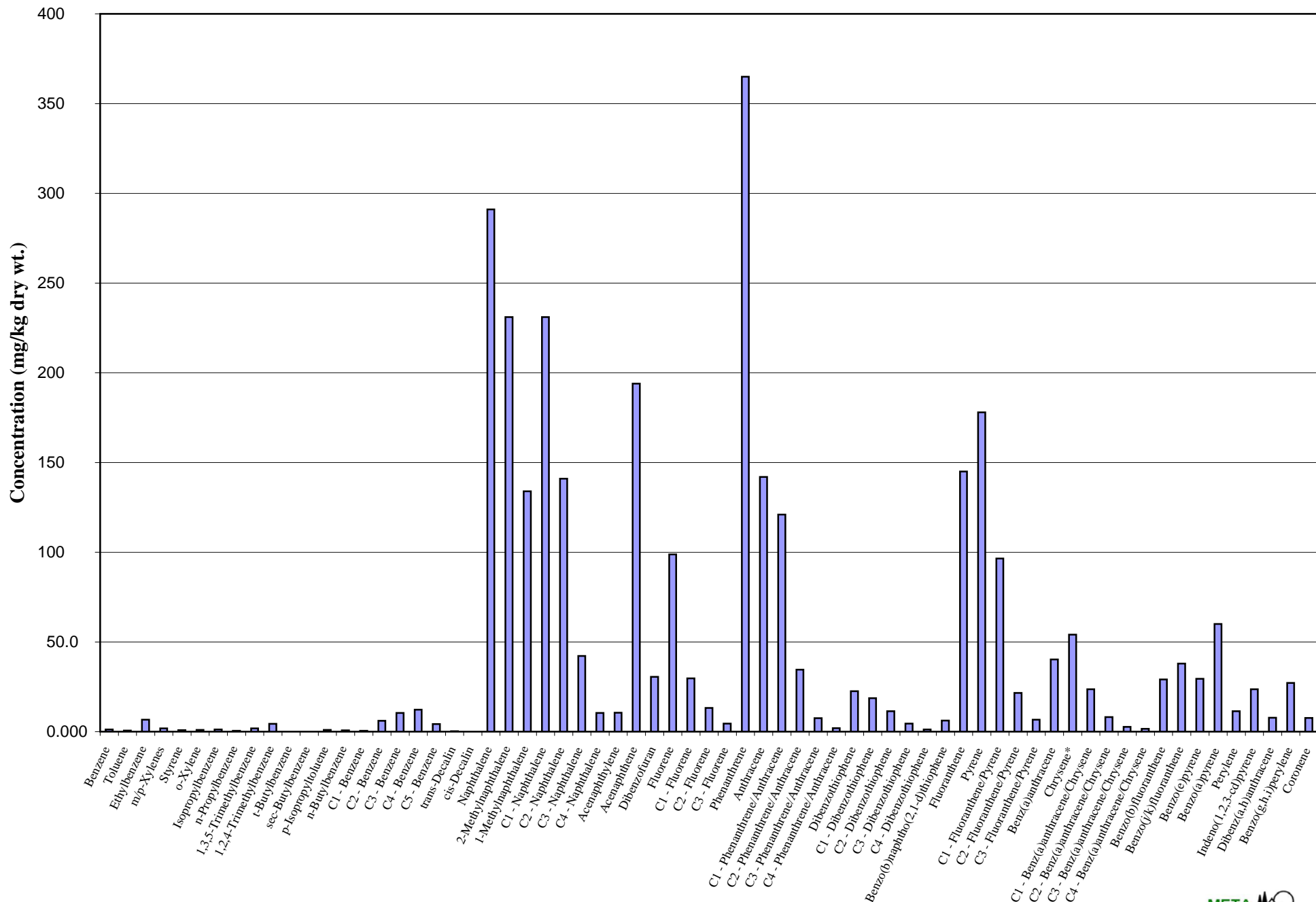
Duplicate of Congaree Sed-1

SG100629-01DUPA-D2



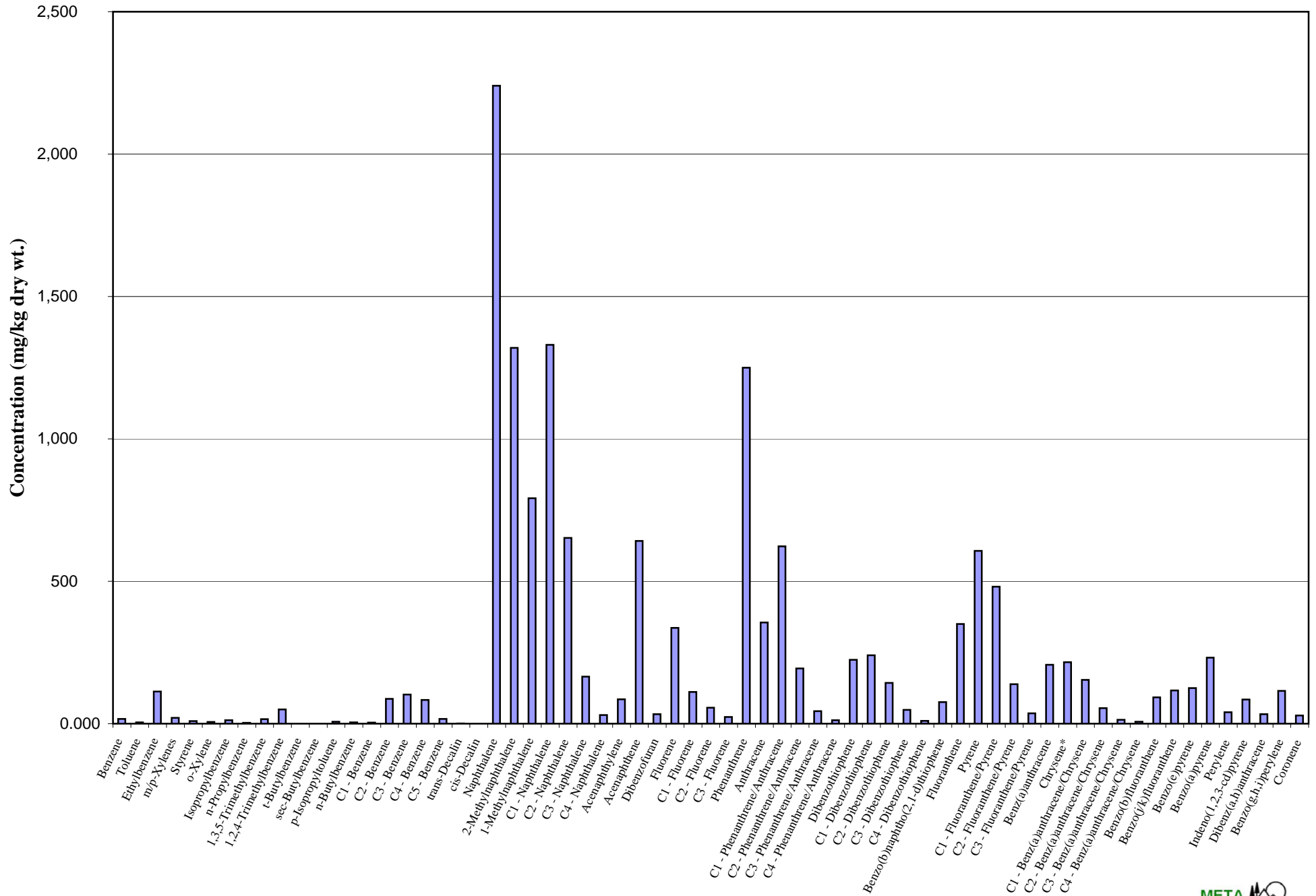
Congaree Sed-2

SG100629-02A-D2



Congaree Sed-3

SG100629-03A-D2



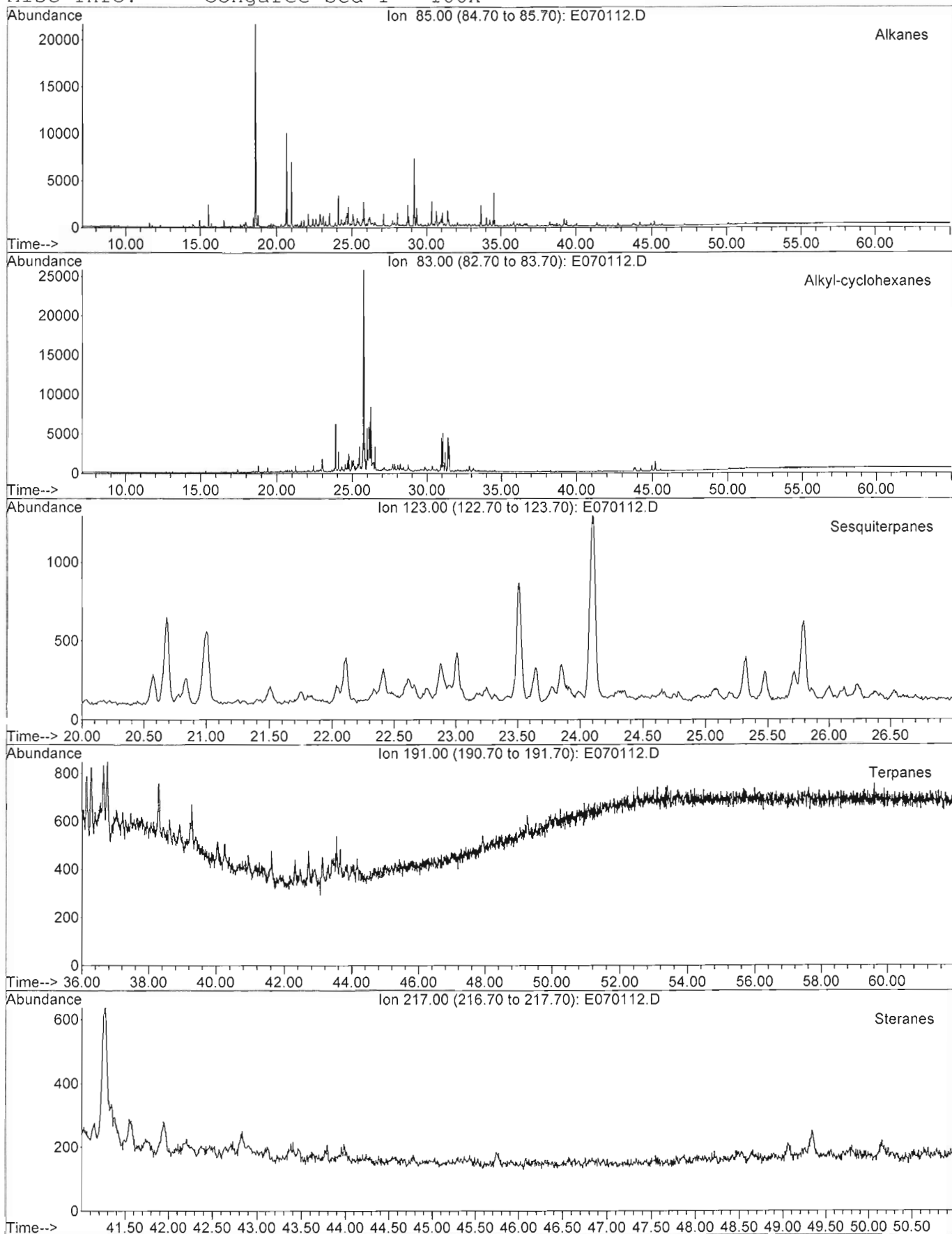
Appendix E

Extracted Ion Current Profiles (EICPs)

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

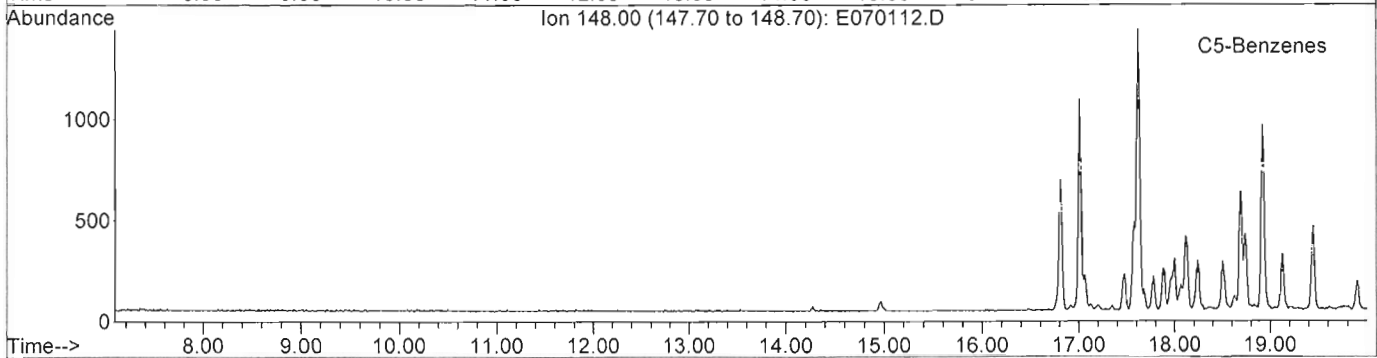
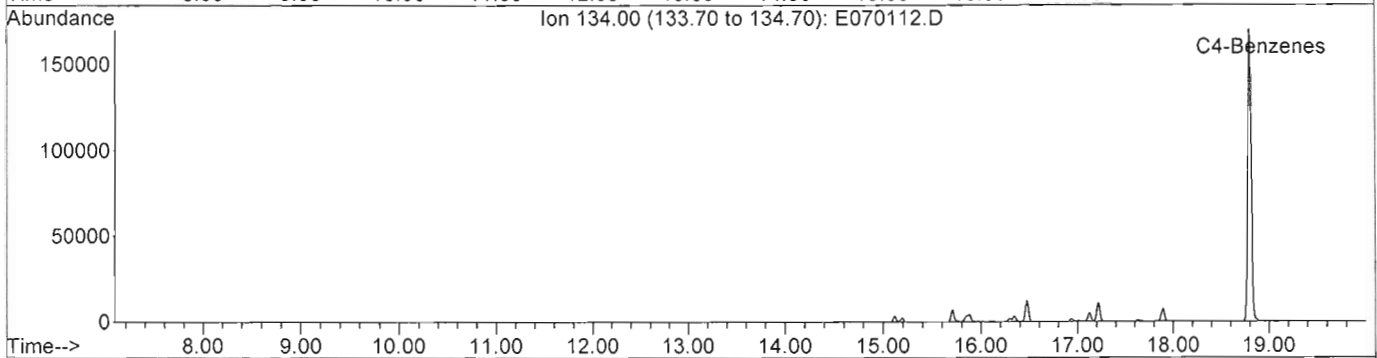
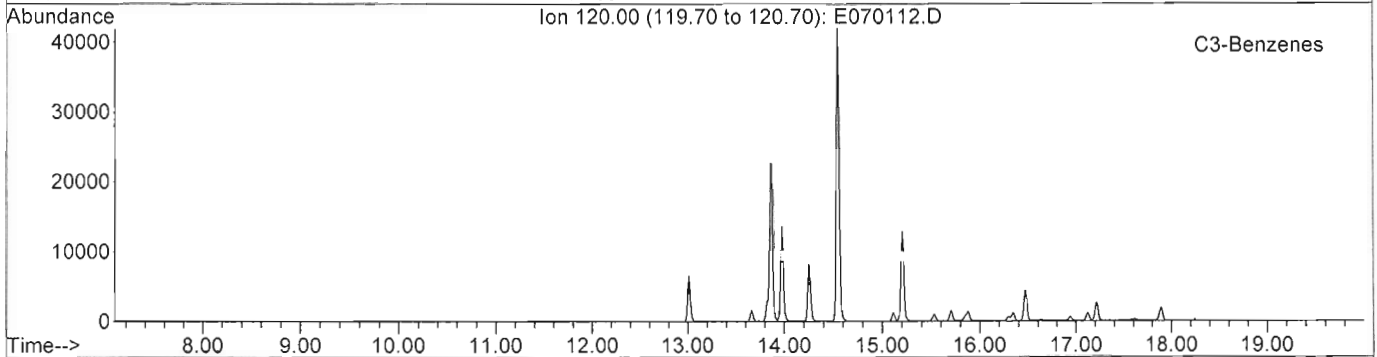
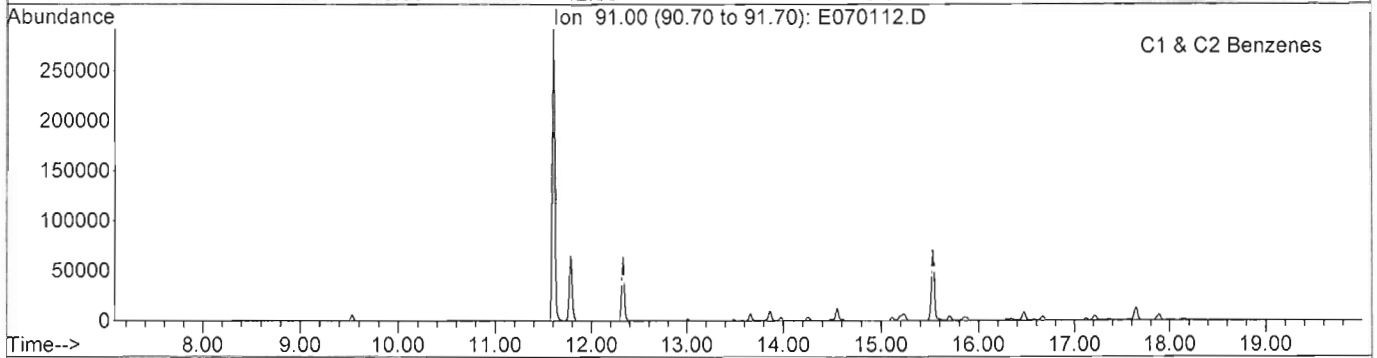
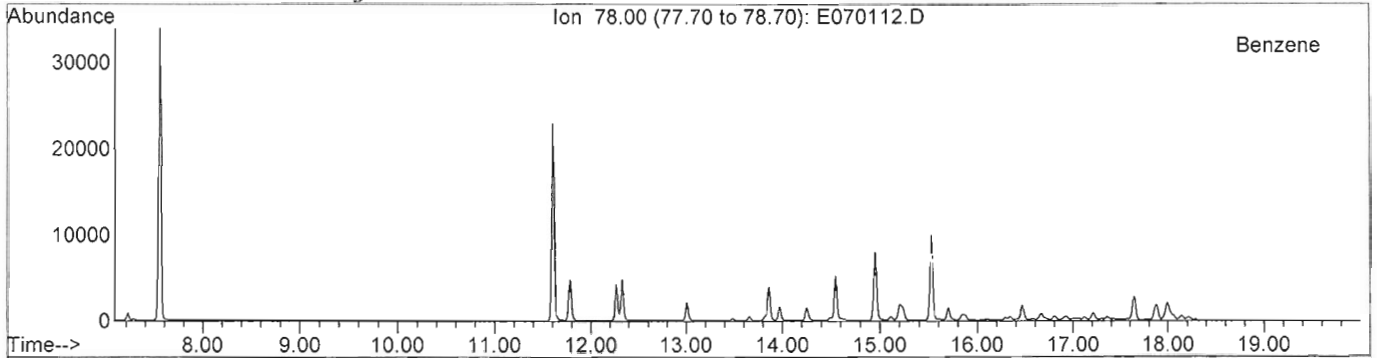
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Date Acquired: 2 Jul 2010 3:49 am
Sample Name: SG100629-01A-D2
Misc Info: Congaree Sed-1 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

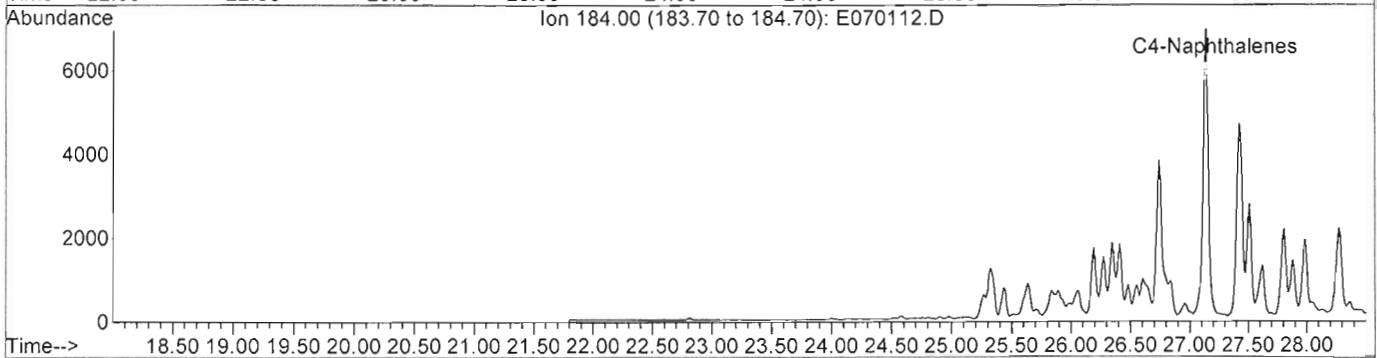
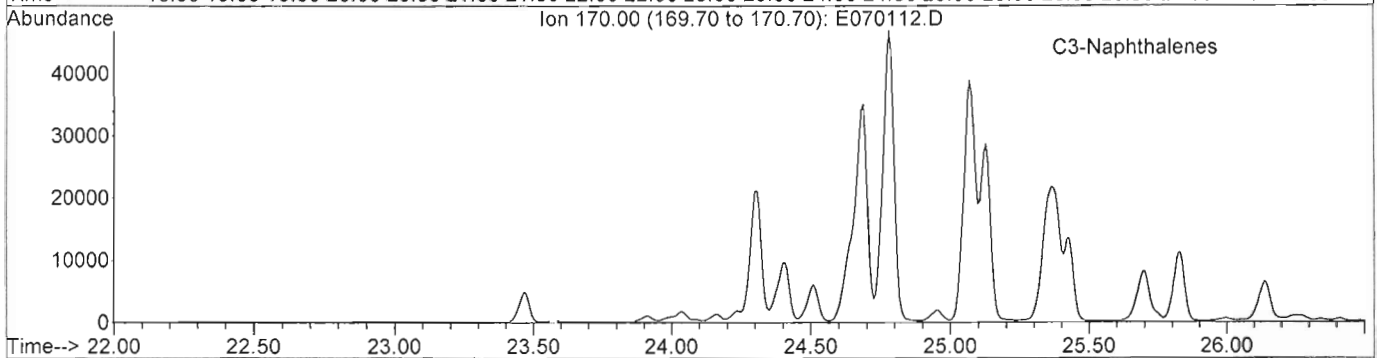
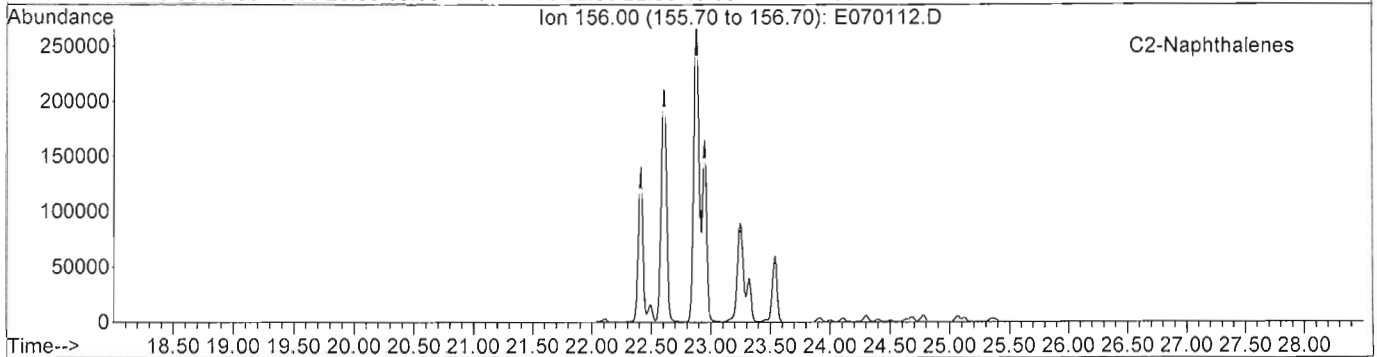
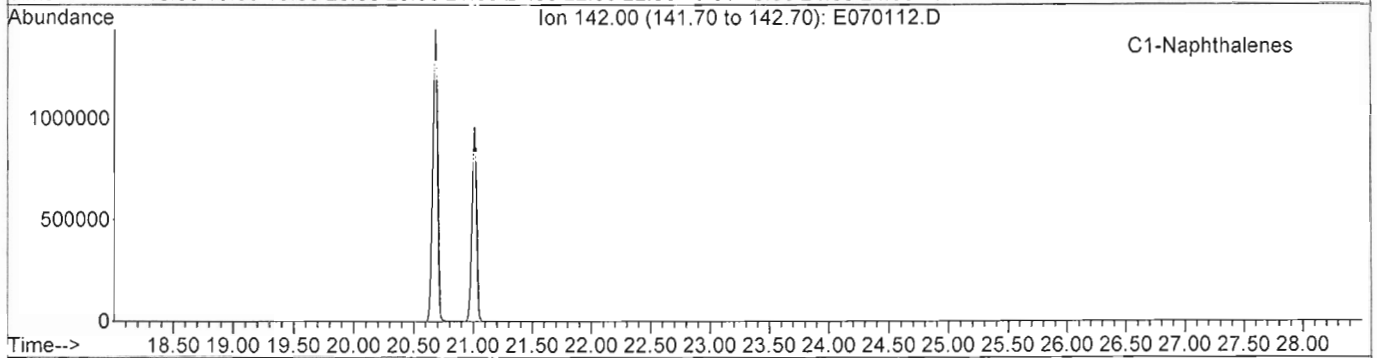
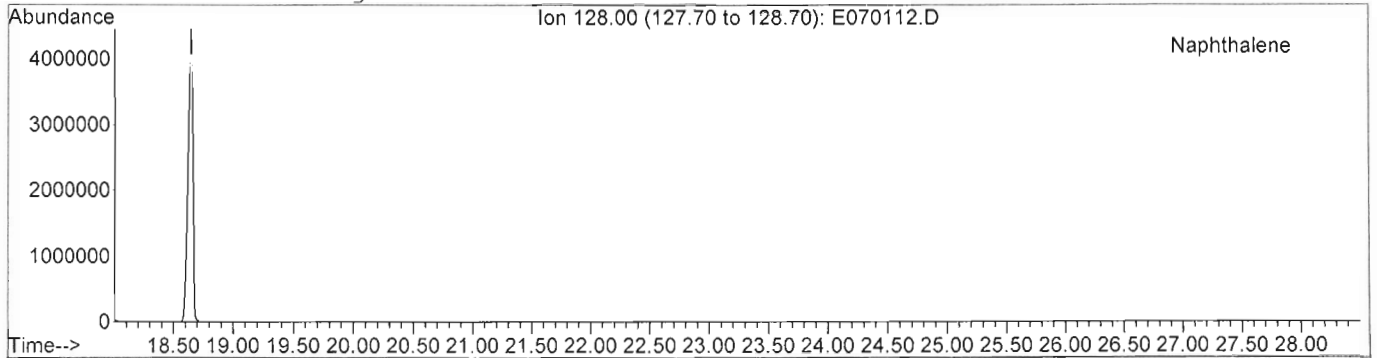
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Date Acquired: 2 Jul 2010 3:49 am
Sample Name: SG100629-01A-D2
Misc Info: Congaree Sed-1 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

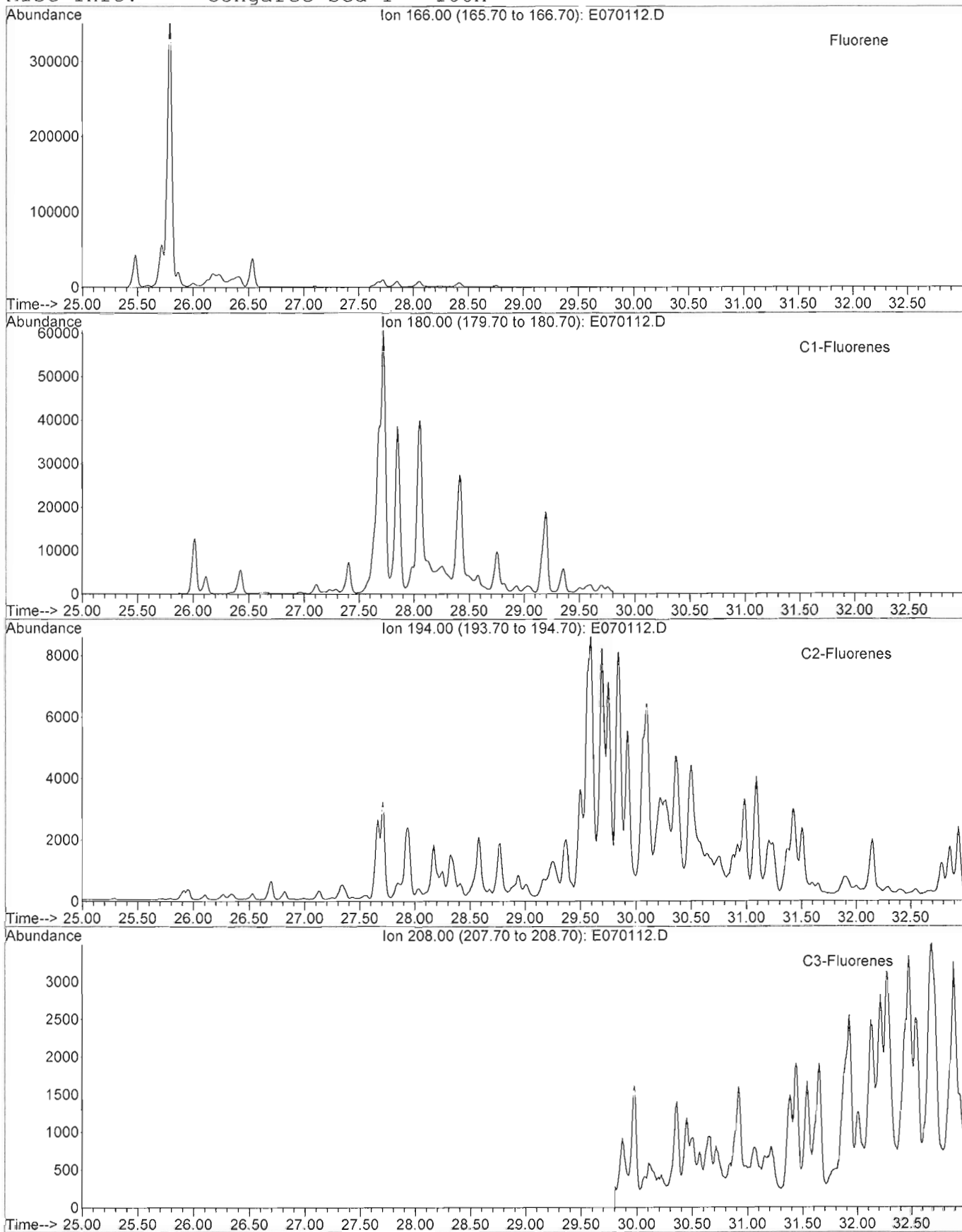
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Date Acquired: 2 Jul 2010 3:49 am
Sample Name: SG100629-01A-D2
Misc Info: Congaree Sed-1 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

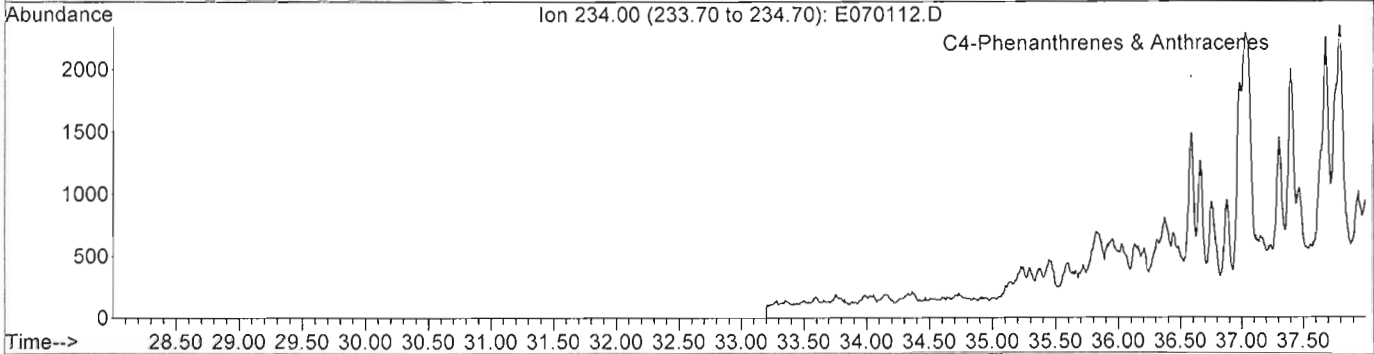
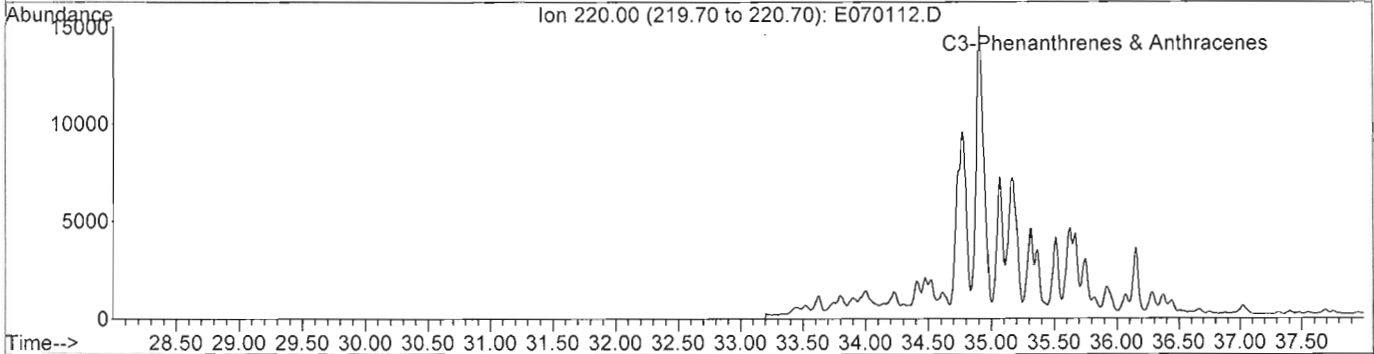
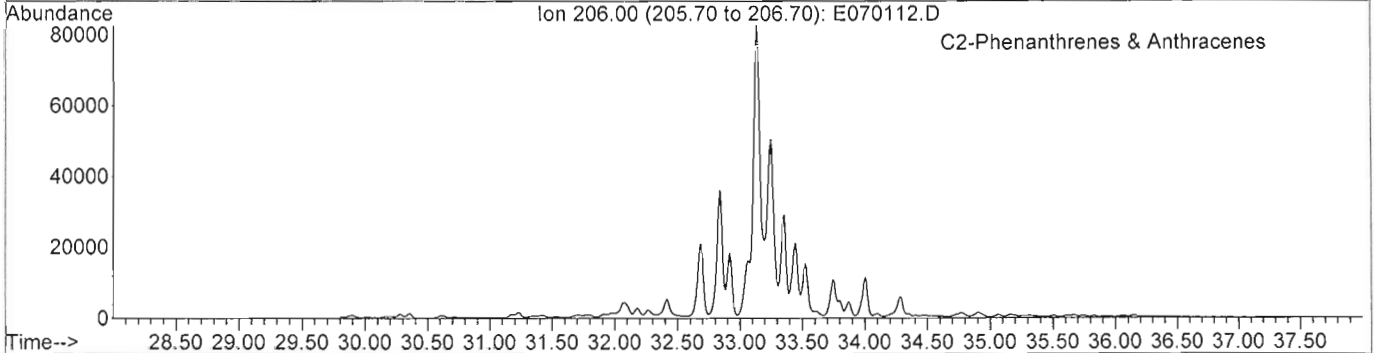
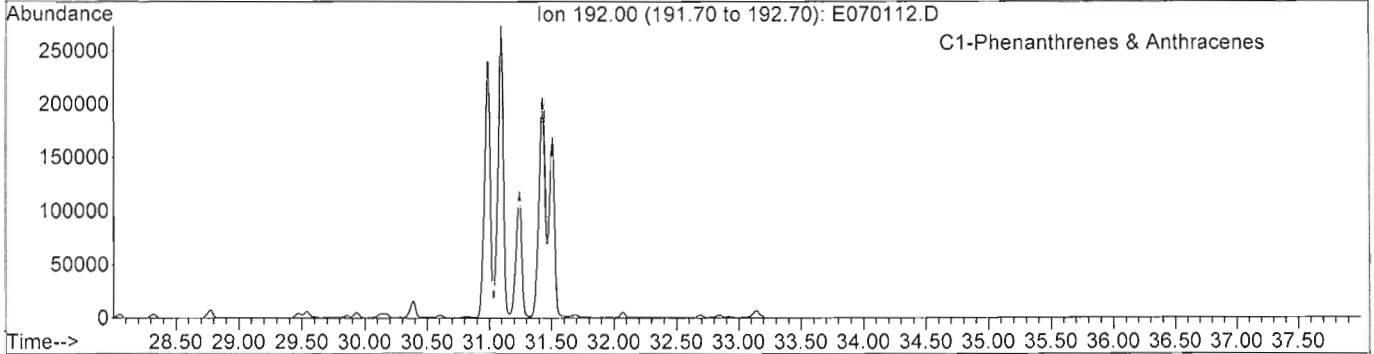
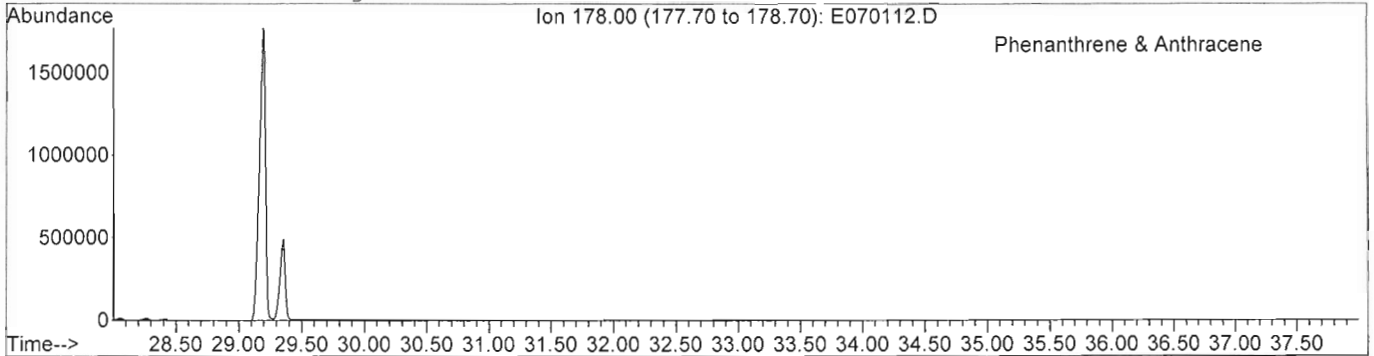
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Misc Info: Congaree Sed-1 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

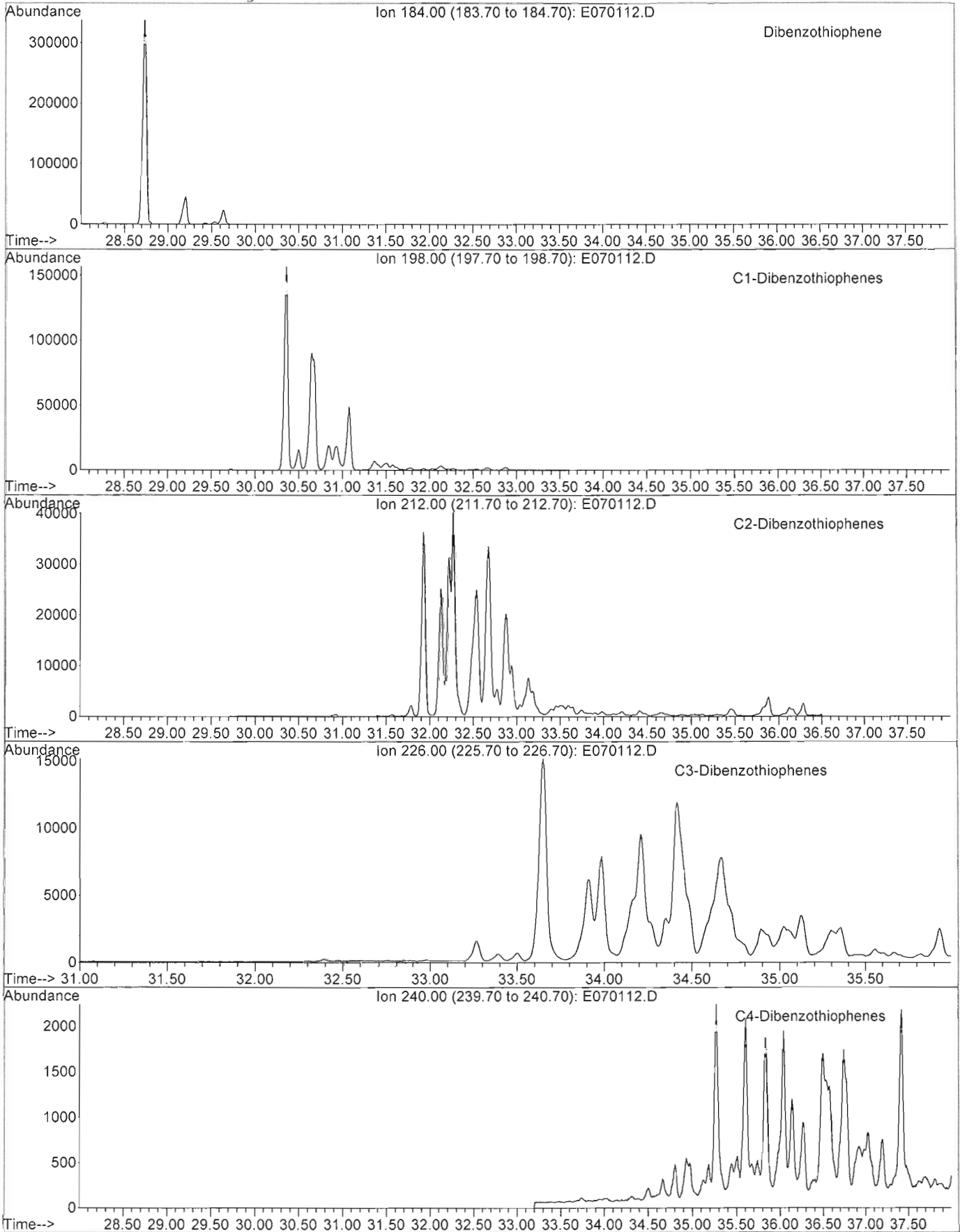
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META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

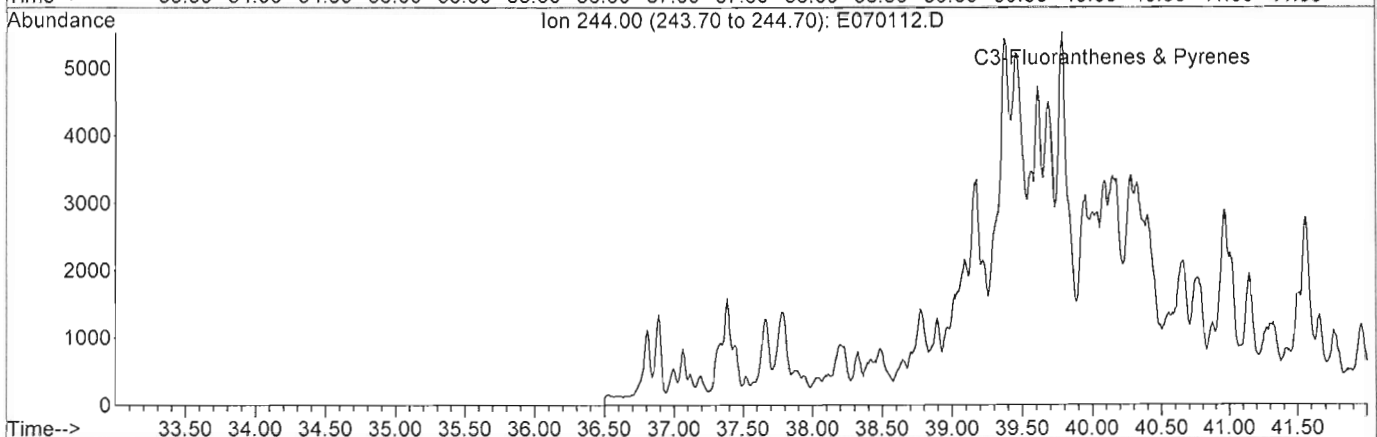
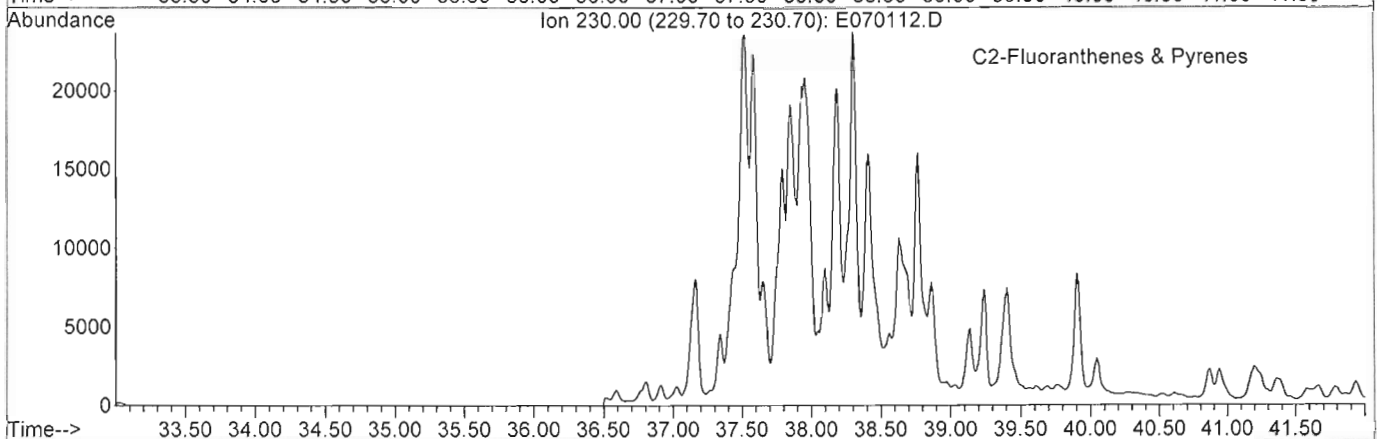
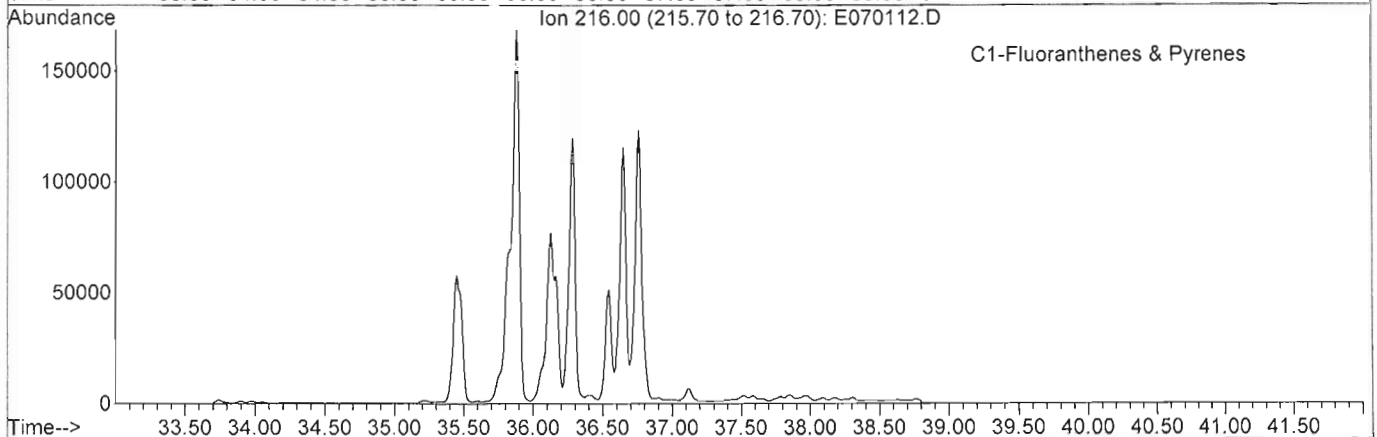
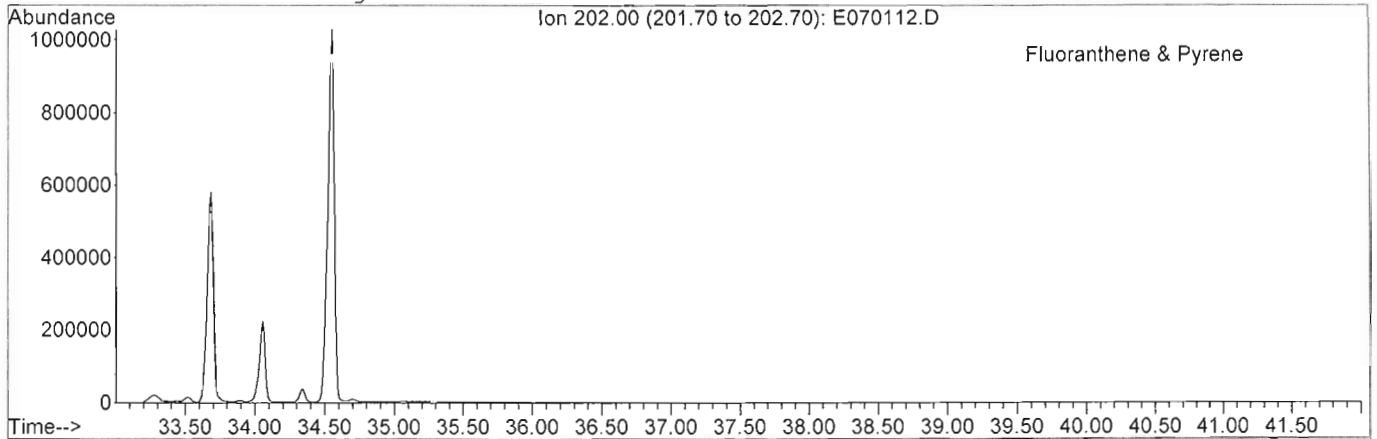
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META Environmental, Inc.

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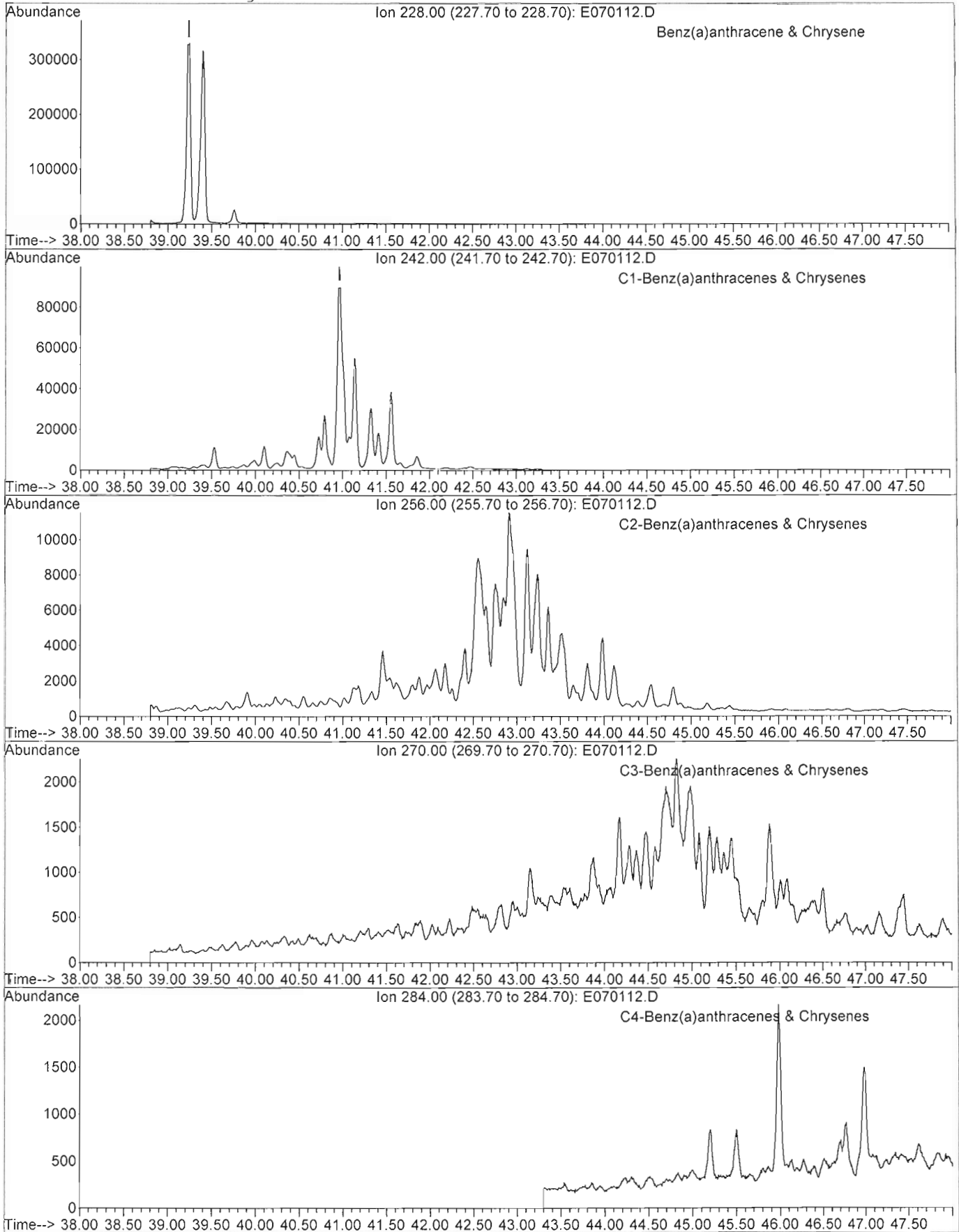
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META Environmental, Inc.

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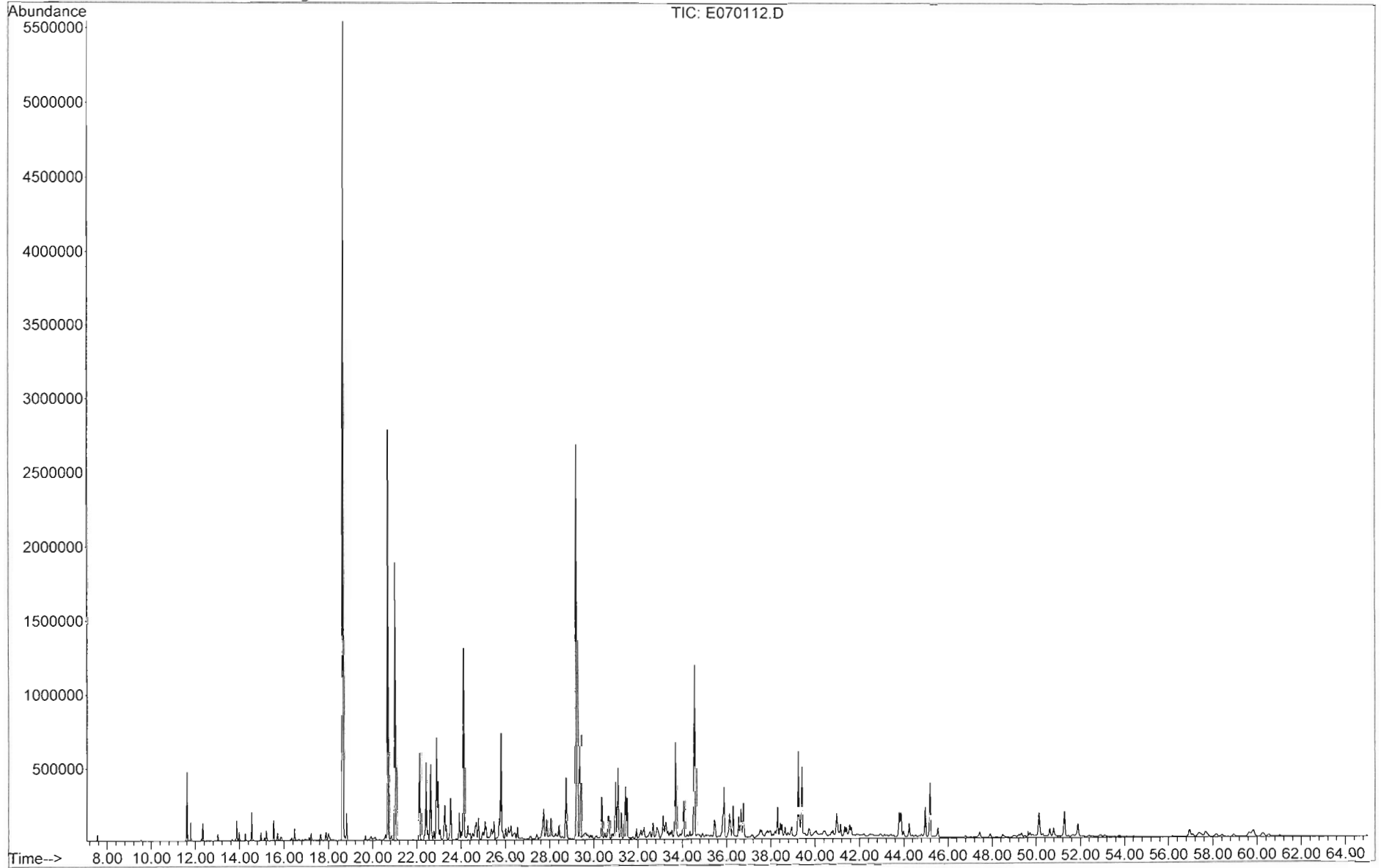
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META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

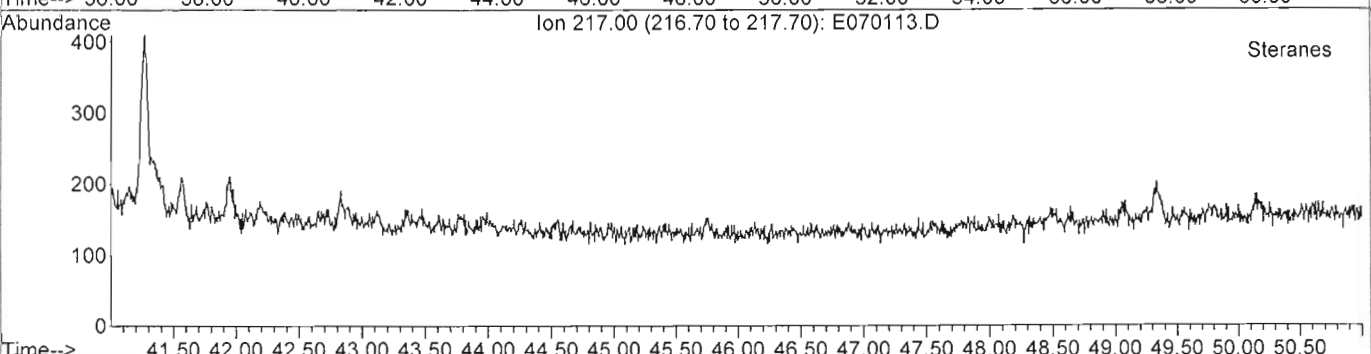
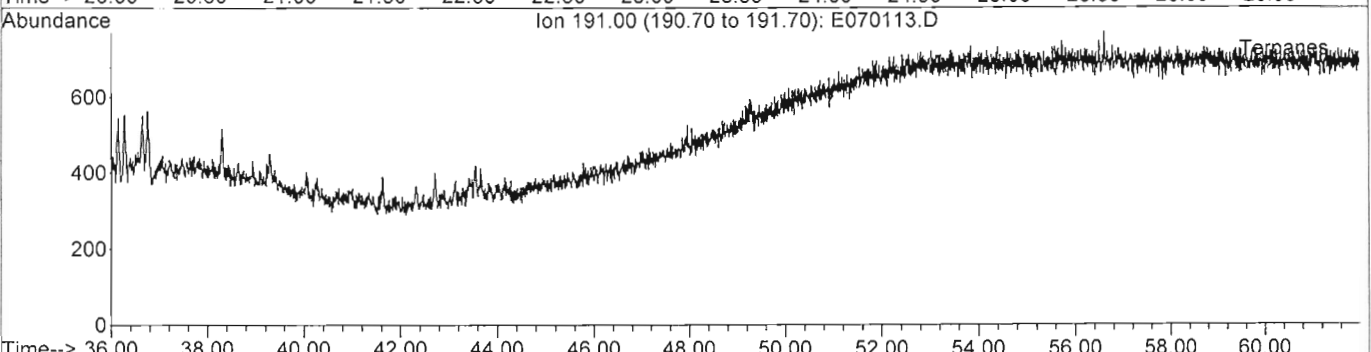
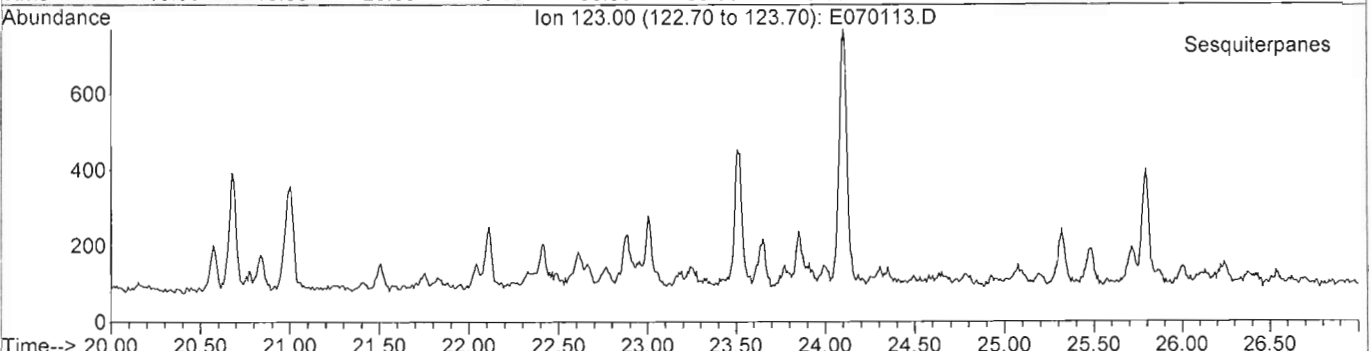
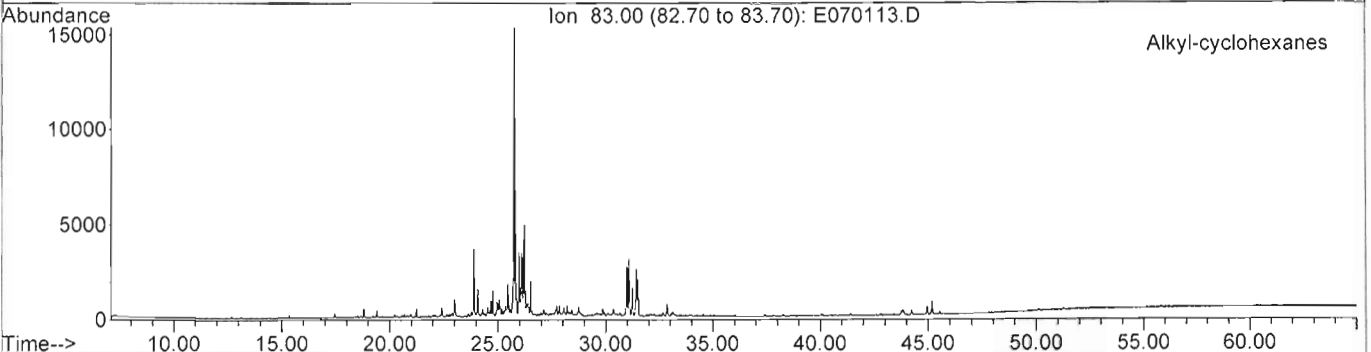
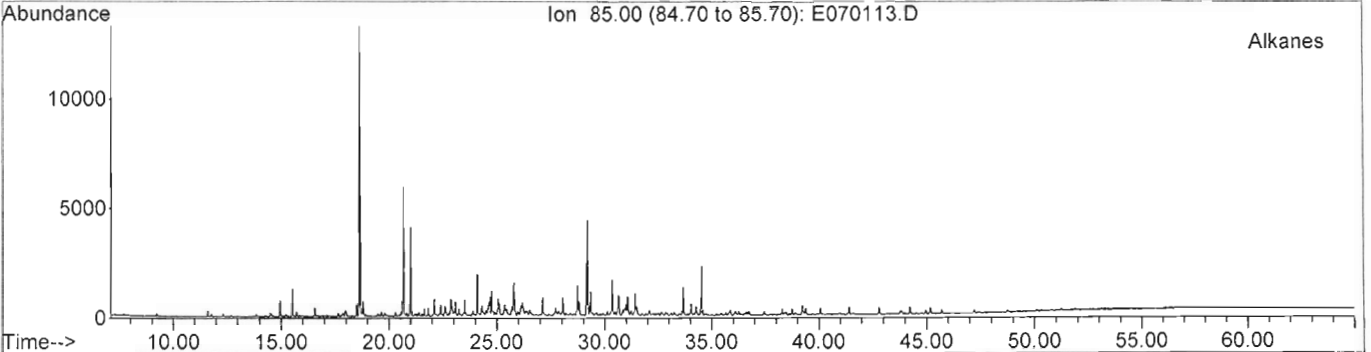
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META Environmental, Inc.

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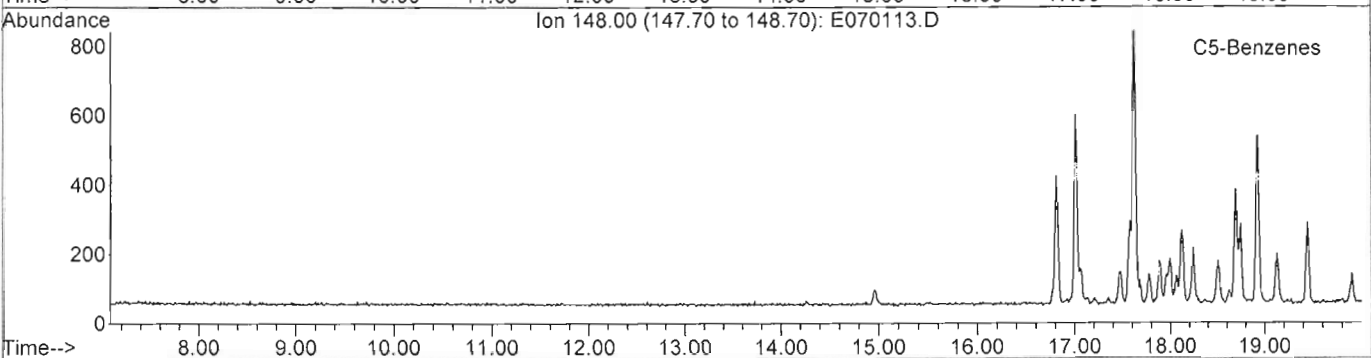
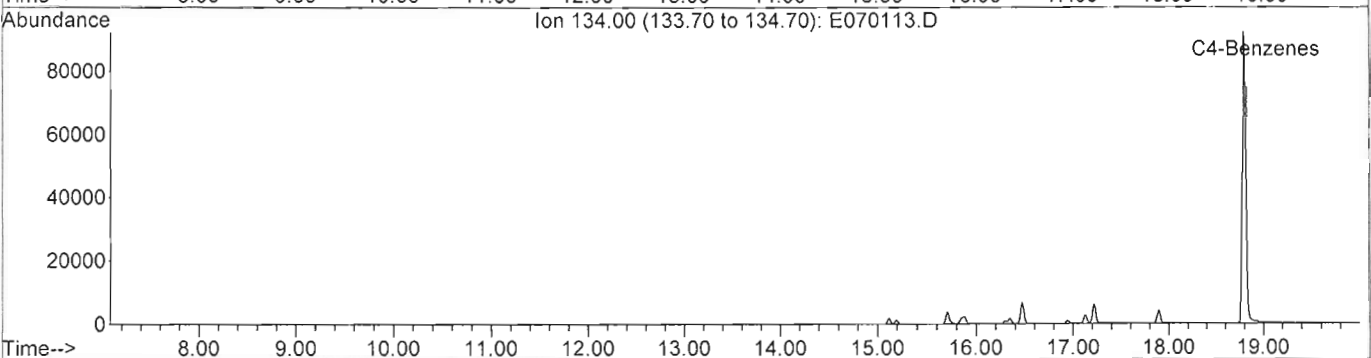
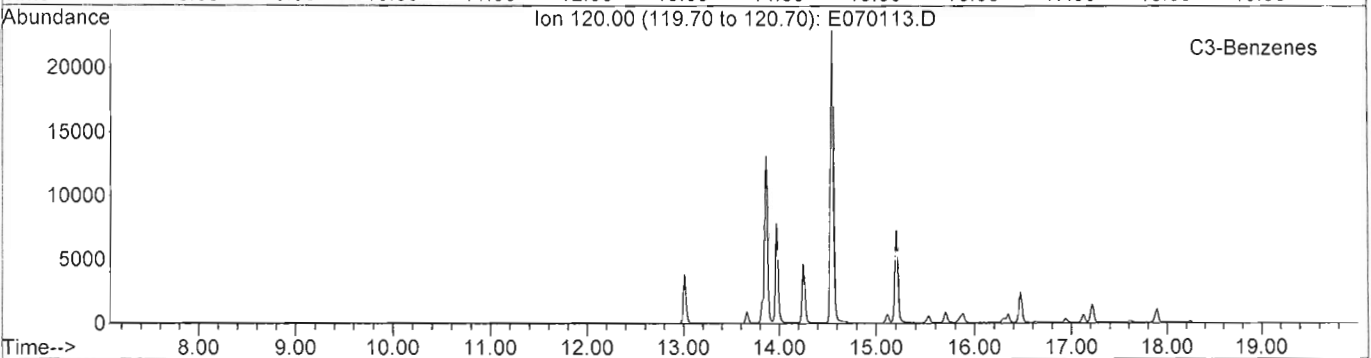
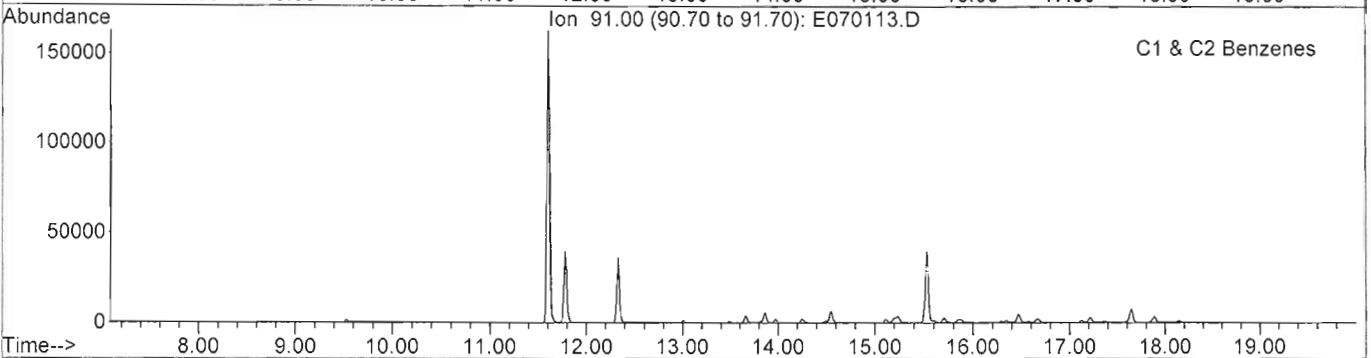
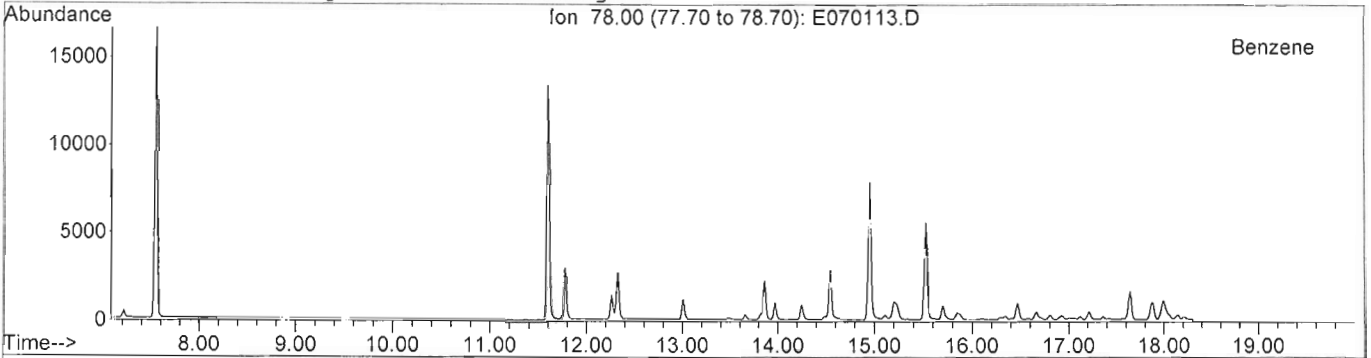
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META Environmental, Inc.

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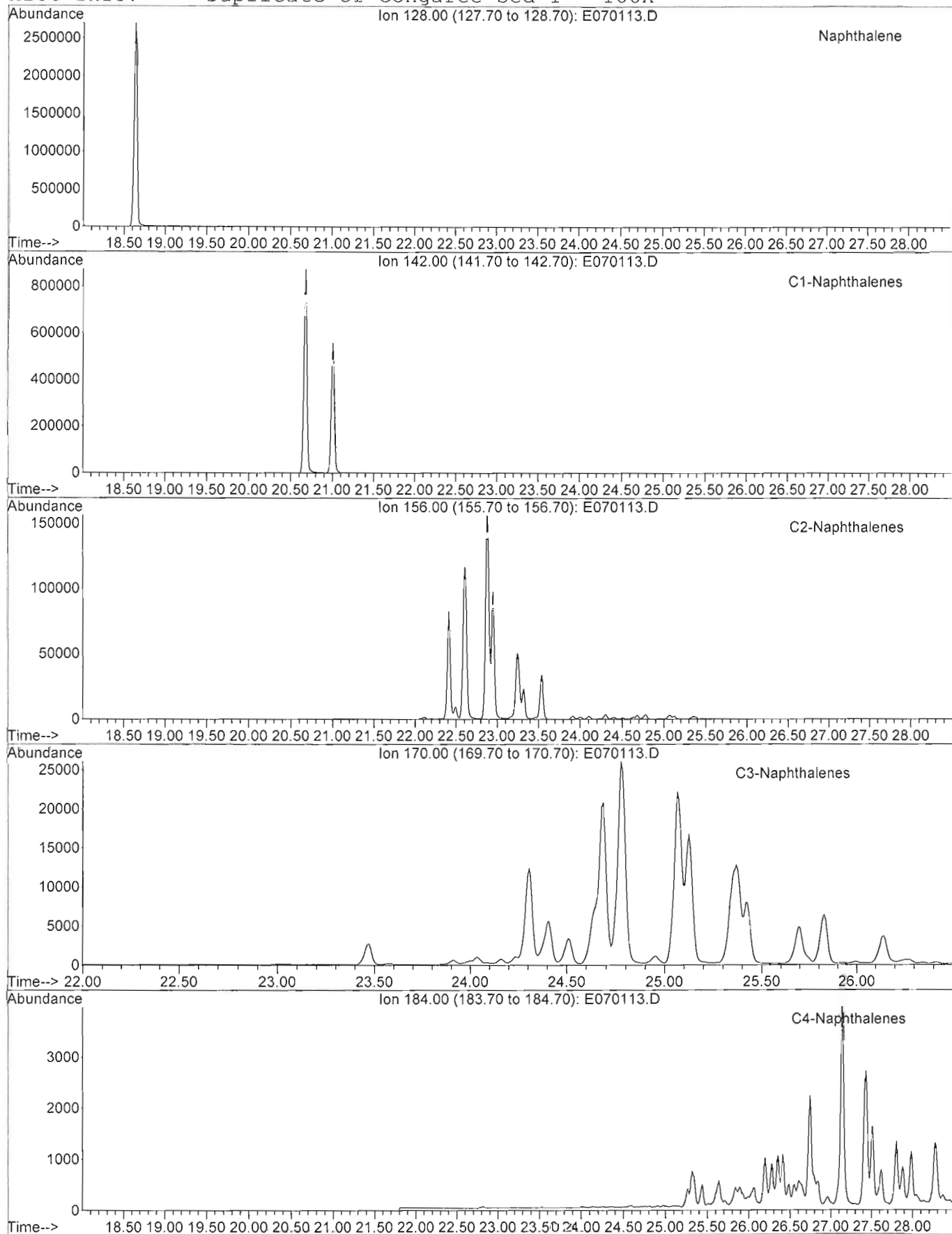
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META Environmental, Inc.

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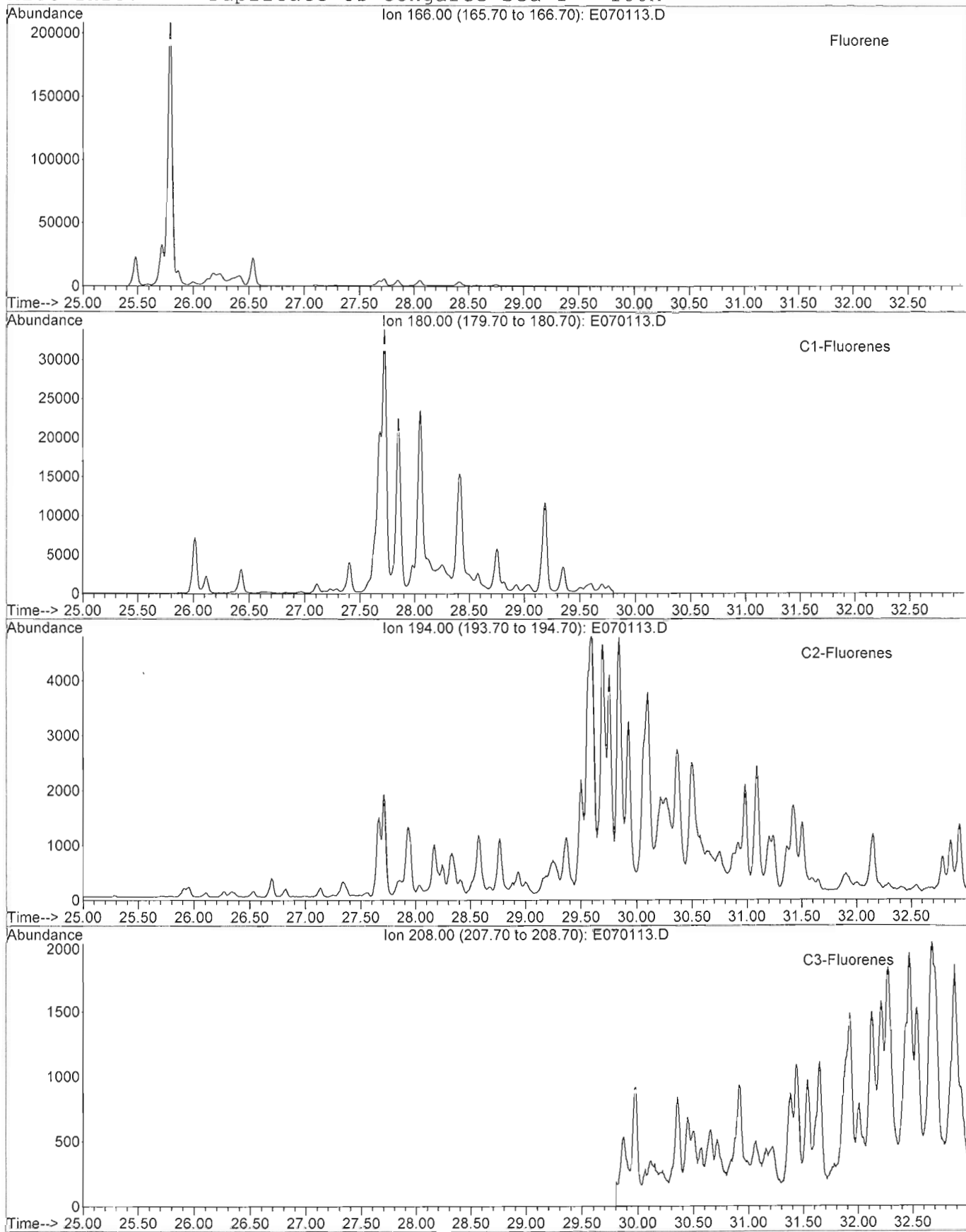
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META Environmental, Inc.

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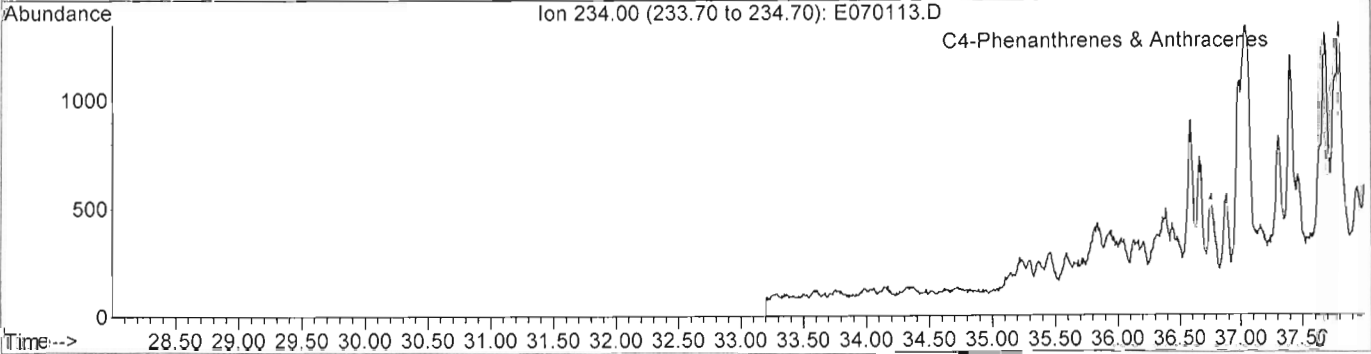
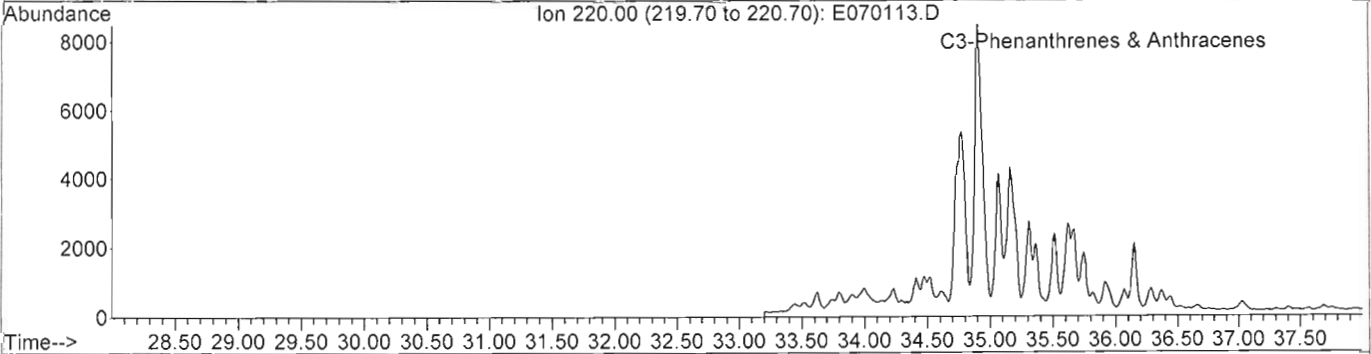
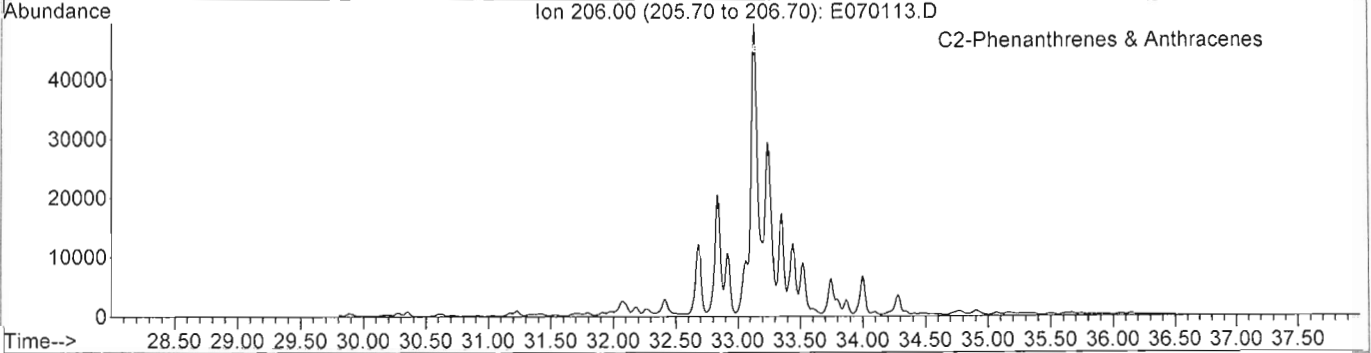
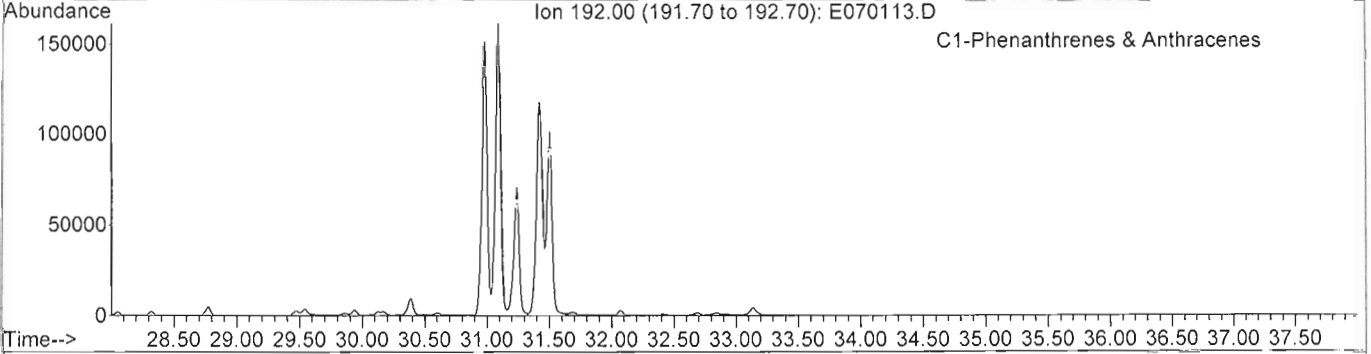
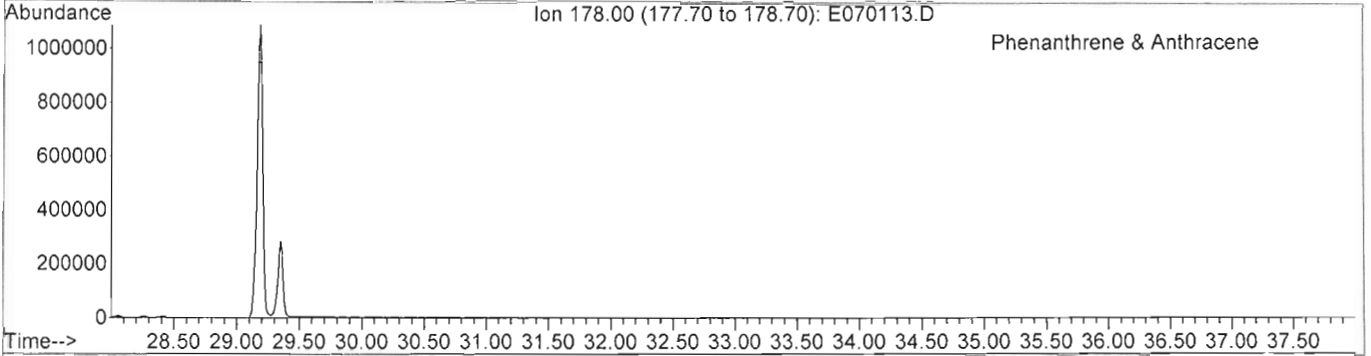
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META Environmental, Inc.

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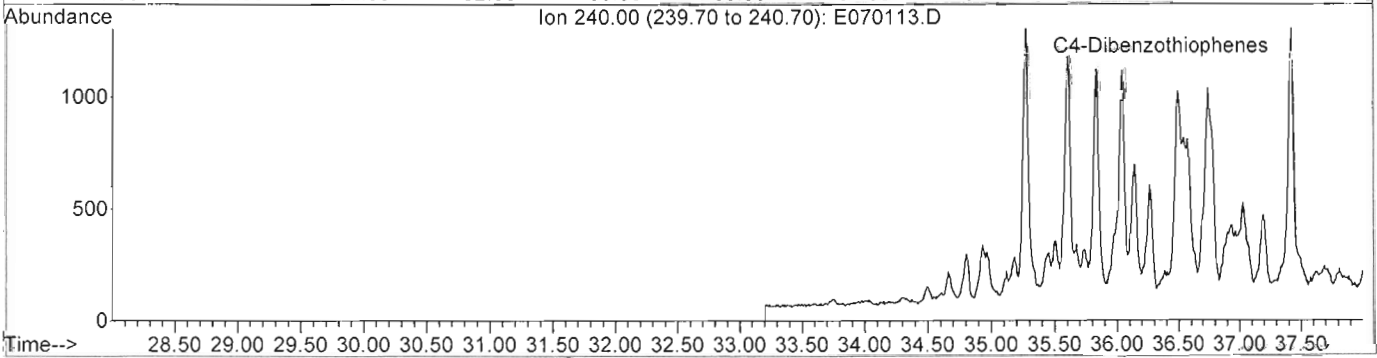
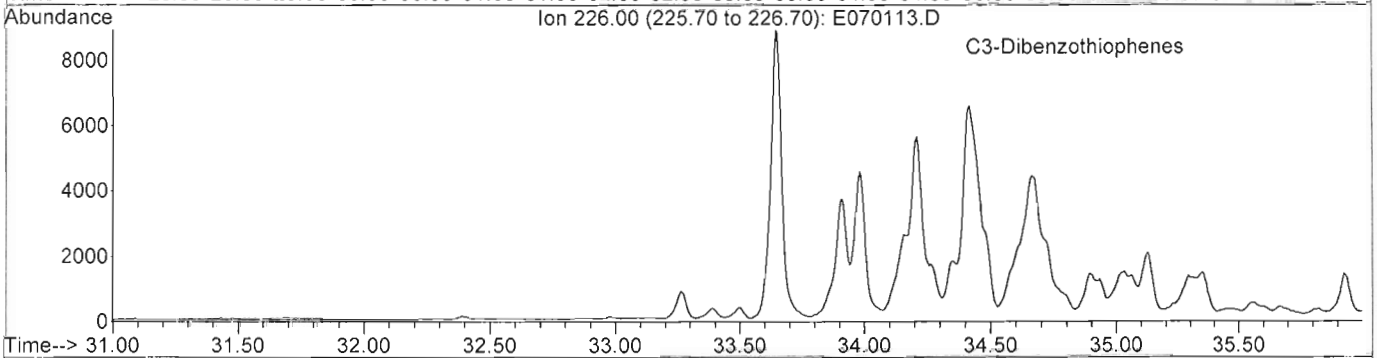
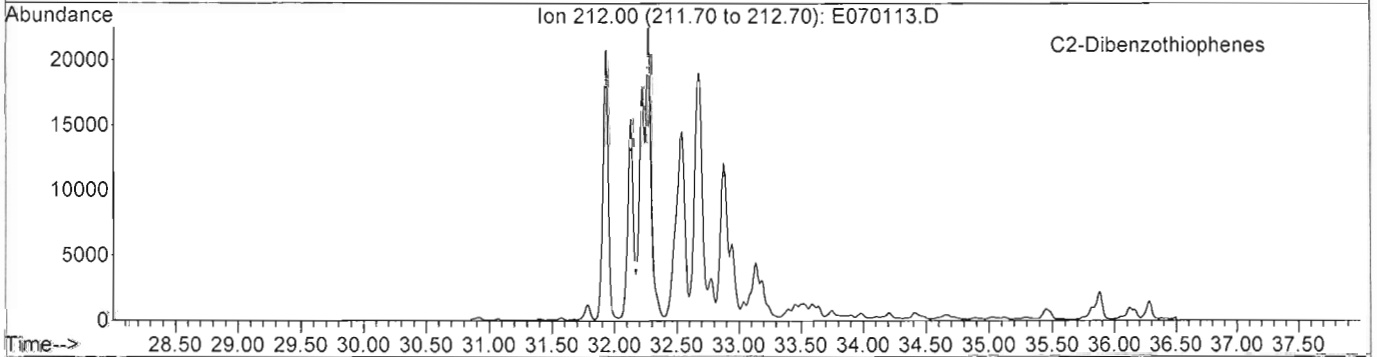
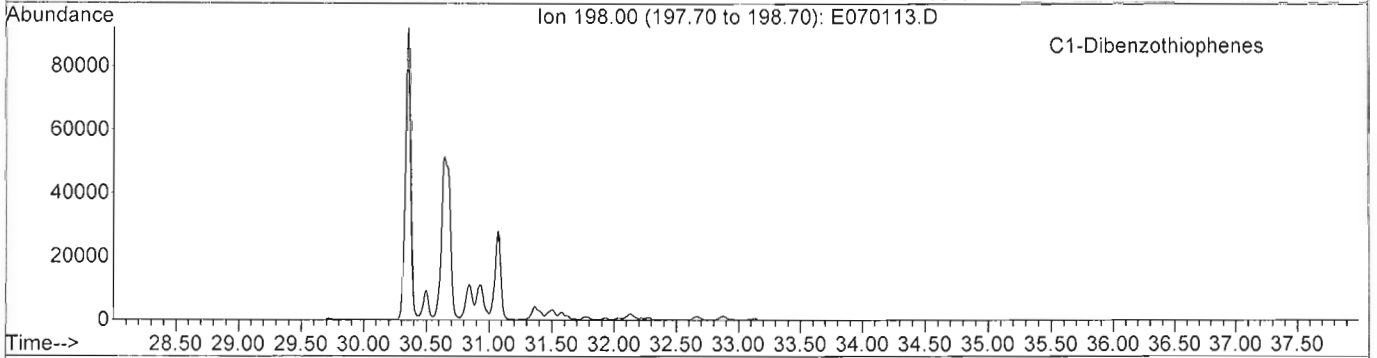
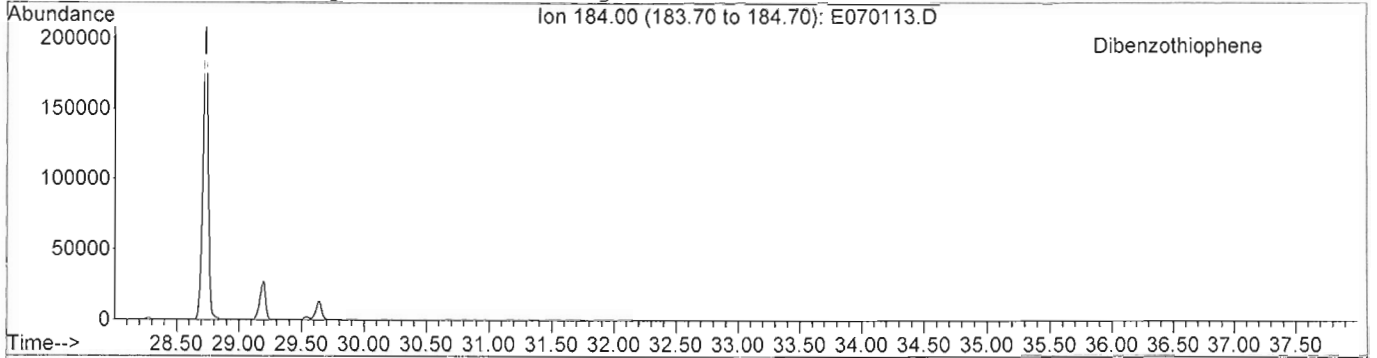
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META Environmental, Inc.

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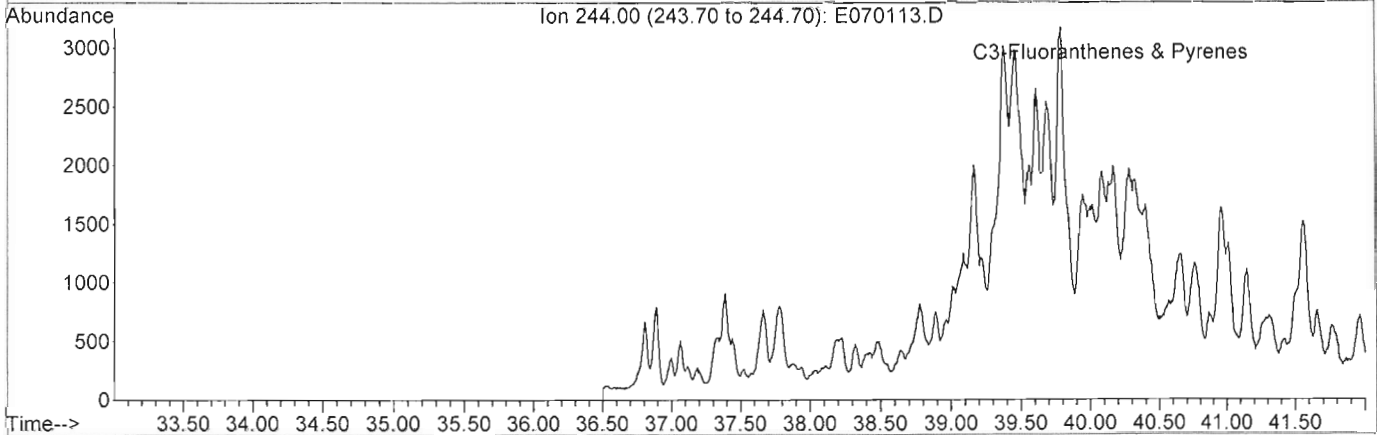
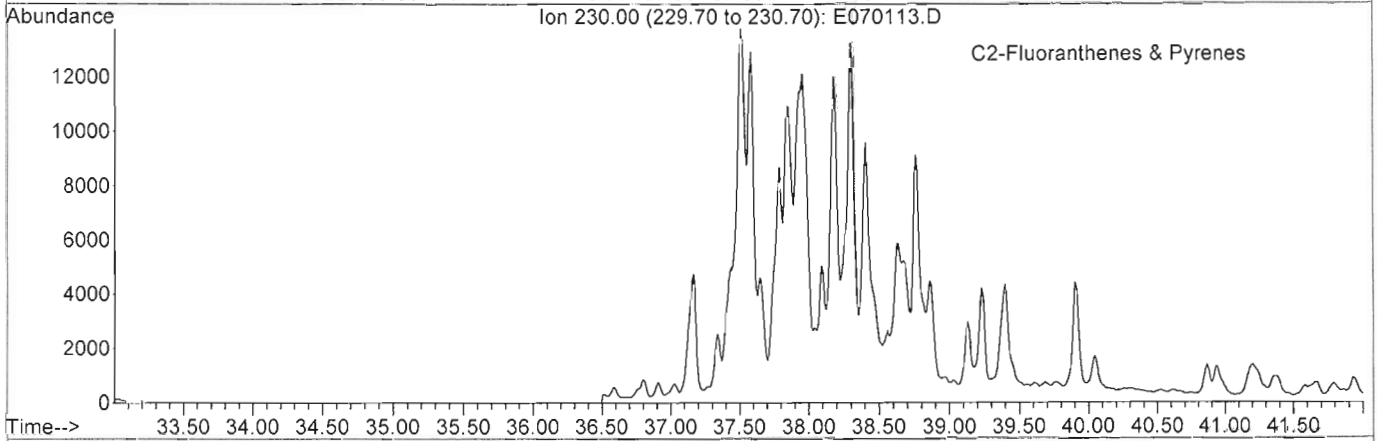
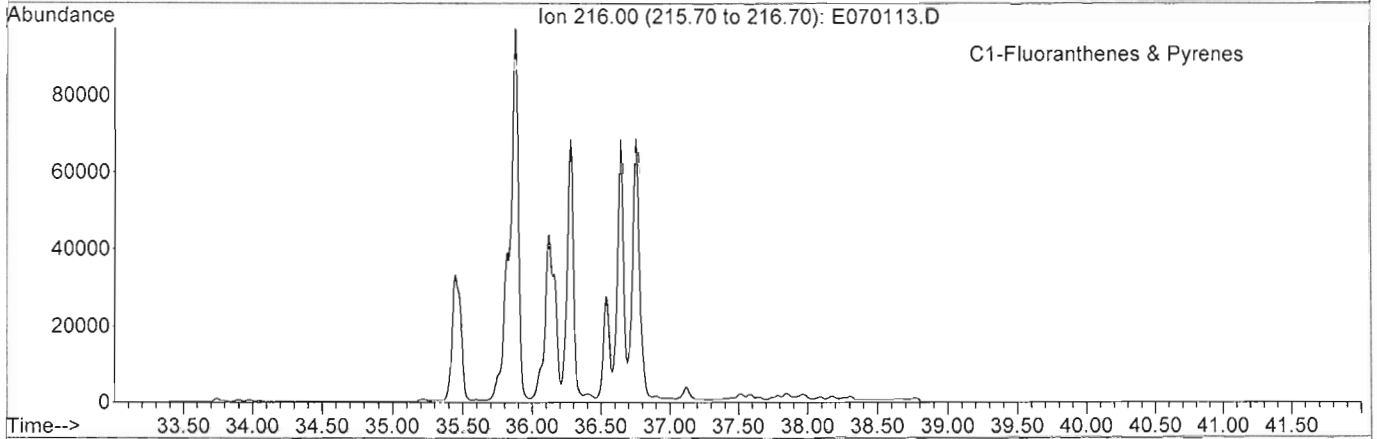
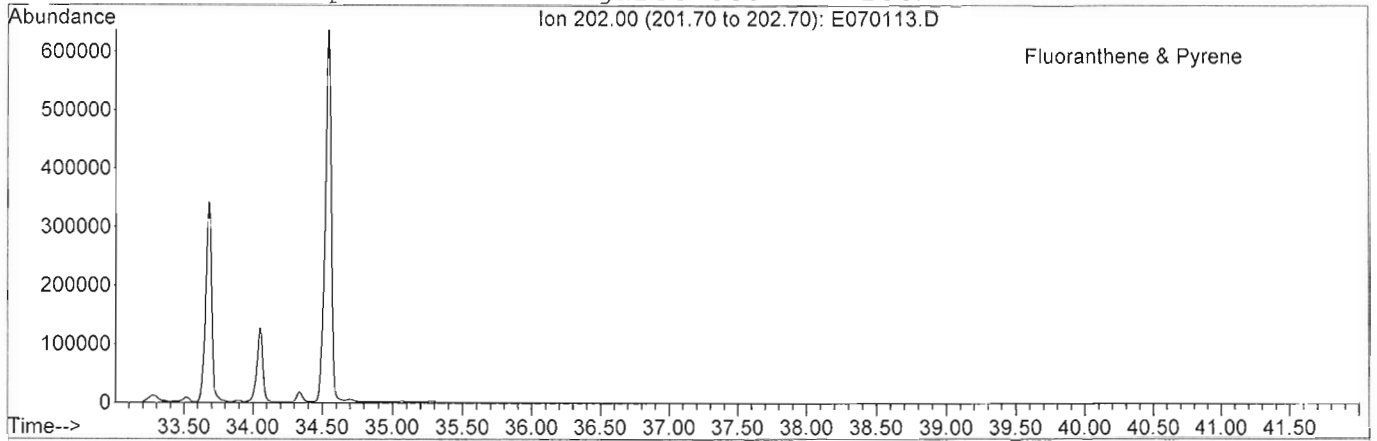
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META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

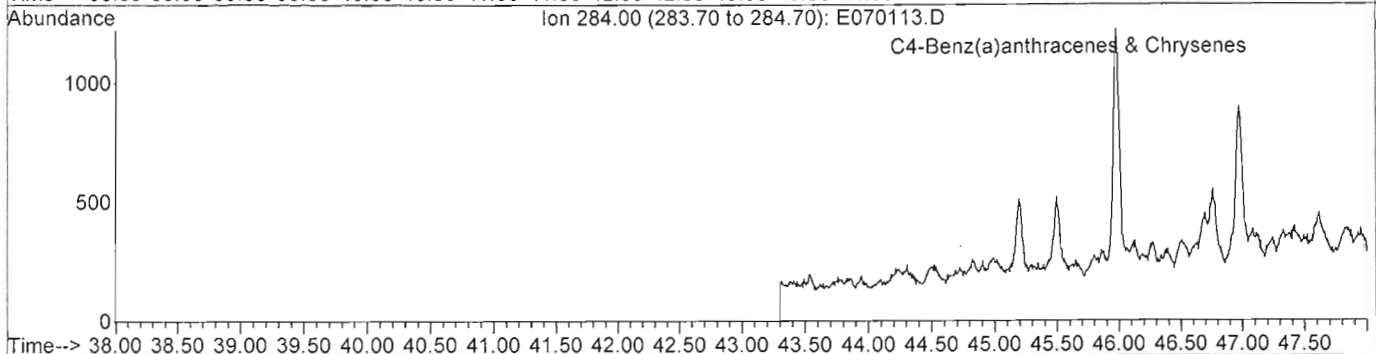
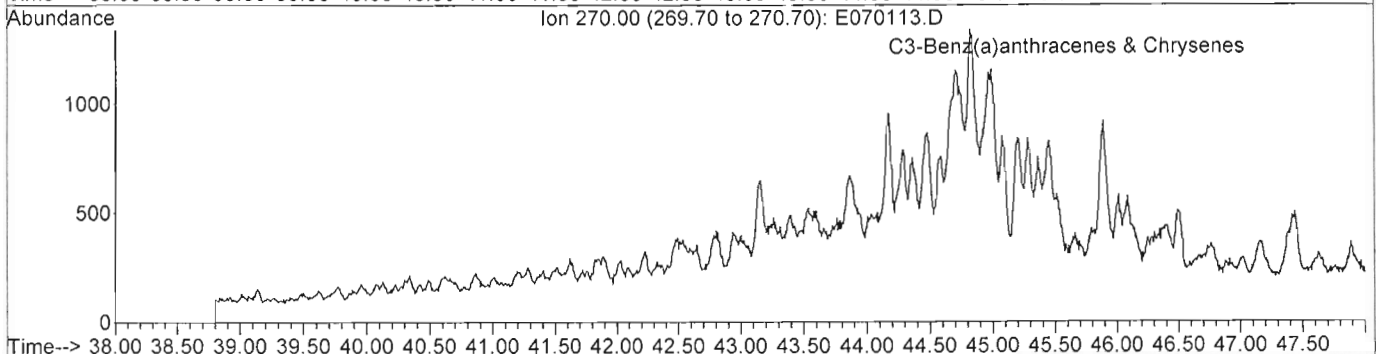
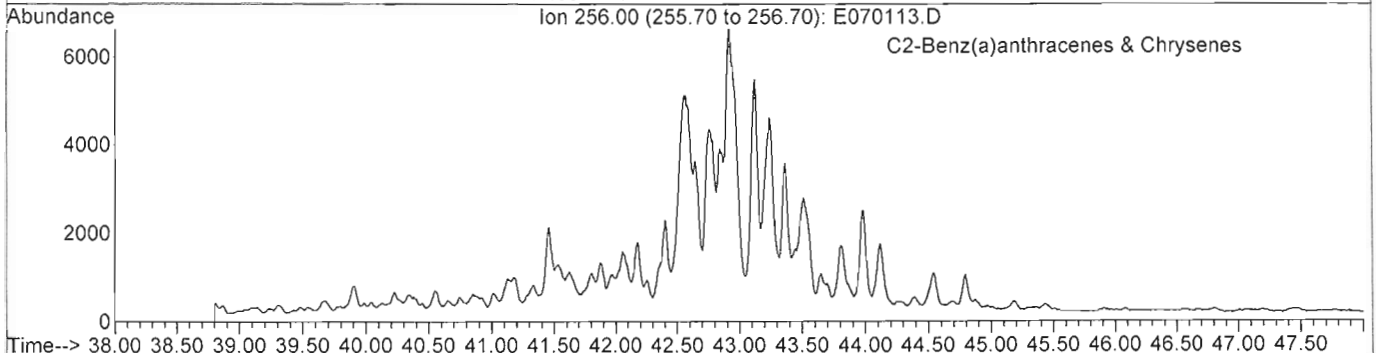
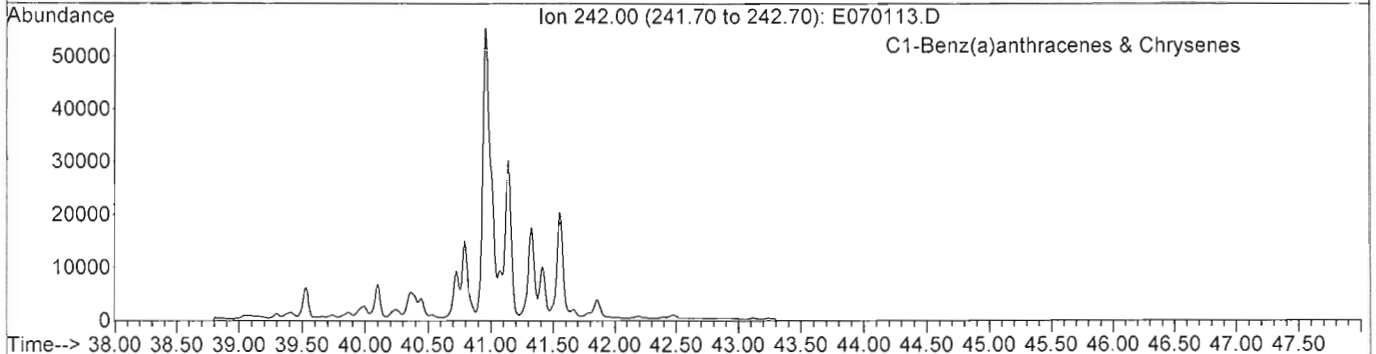
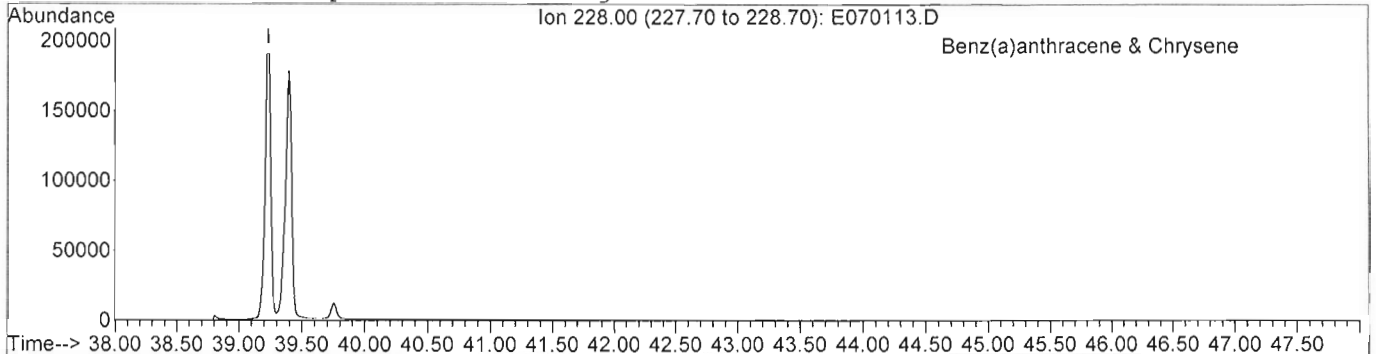
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META Environmental, Inc.

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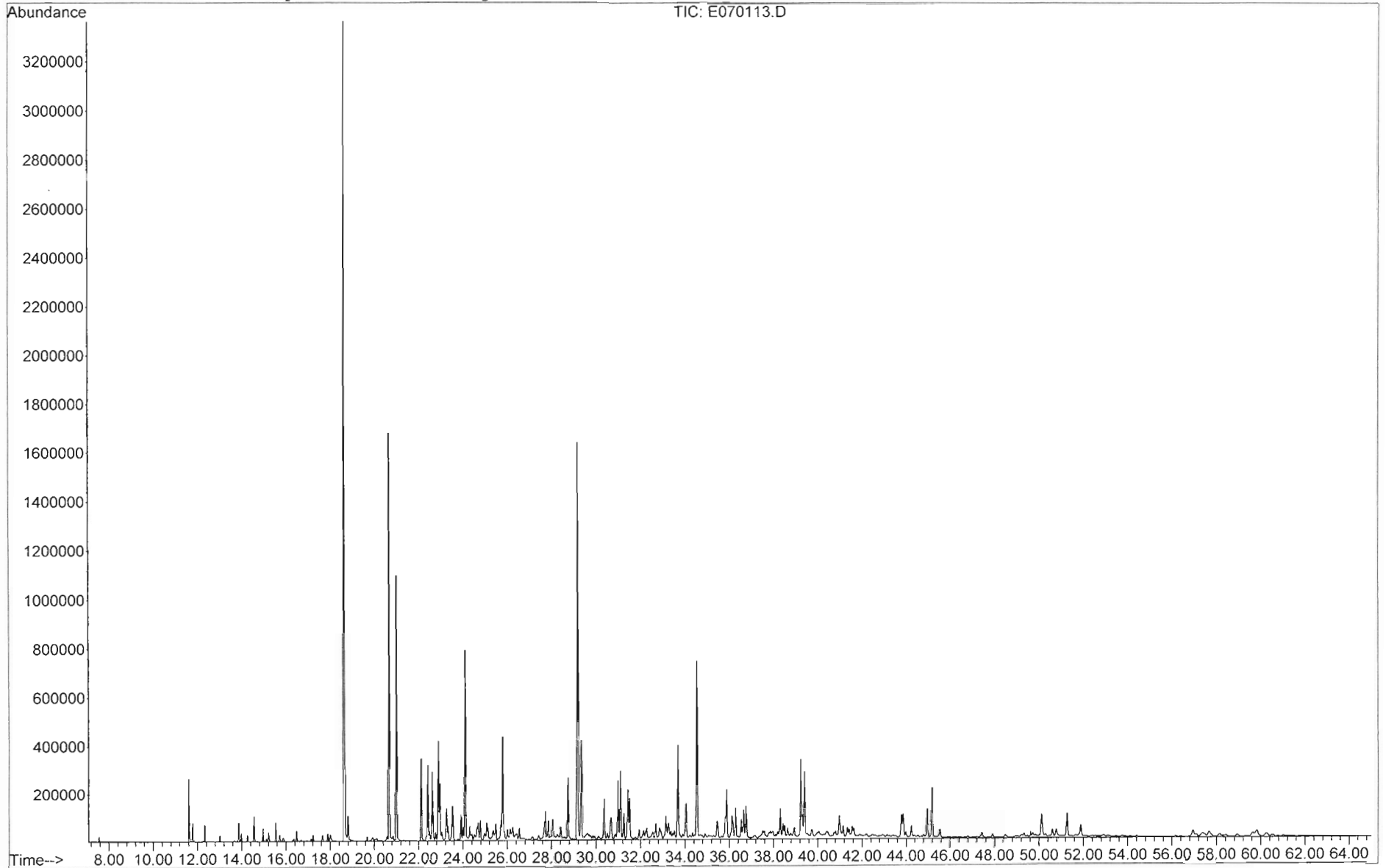
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META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

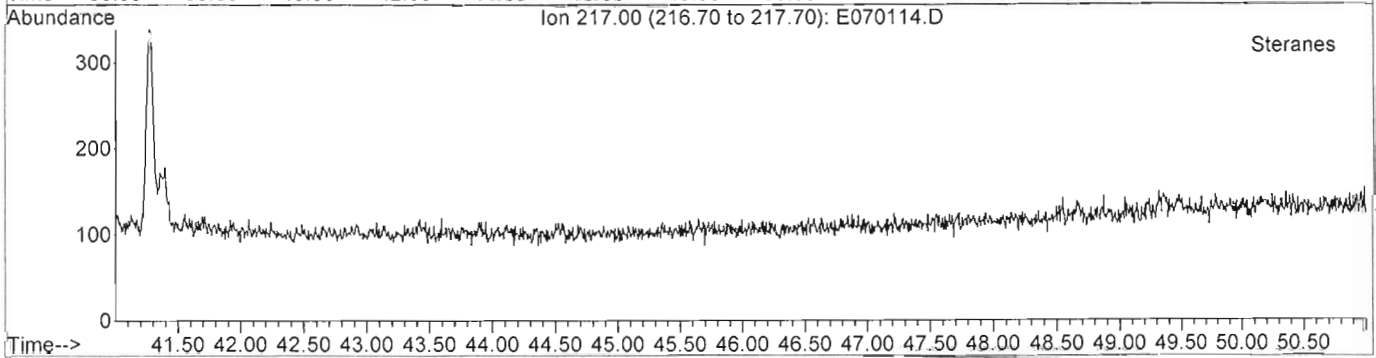
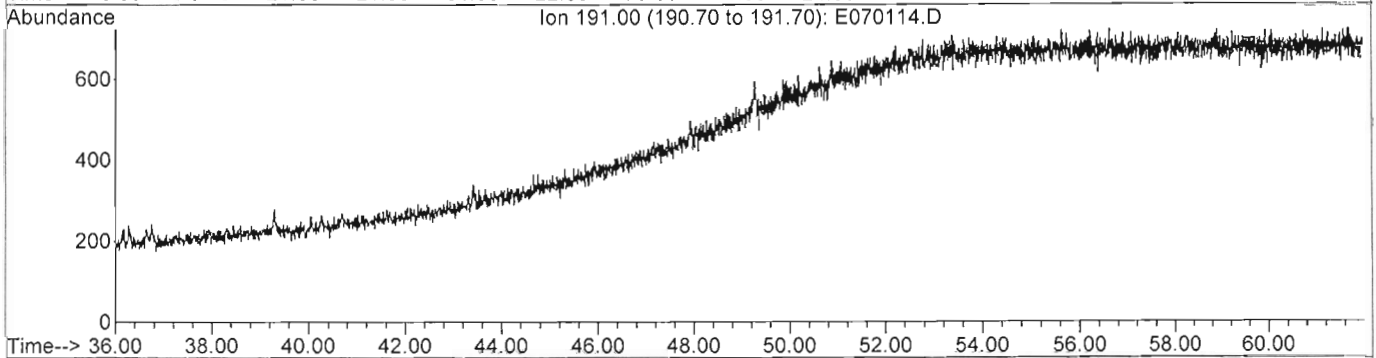
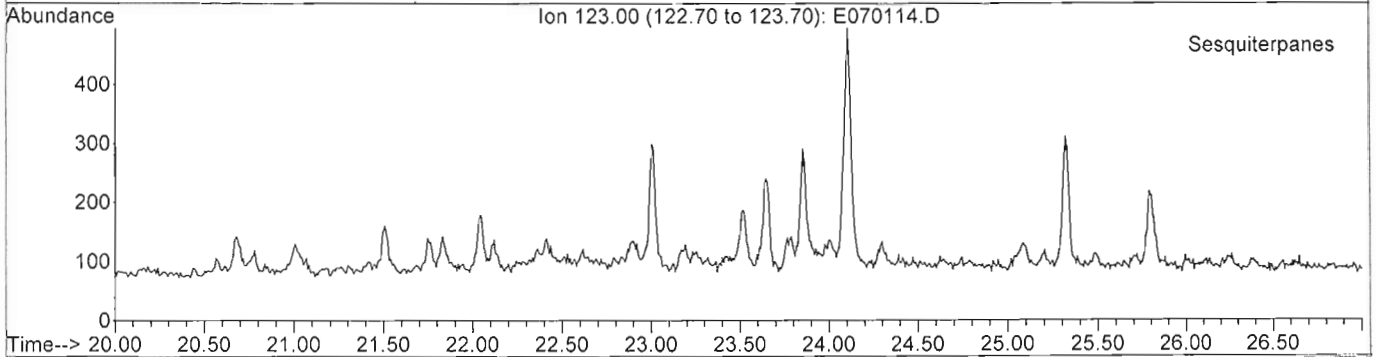
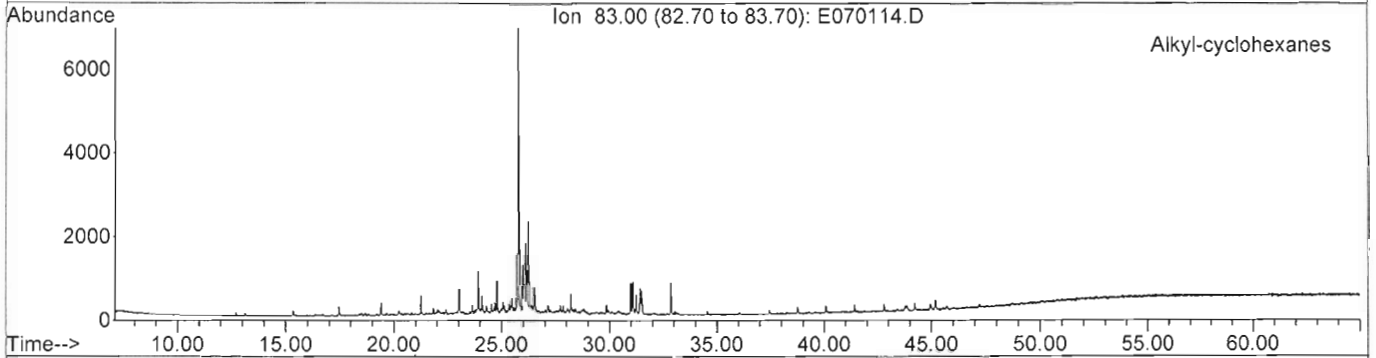
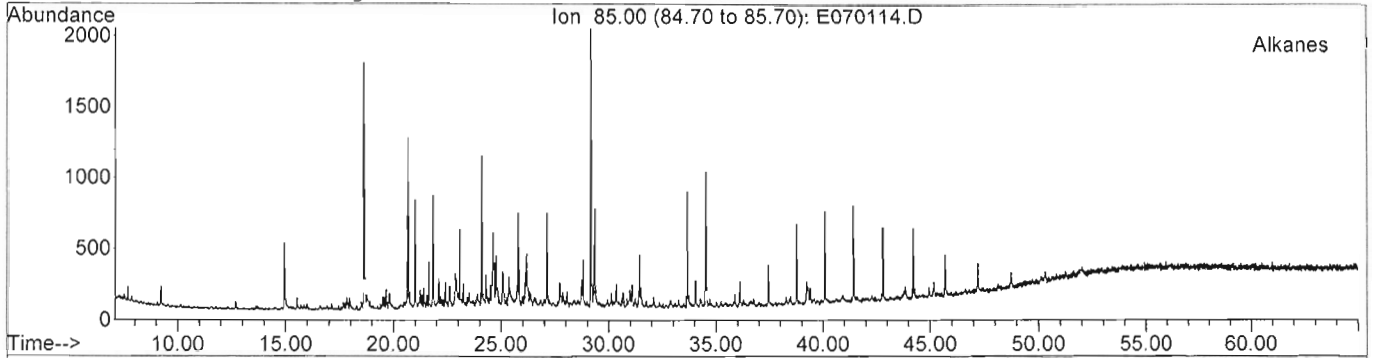
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META Environmental, Inc.

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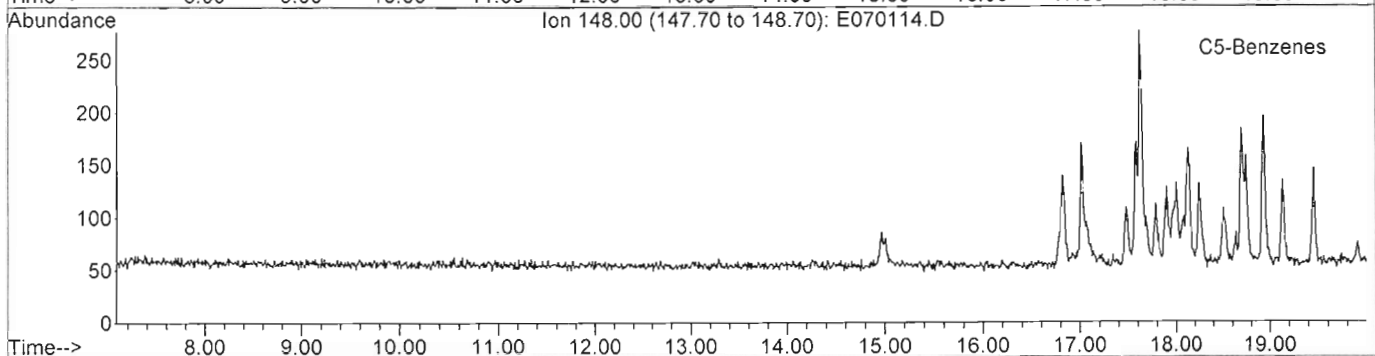
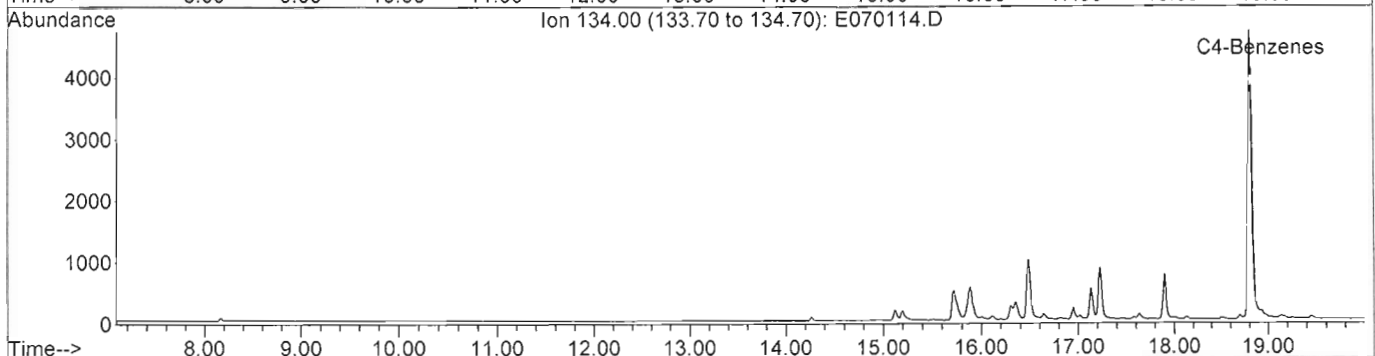
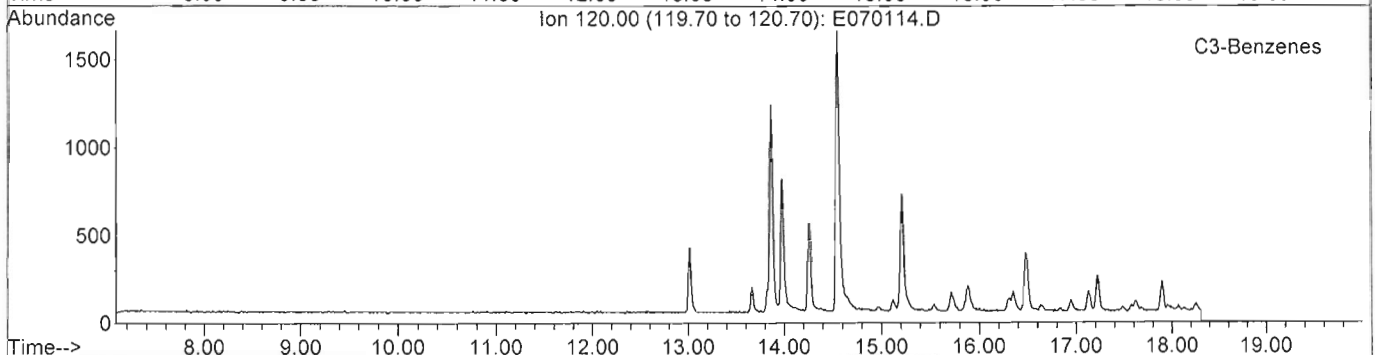
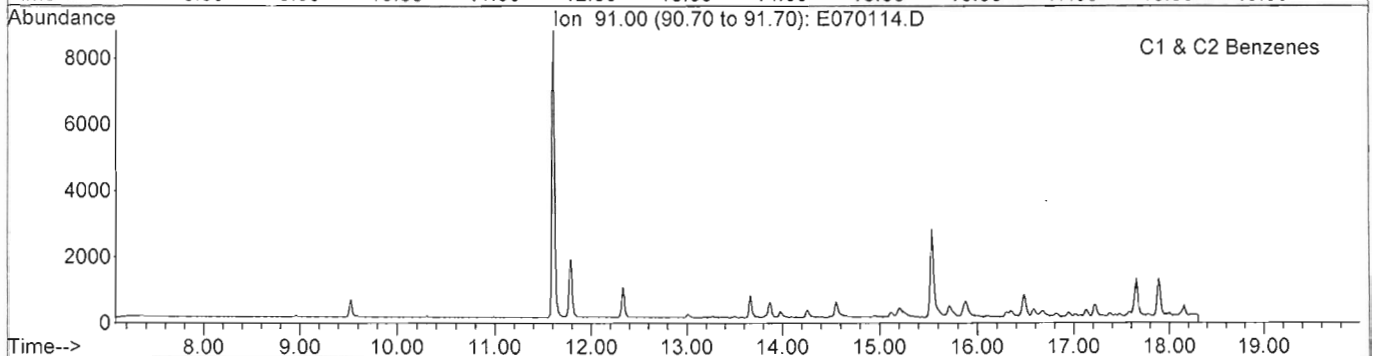
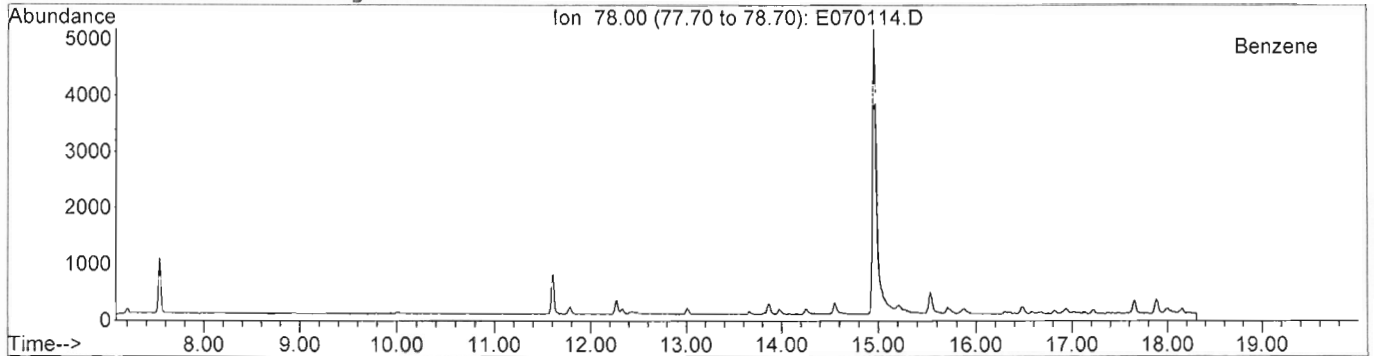
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META Environmental, Inc.

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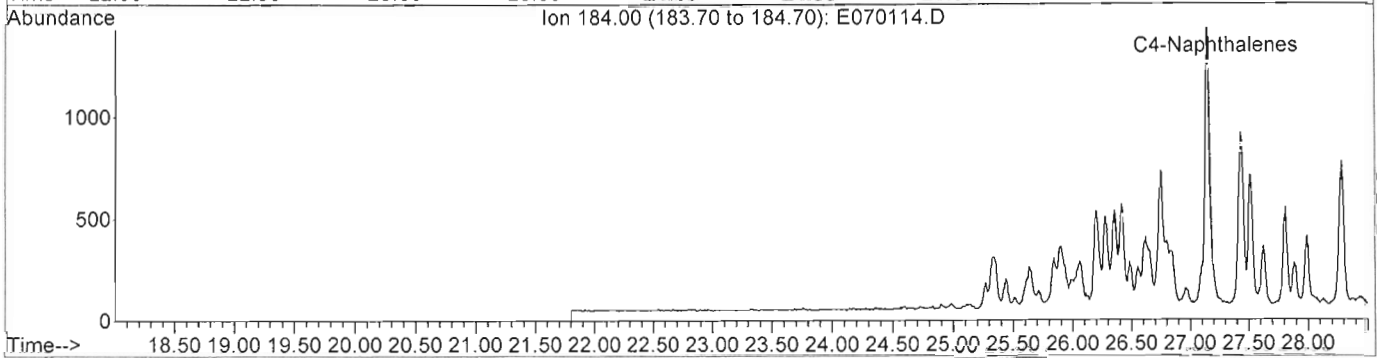
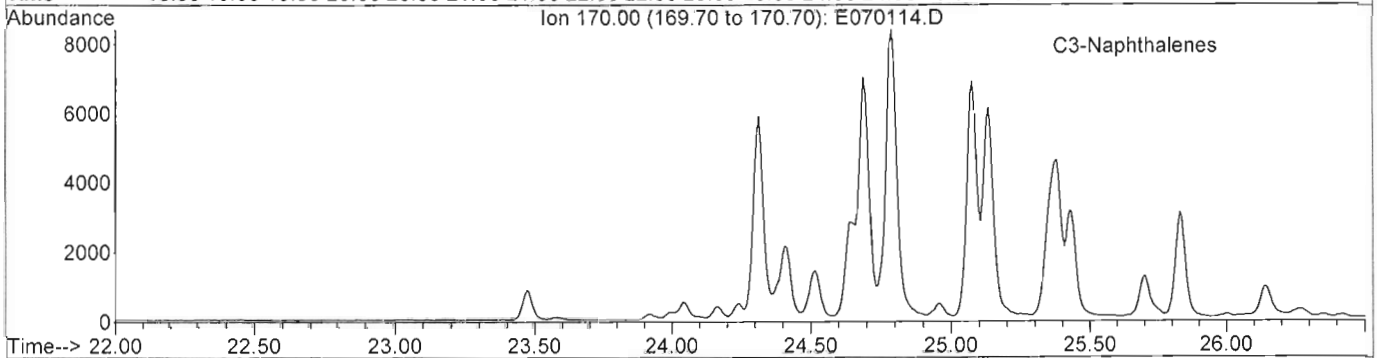
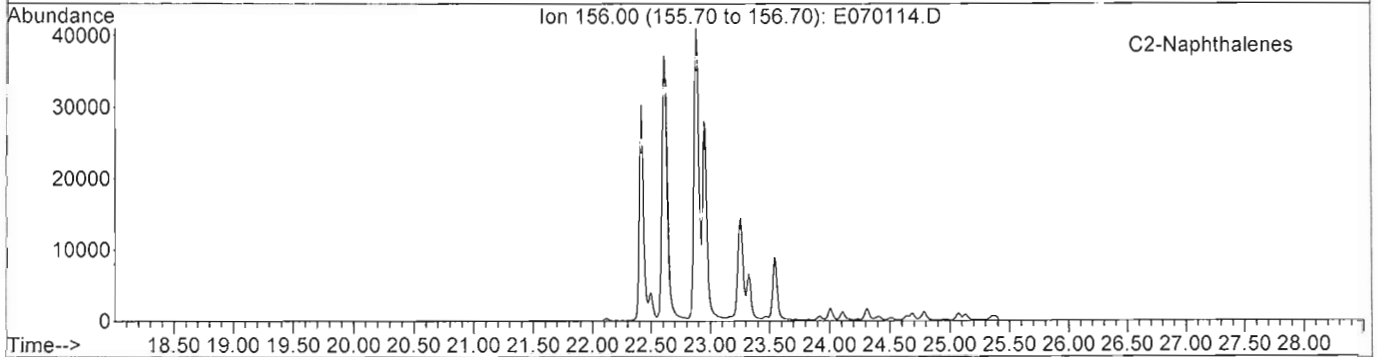
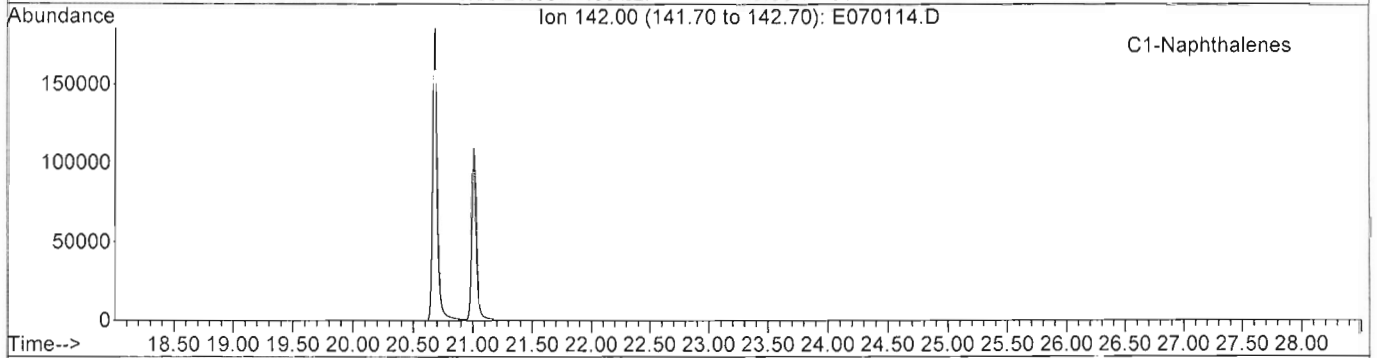
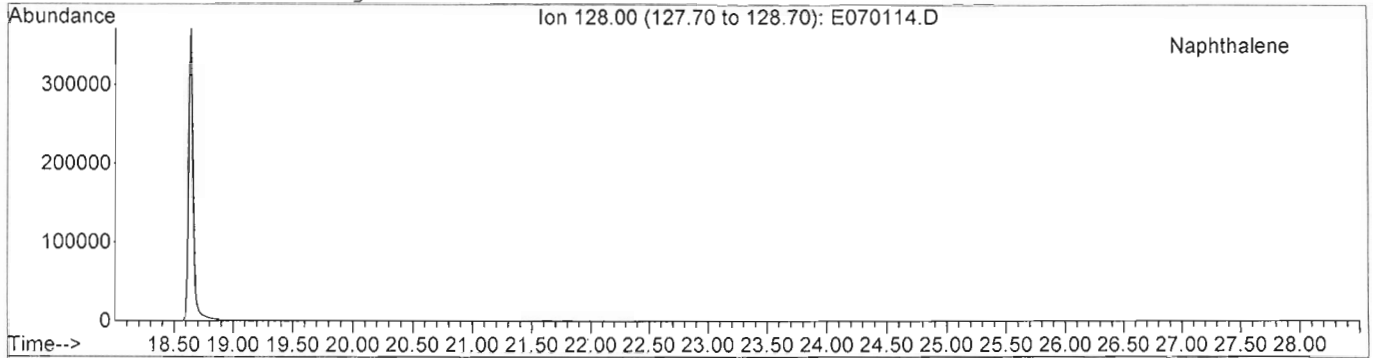
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META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

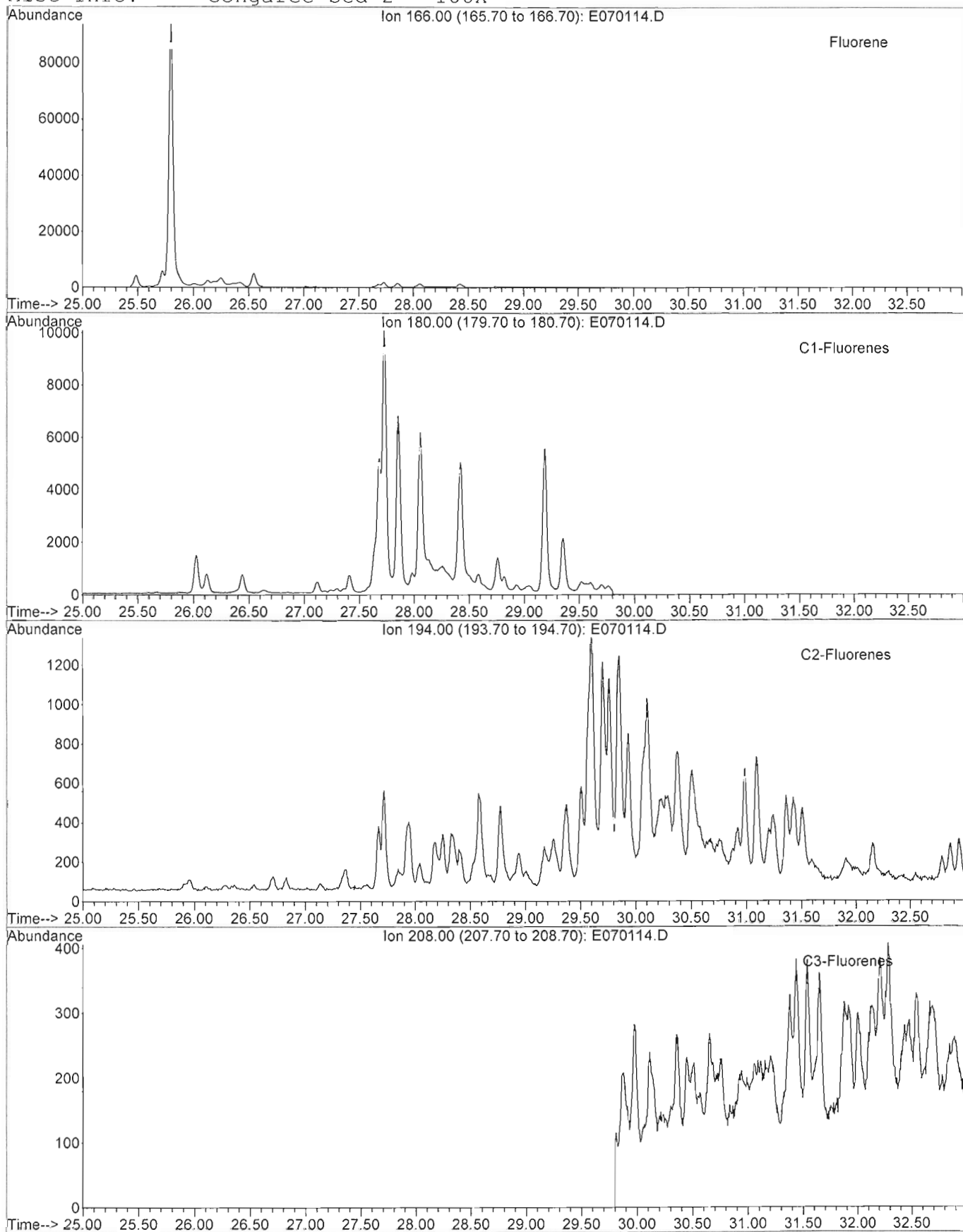
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META Environmental, Inc.

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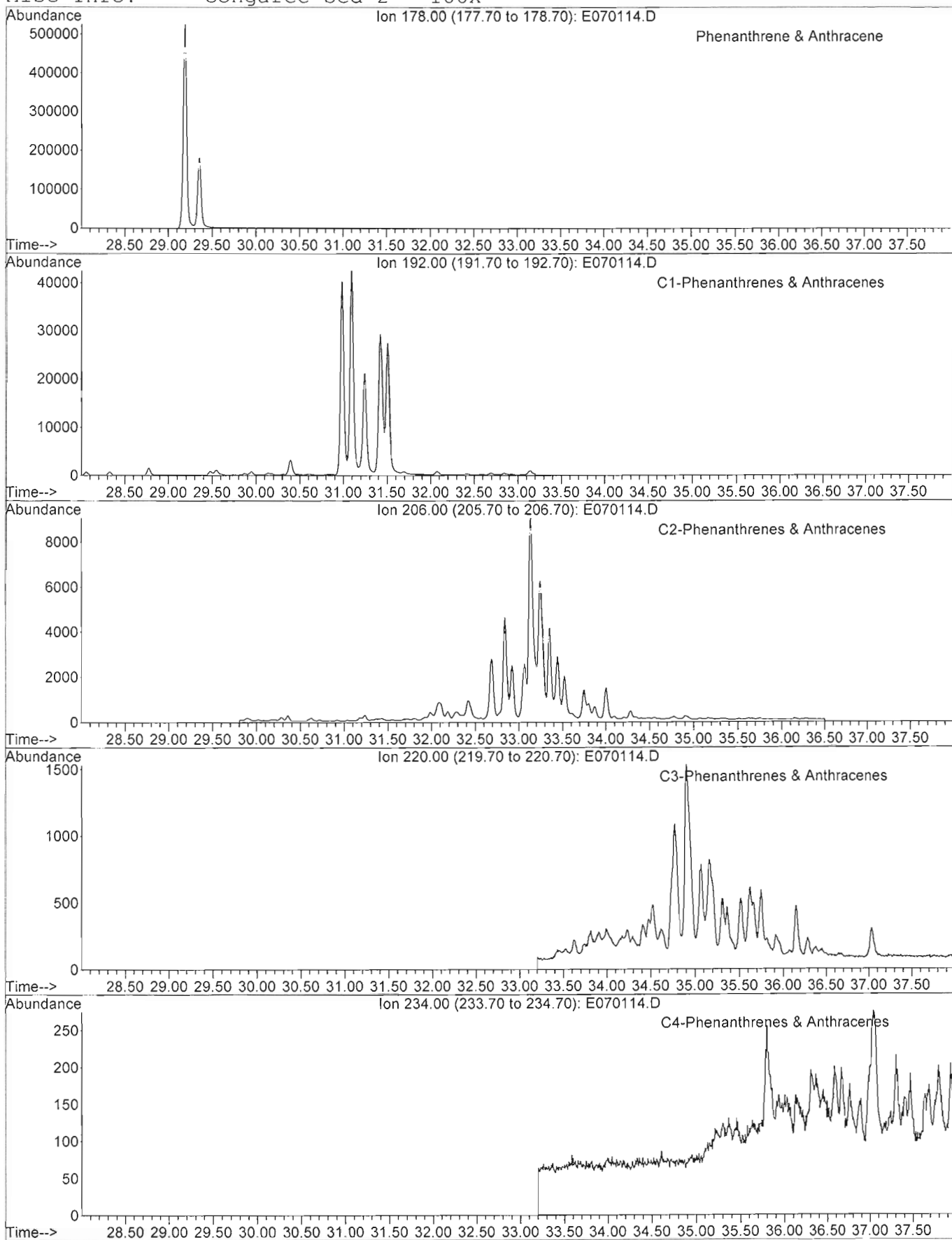
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META Environmental, Inc.

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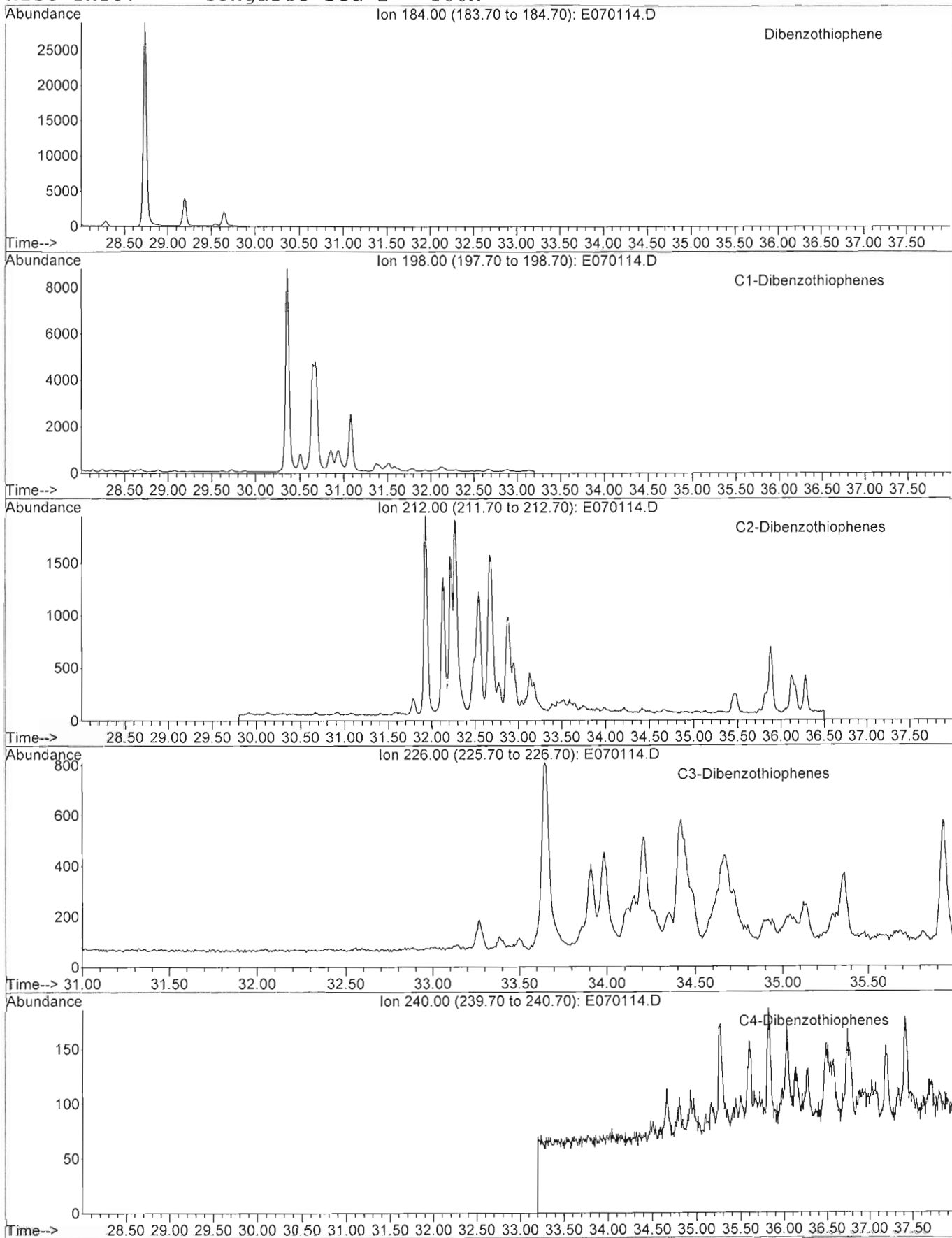
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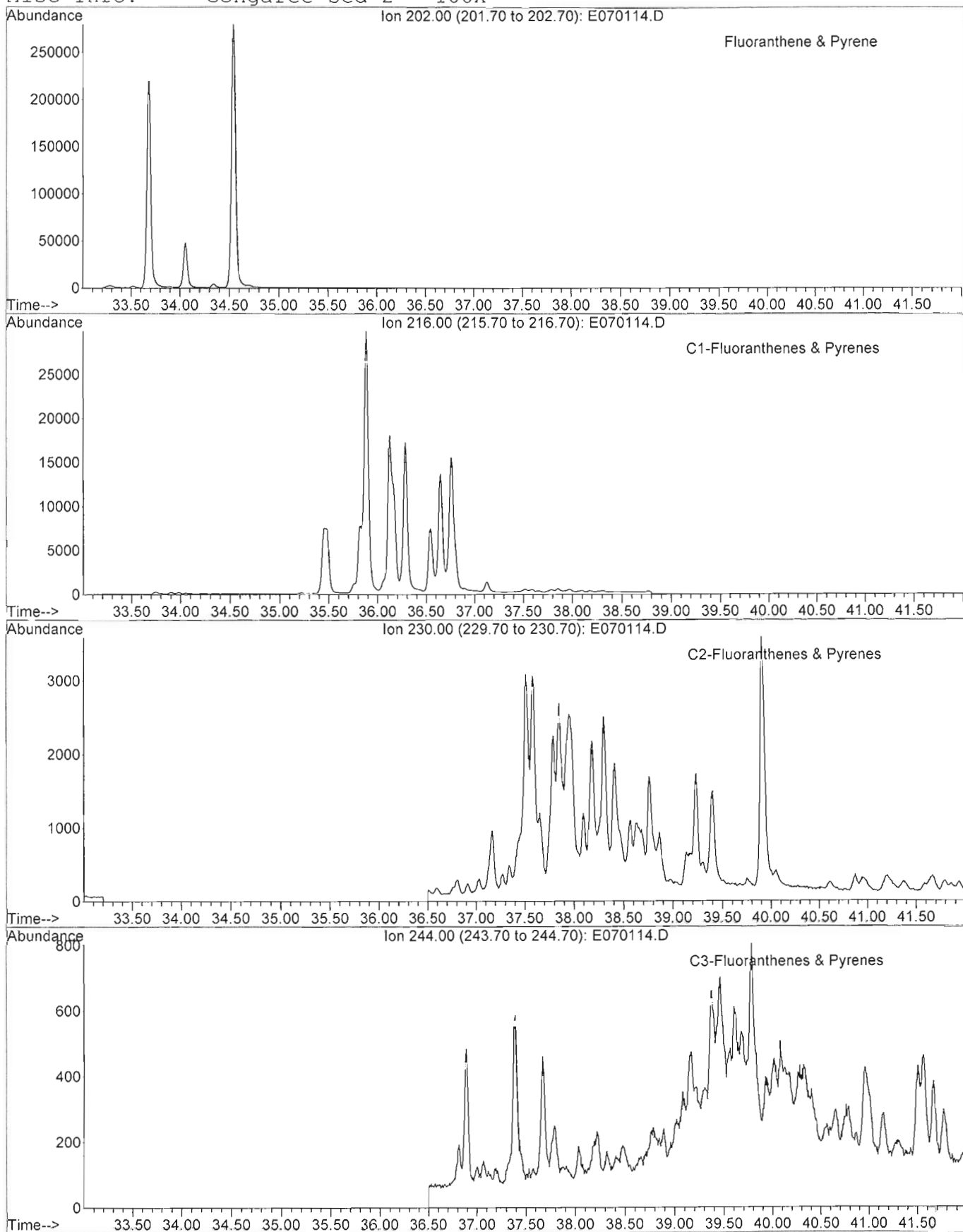
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META Environmental, Inc.

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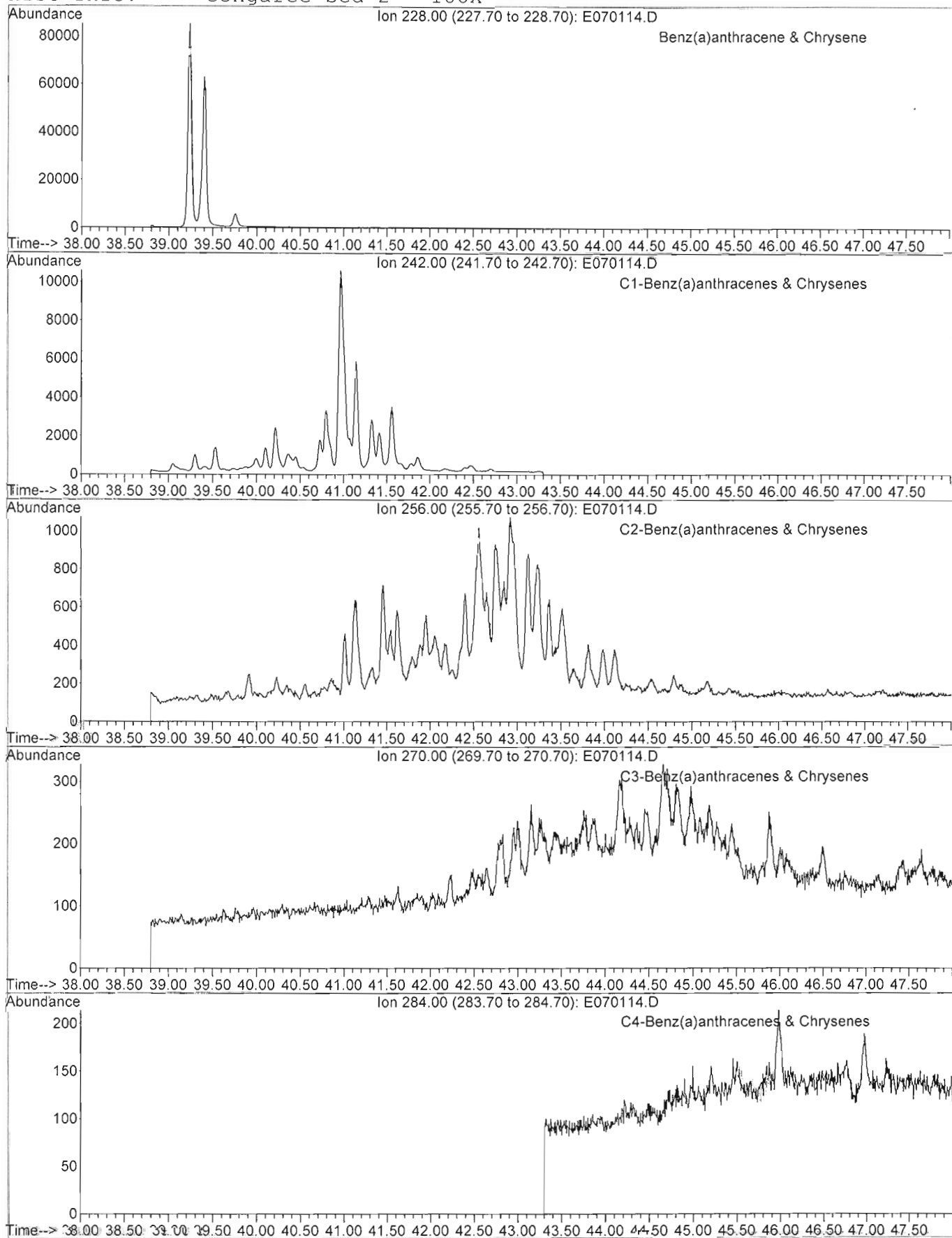
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META Environmental, Inc.

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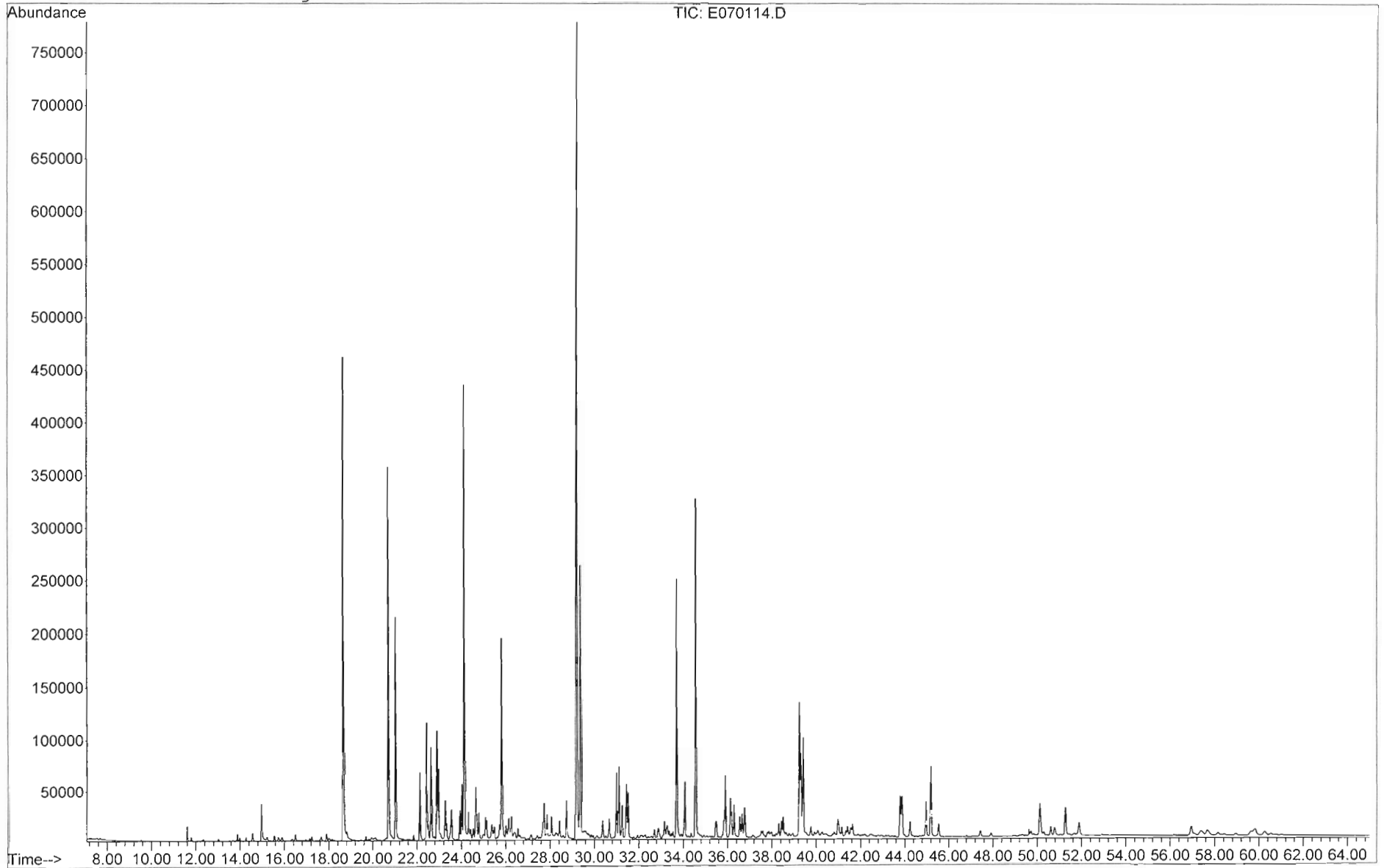
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META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

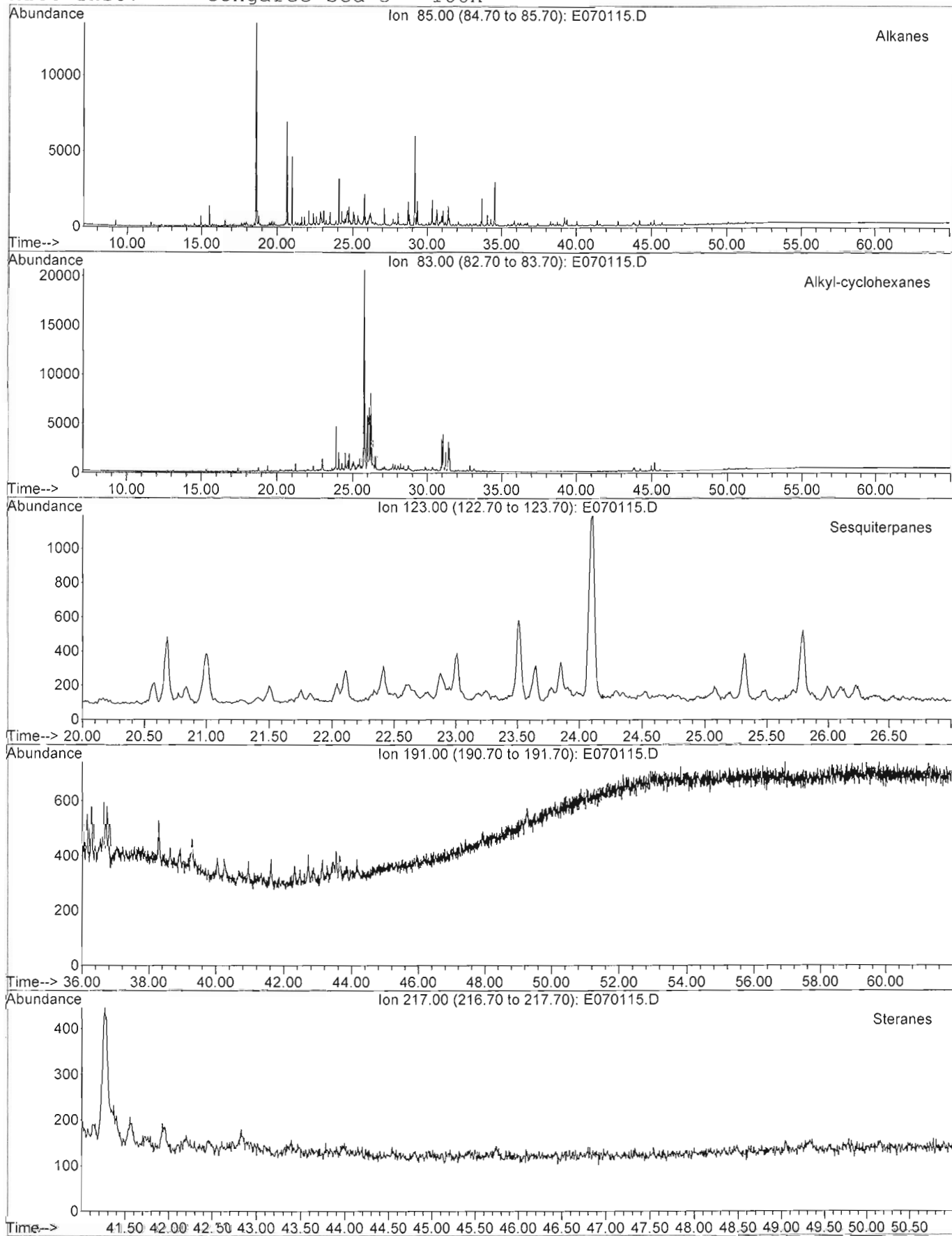
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META Environmental, Inc.

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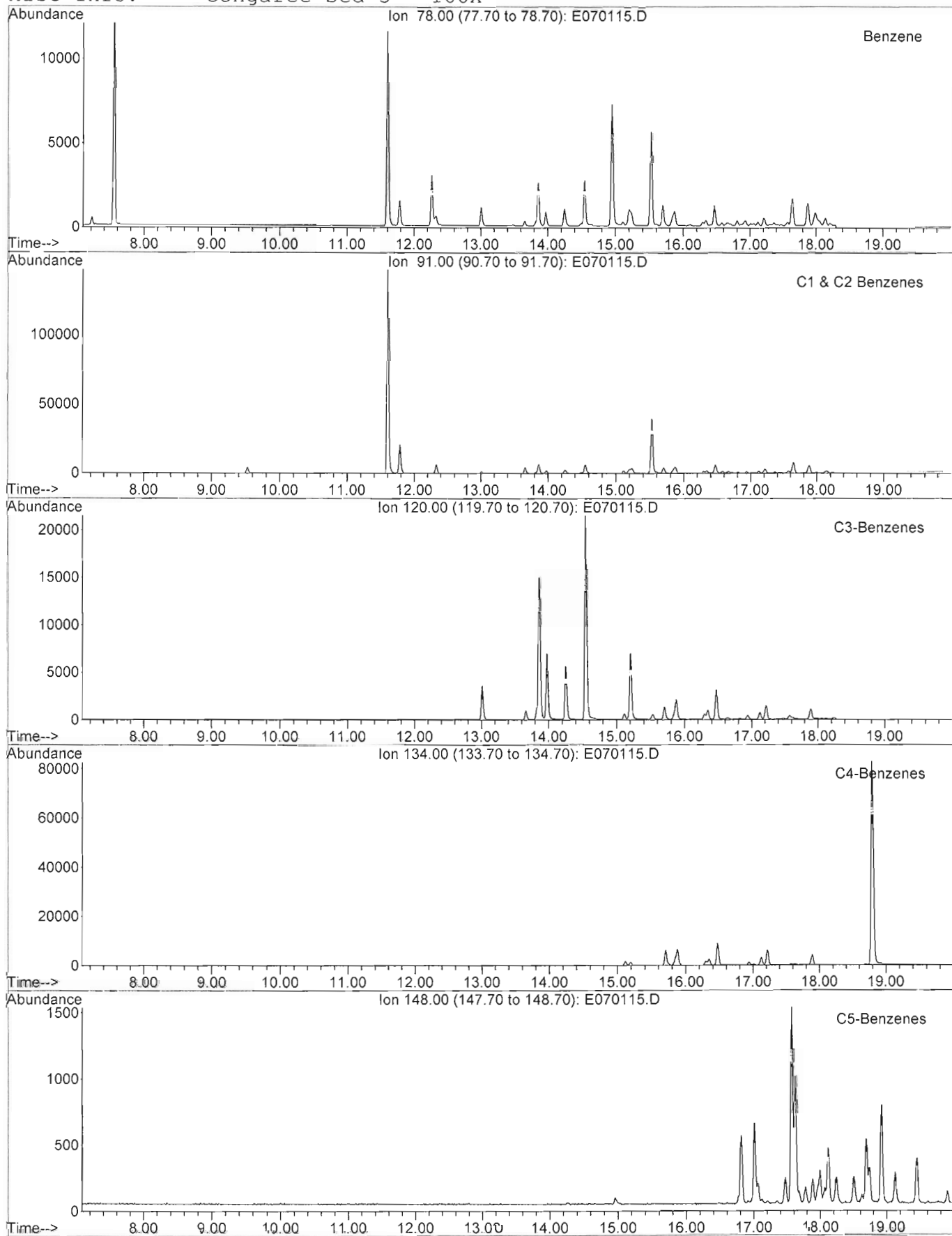
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META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

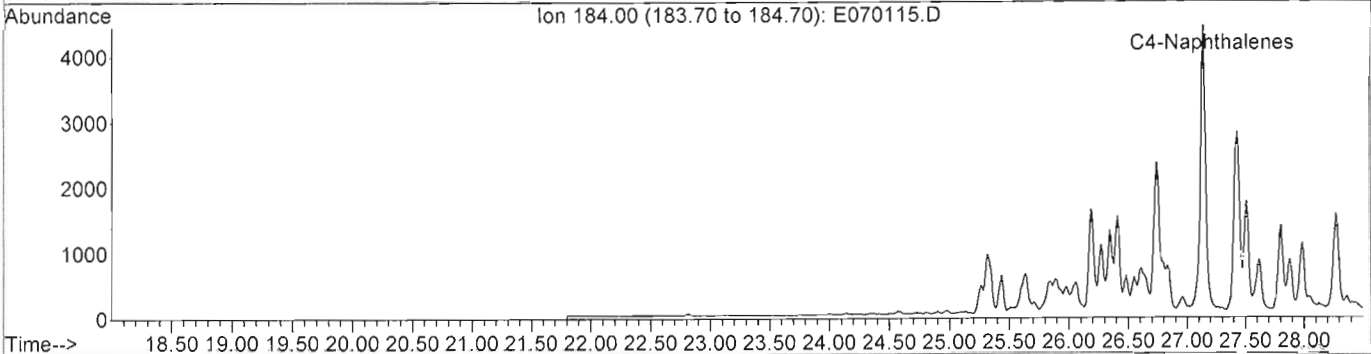
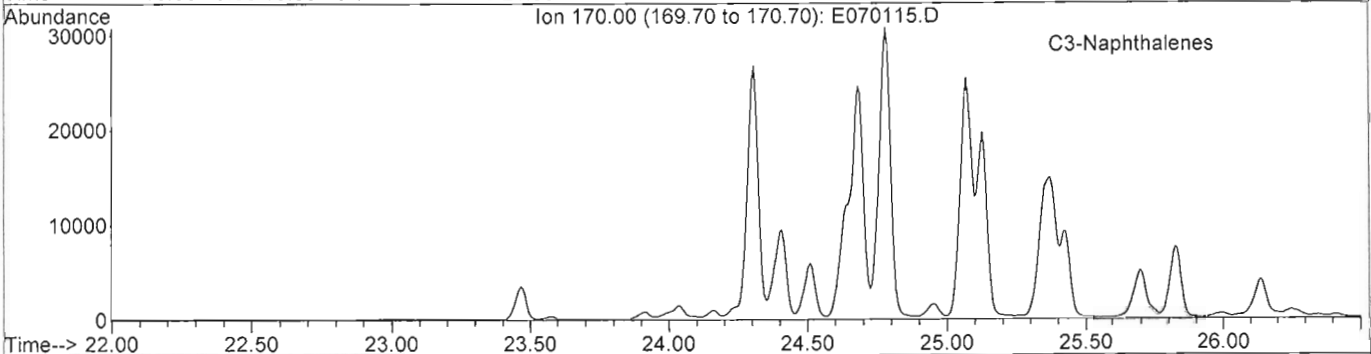
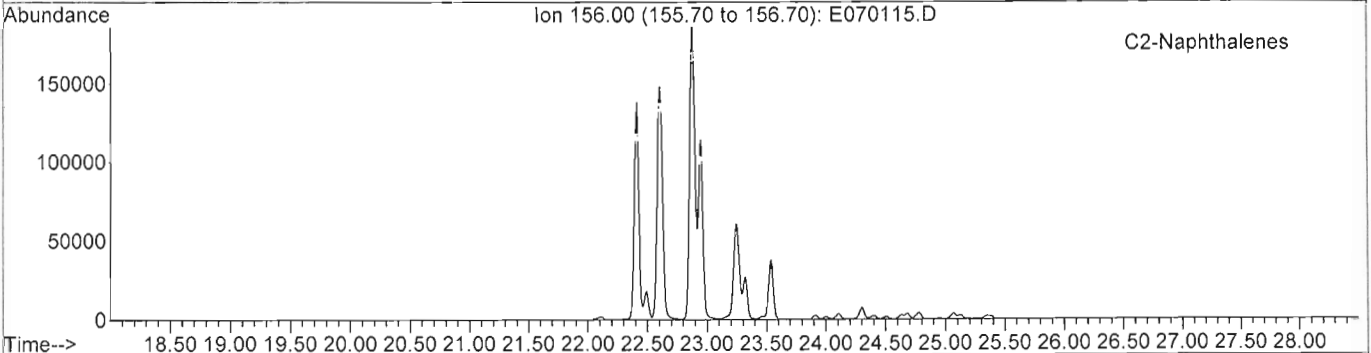
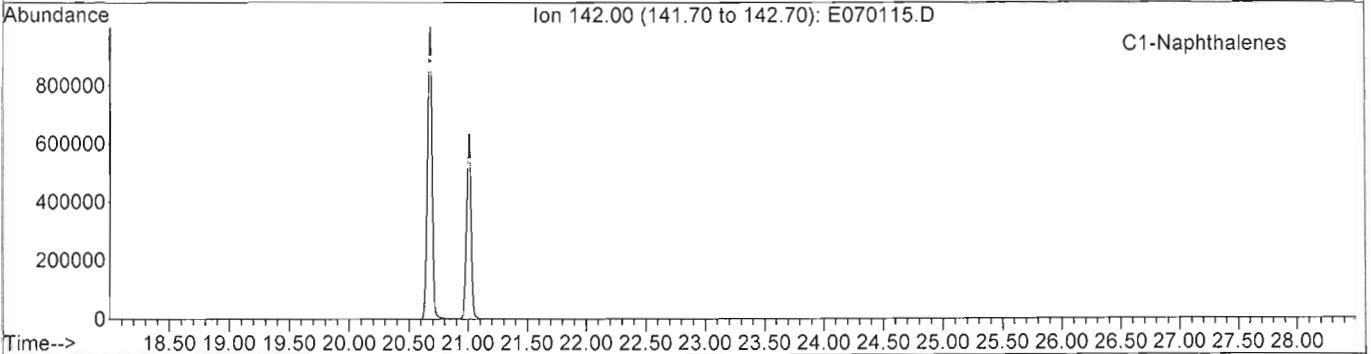
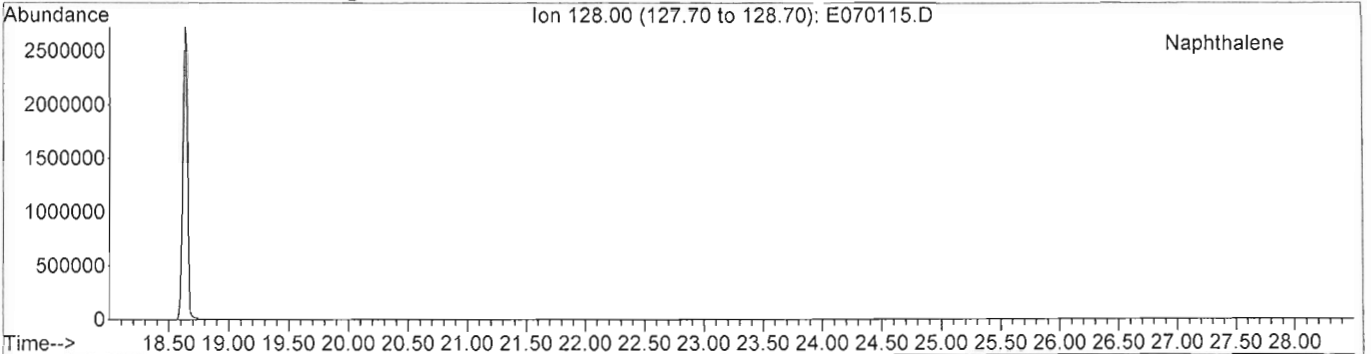
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META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

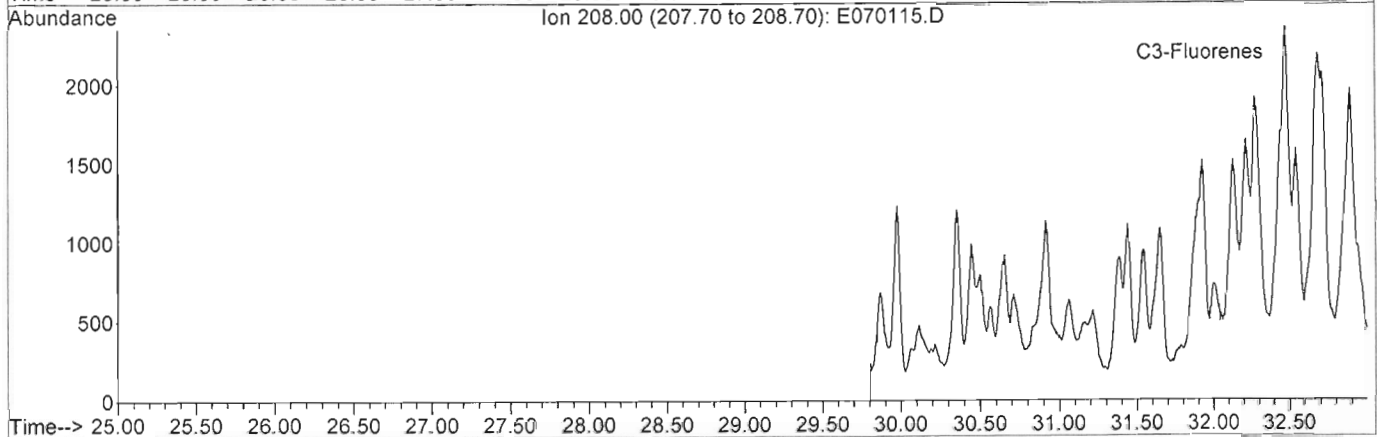
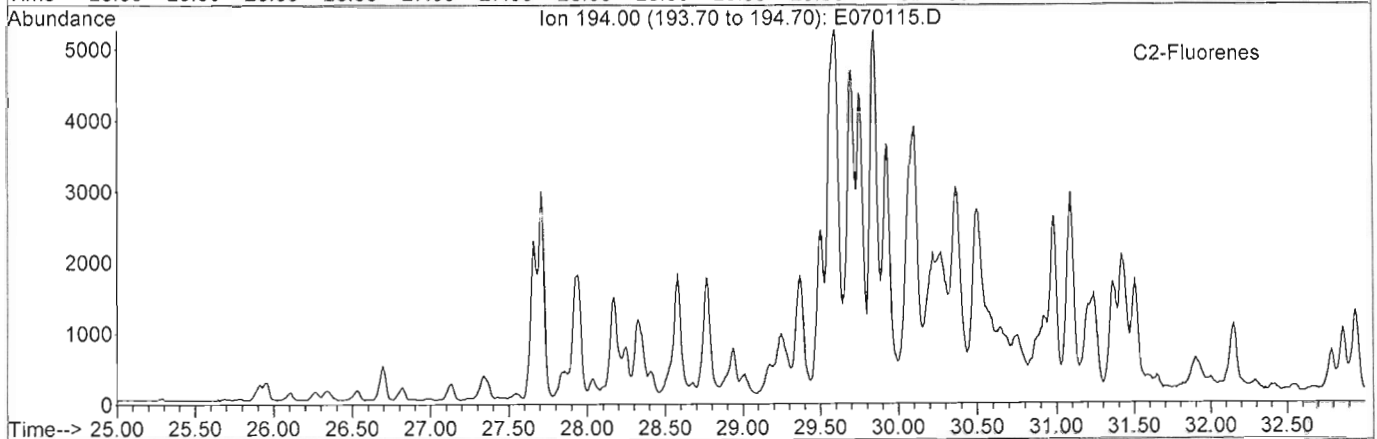
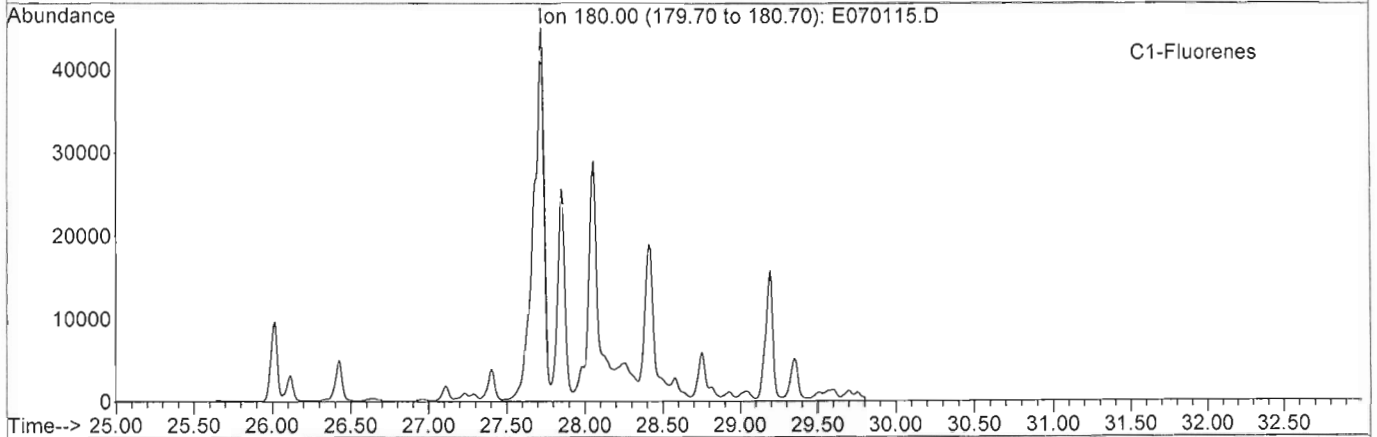
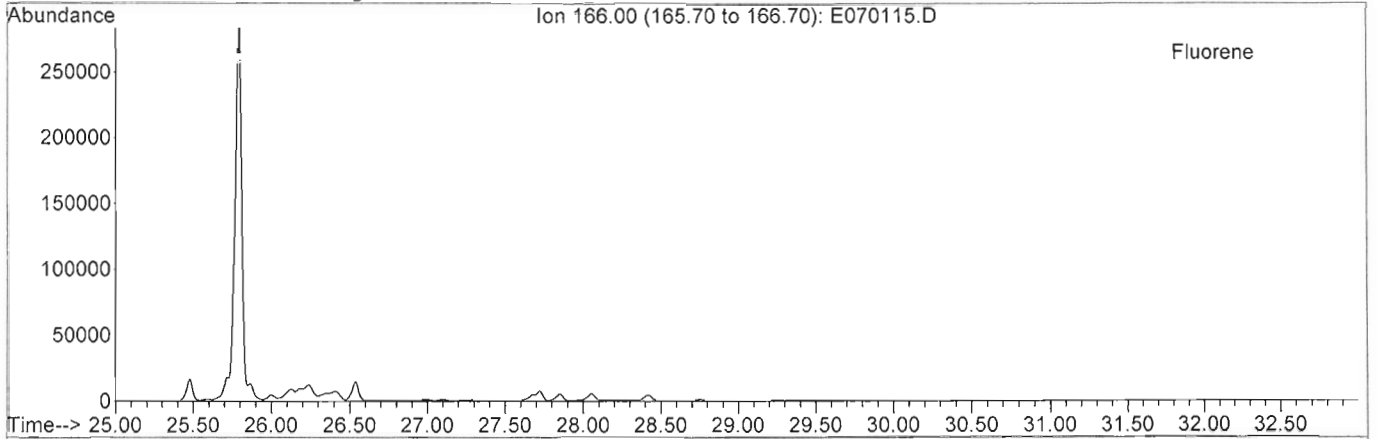
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Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

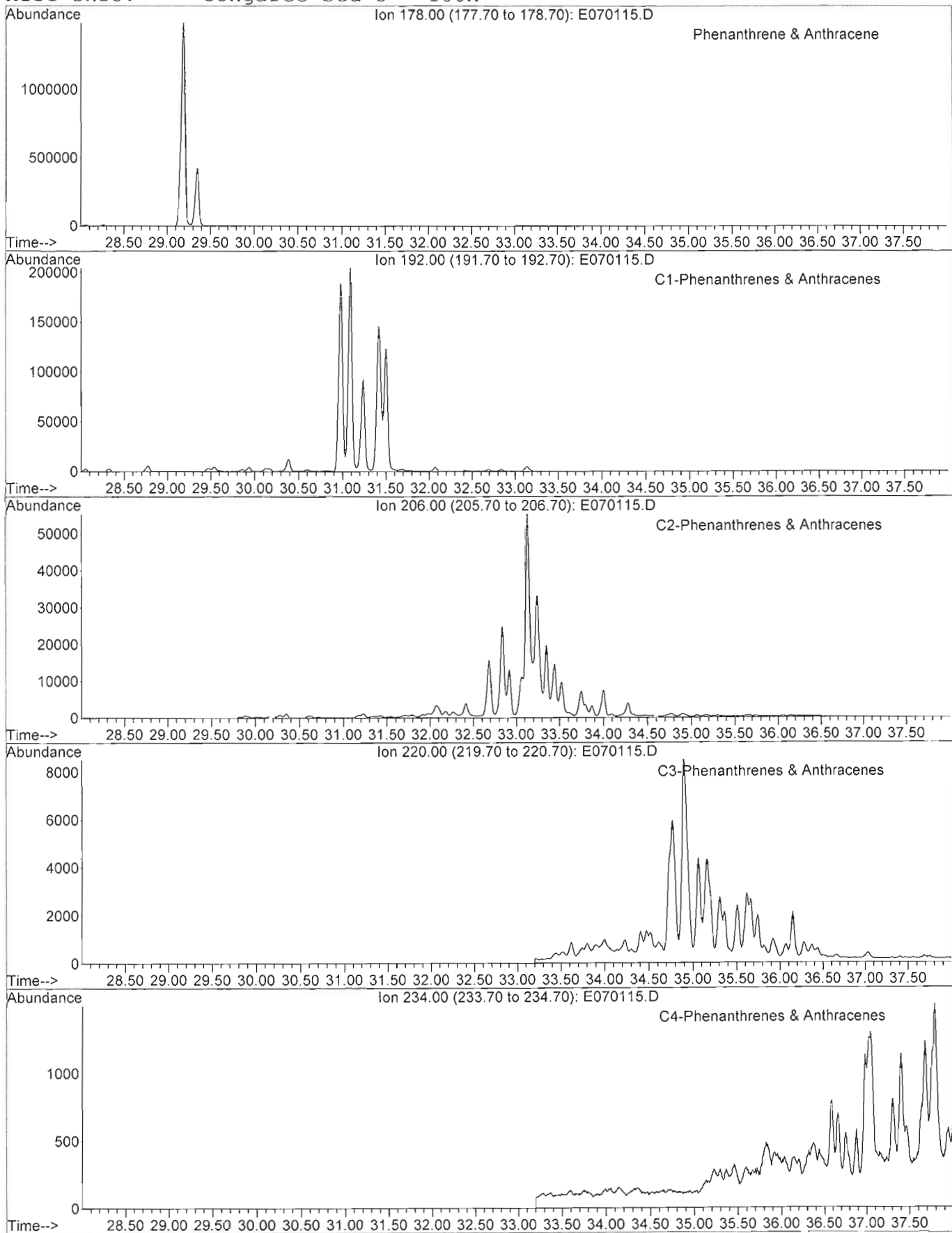
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Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

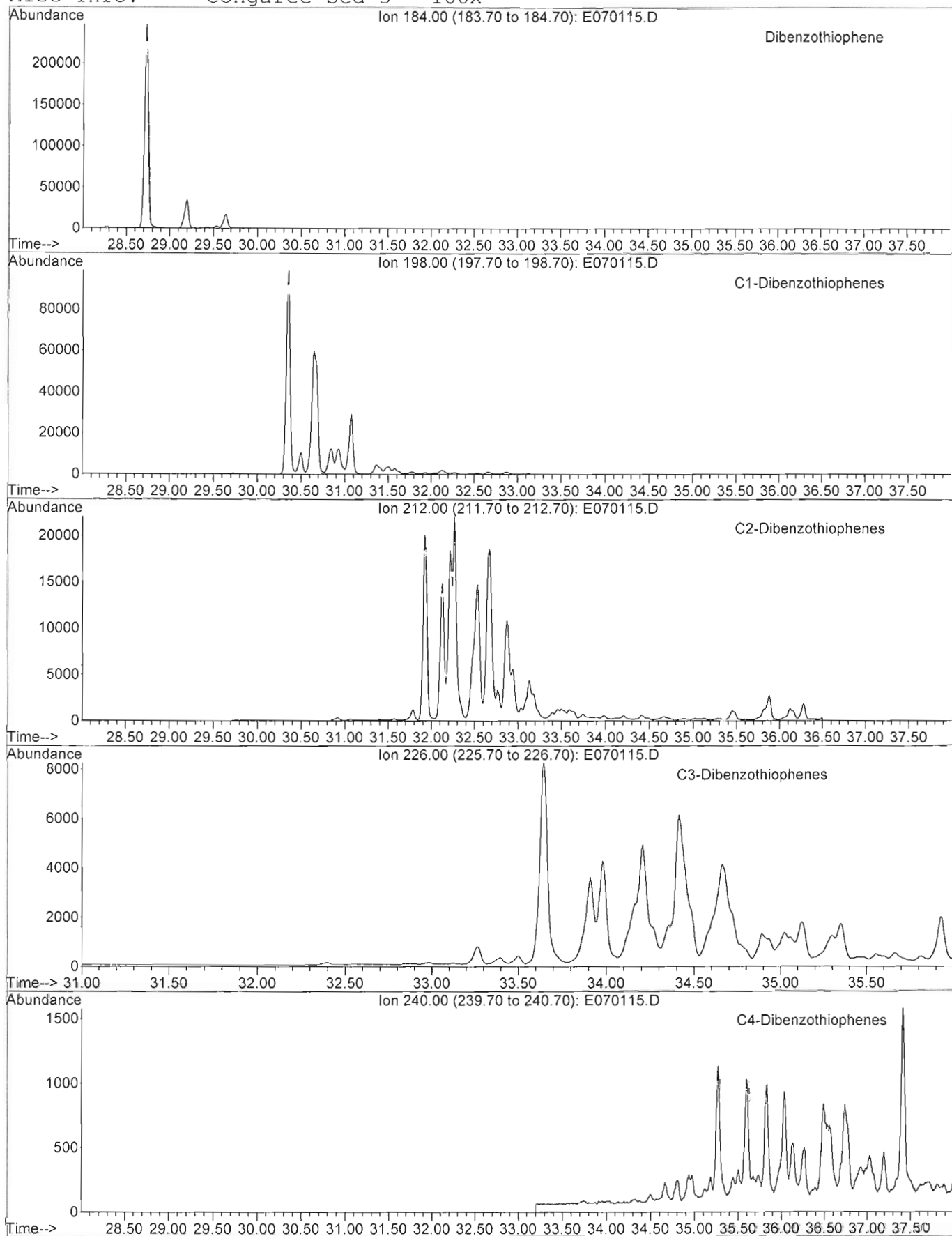
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Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

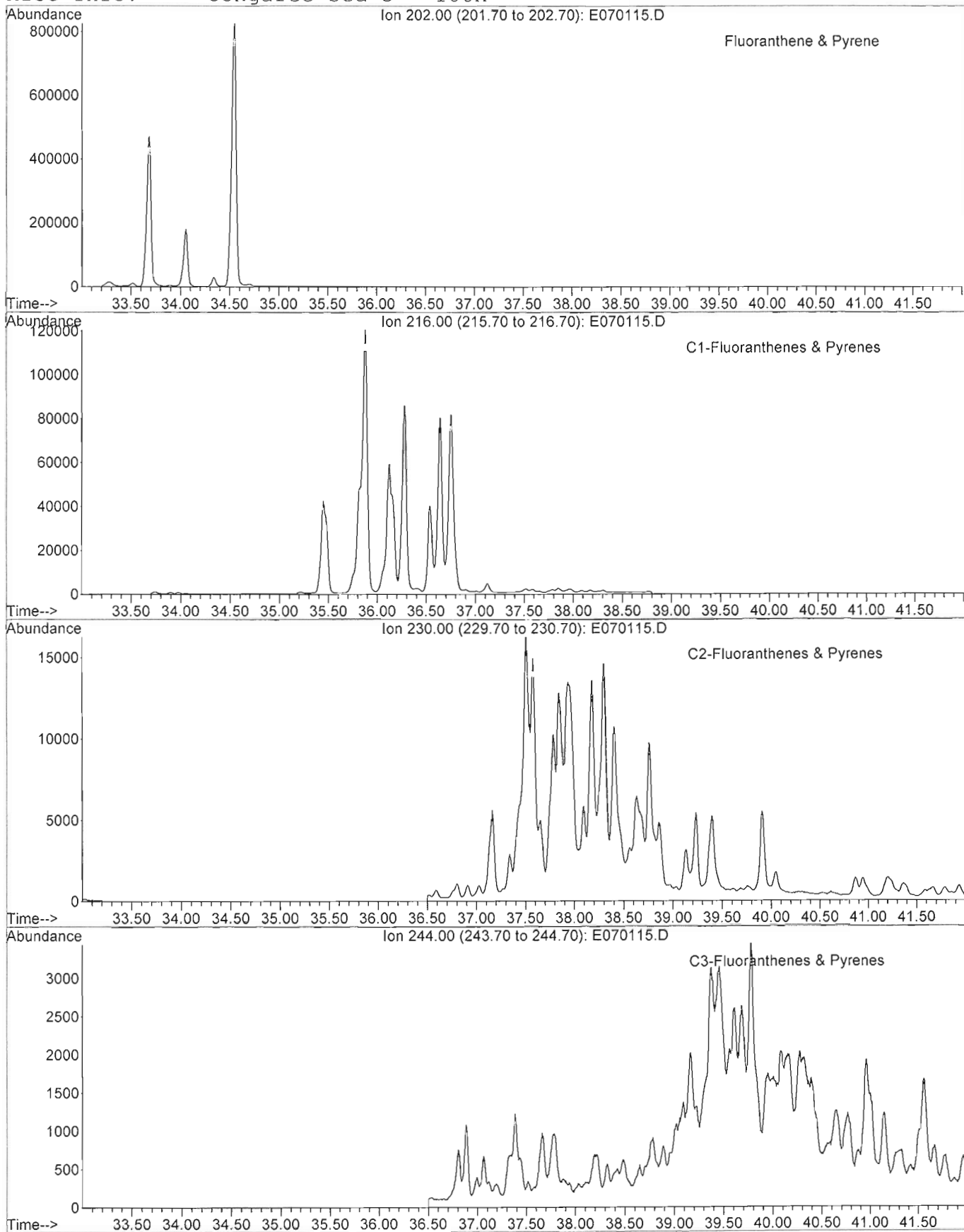
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Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

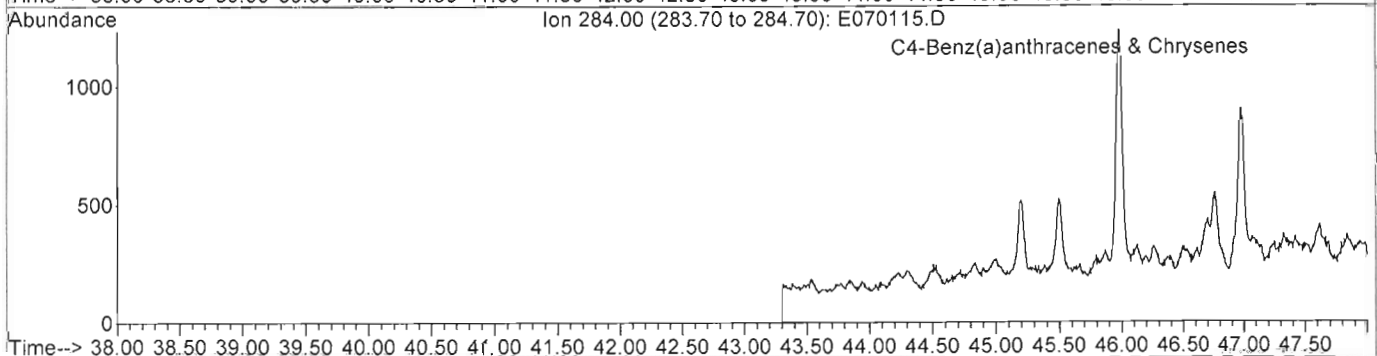
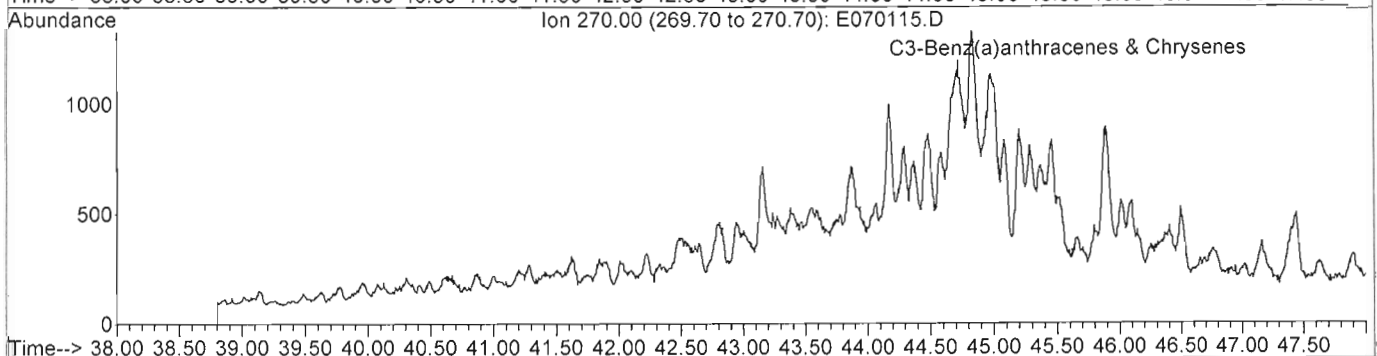
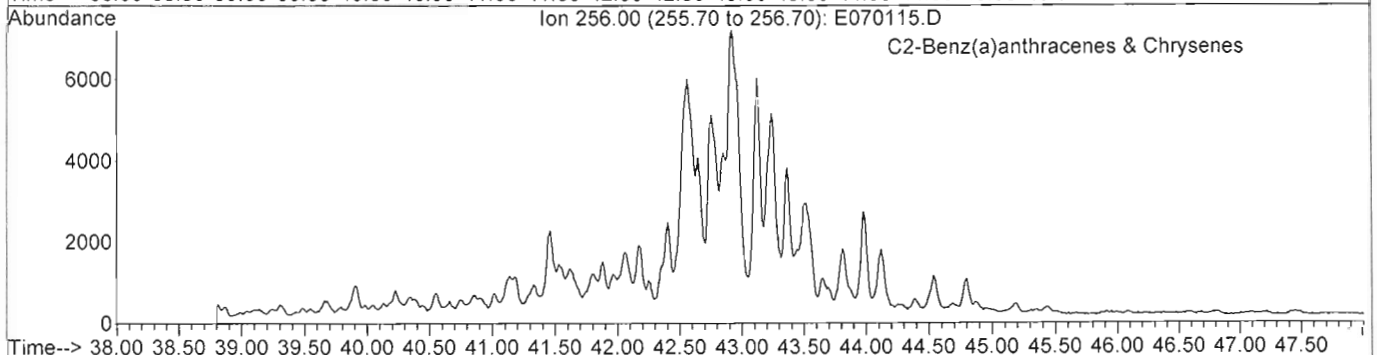
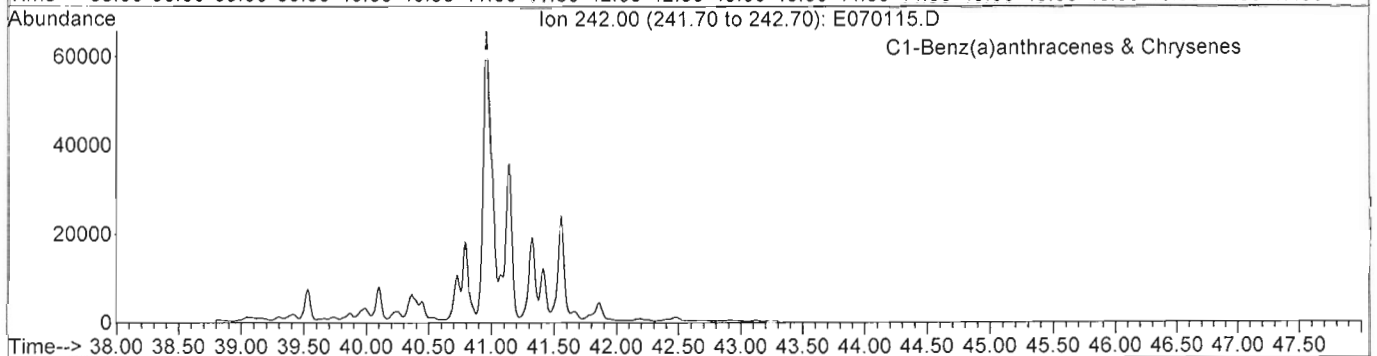
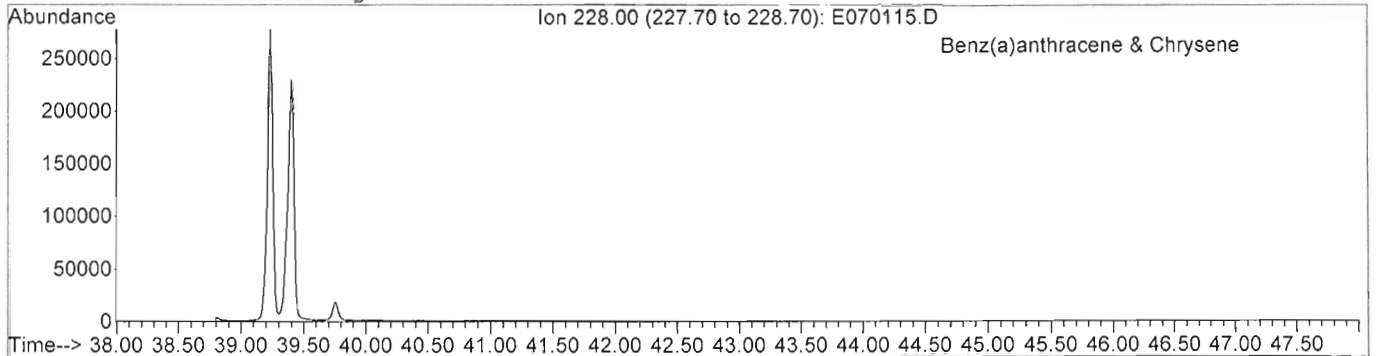
File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

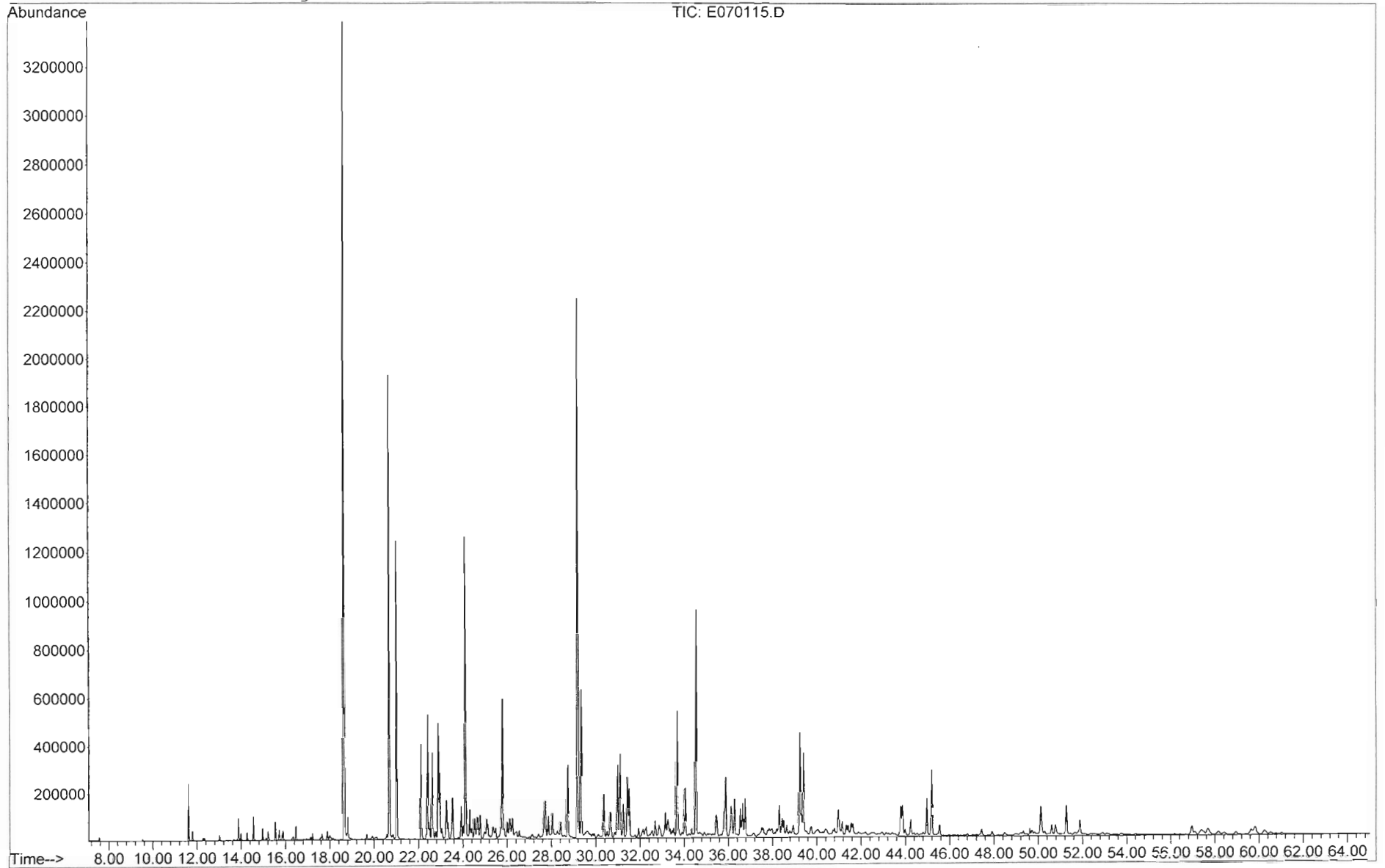
File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E100701\E070115.D
Date Acquired: 2 Jul 2010 7:39 am
Sample Name: SG100629-03A-D2
Misc Info: Congaree Sed-3 - 100X



Report of Analysis

AECOM
810 Dutch Square Blvd.
Suite 202
Columbia, SC 29210
Attention: Scott Ross

Project Name: **Congaree River**

Lot Number: **LF28025**
Date Completed: **07/01/2010**



Nisreen Saikaly
Project Manager



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The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* LF28025 *

SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DEHNR No: 329

Case Narrative

AECOM

Lot Number: LF28025

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Dilutions greater than 5X impact the surrogate recoveries, thus negating their usefulness concerning quality control. The sample results are reported and no corrective action is required.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary

AECOM

Lot Number: LF28025

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	Congaree Sed-1	Solid	06/28/2010 1430	06/28/2010
002	Congaree Sed-2	Solid	06/28/2010 1500	06/28/2010
003	Congaree Sed-3	Solid	06/28/2010 1520	06/28/2010

(3 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary

AECOM

Lot Number: LF28025

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	Congaree Sed-1	Solid	Benzene	8260B	16000		ug/kg	6
001	Congaree Sed-1	Solid	Ethylbenzene	8260B	150000		ug/kg	6
001	Congaree Sed-1	Solid	Isopropylbenzene	8260B	14000		ug/kg	6
001	Congaree Sed-1	Solid	Xylenes (total)	8260B	79000		ug/kg	7
001	Congaree Sed-1	Solid	Acenaphthene	8270D	730000		ug/kg	8
001	Congaree Sed-1	Solid	Acenaphthylene	8270D	170000		ug/kg	8
001	Congaree Sed-1	Solid	Anthracene	8270D	450000		ug/kg	8
001	Congaree Sed-1	Solid	Benzo(a)anthracene	8270D	340000		ug/kg	8
001	Congaree Sed-1	Solid	Benzo(a)pyrene	8270D	380000		ug/kg	8
001	Congaree Sed-1	Solid	Benzo(b)fluoranthene	8270D	220000		ug/kg	8
001	Congaree Sed-1	Solid	1,1'-Biphenyl	8270D	300000		ug/kg	8
001	Congaree Sed-1	Solid	Chrysene	8270D	340000		ug/kg	8
001	Congaree Sed-1	Solid	Fluoranthene	8270D	530000		ug/kg	8
001	Congaree Sed-1	Solid	Fluorene	8270D	490000		ug/kg	8
001	Congaree Sed-1	Solid	2-Methylnaphthalene	8270D	1700000		ug/kg	9
001	Congaree Sed-1	Solid	Naphthalene	8270D	3100000		ug/kg	9
001	Congaree Sed-1	Solid	Phenanthrene	8270D	1600000		ug/kg	9
001	Congaree Sed-1	Solid	Pyrene	8270D	900000		ug/kg	9
002	Congaree Sed-2	Solid	Benzene	8260B	970		ug/kg	10
002	Congaree Sed-2	Solid	Ethylbenzene	8260B	10000		ug/kg	10
002	Congaree Sed-2	Solid	Isopropylbenzene	8260B	2200		ug/kg	10
002	Congaree Sed-2	Solid	Xylenes (total)	8260B	4100		ug/kg	11
002	Congaree Sed-2	Solid	Acenaphthene	8270D	380000		ug/kg	12
002	Congaree Sed-2	Solid	Anthracene	8270D	300000		ug/kg	12
002	Congaree Sed-2	Solid	Benzo(a)anthracene	8270D	130000		ug/kg	12
002	Congaree Sed-2	Solid	Benzo(a)pyrene	8270D	130000		ug/kg	12
002	Congaree Sed-2	Solid	Benzo(b)fluoranthene	8270D	110000		ug/kg	12
002	Congaree Sed-2	Solid	Benzo(g,h,i)perylene	8270D	47000		ug/kg	12
002	Congaree Sed-2	Solid	1,1'-Biphenyl	8270D	64000		ug/kg	12
002	Congaree Sed-2	Solid	Chrysene	8270D	110000		ug/kg	12
002	Congaree Sed-2	Solid	Dibenzofuran	8270D	63000		ug/kg	12
002	Congaree Sed-2	Solid	Fluoranthene	8270D	320000		ug/kg	12
002	Congaree Sed-2	Solid	Fluorene	8270D	220000		ug/kg	12
002	Congaree Sed-2	Solid	2-Methylnaphthalene	8270D	400000		ug/kg	13
002	Congaree Sed-2	Solid	Naphthalene	8270D	470000		ug/kg	13
002	Congaree Sed-2	Solid	Phenanthrene	8270D	710000		ug/kg	13
002	Congaree Sed-2	Solid	Pyrene	8270D	380000		ug/kg	13
003	Congaree Sed-3	Solid	Benzene	8260B	8000		ug/kg	14
003	Congaree Sed-3	Solid	Ethylbenzene	8260B	90000		ug/kg	14
003	Congaree Sed-3	Solid	Isopropylbenzene	8260B	8000		ug/kg	14
003	Congaree Sed-3	Solid	Xylenes (total)	8260B	19000		ug/kg	15
003	Congaree Sed-3	Solid	Acenaphthene	8270D	740000		ug/kg	16
003	Congaree Sed-3	Solid	Acenaphthylene	8270D	100000		ug/kg	16
003	Congaree Sed-3	Solid	Anthracene	8270D	430000		ug/kg	16
003	Congaree Sed-3	Solid	Benzo(a)anthracene	8270D	290000		ug/kg	16

Executive Summary (Continued)

Lot Number: LF28025

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
003	Congaree Sed-3	Solid	Benzo(a)pyrene	8270D	310000		ug/kg	16
003	Congaree Sed-3	Solid	Benzo(b)fluoranthene	8270D	180000		ug/kg	16
003	Congaree Sed-3	Solid	Benzo(g,h,i)perylene	8270D	110000		ug/kg	16
003	Congaree Sed-3	Solid	Benzo(k)fluoranthene	8270D	94000		ug/kg	16
003	Congaree Sed-3	Solid	1,1'-Biphenyl	8270D	220000		ug/kg	16
003	Congaree Sed-3	Solid	Chrysene	8270D	280000		ug/kg	16
003	Congaree Sed-3	Solid	Fluoranthene	8270D	480000		ug/kg	16
003	Congaree Sed-3	Solid	Fluorene	8270D	420000		ug/kg	16
003	Congaree Sed-3	Solid	2-Methylnaphthalene	8270D	1200000		ug/kg	17
003	Congaree Sed-3	Solid	Naphthalene	8270D	2000000		ug/kg	17
003	Congaree Sed-3	Solid	Phenanthrene	8270D	1400000		ug/kg	17
003	Congaree Sed-3	Solid	Pyrene	8270D	800000		ug/kg	17

(57 detections)

Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: LF28025-001
Description: Congaree Sed-1	Matrix: Solid
Date Sampled: 06/28/2010 1430	% Solids: 87.9 06/28/2010 1956
Date Received: 06/28/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1000	06/30/2010 0811	DLB		36704	5.00

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Acetone	67-64-1	8260B	ND		23000	ug/kg	1
Benzene	71-43-2	8260B	16000		5700	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		5700	ug/kg	1
Bromoform	75-25-2	8260B	ND		5700	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		5700	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		11000	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		5700	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		5700	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		5700	ug/kg	1
Chloroethane	75-00-3	8260B	ND		5700	ug/kg	1
Chloroform	67-66-3	8260B	ND		5700	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		5700	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		5700	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		5700	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		5700	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		5700	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		5700	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		5700	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		5700	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		5700	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		5700	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		5700	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		5700	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		5700	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		5700	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		5700	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		5700	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		5700	ug/kg	1
Ethylbenzene	100-41-4	8260B	150000		5700	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		11000	ug/kg	1
Isopropylbenzene	98-82-8	8260B	14000		5700	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		5700	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5700	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		11000	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		5700	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		5700	ug/kg	1
Styrene	100-42-5	8260B	ND		5700	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		5700	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		5700	ug/kg	1
Toluene	108-88-3	8260B	ND		5700	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		5700	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		5700	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		5700	ug/kg	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		5700	ug/kg	1

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the PQL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: LF28025-001
Description: Congaree Sed-1	Matrix: Solid
Date Sampled: 06/28/2010 1430	% Solids: 87.9 06/28/2010 1956
Date Received: 06/28/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1000	06/30/2010 0811	DLB		36704	5.00

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Trichloroethene	79-01-6	8260B	ND		5700	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		5700	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		5700	ug/kg	1
Xylenes (total)	1330-20-7	8260B	79000		5700	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4	N	5.2	53-142
Bromofluorobenzene	N	5.9	47-138
Toluene-d8	N	5.4	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the PQL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: **AECOM**

Laboratory ID: **LF28025-001**

Description: **Congaree Sed-1**

Matrix: **Solid**

Date Sampled: **06/28/2010 1430**

% Solids: **87.9 06/28/2010 1956**

Date Received: **06/28/2010**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	400	07/01/2010 1435	JGH	06/29/2010 1010	36604

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Acenaphthene	83-32-9	8270D	730000		140000	ug/kg	1
Acenaphthylene	208-96-8	8270D	170000		140000	ug/kg	1
Acetophenone	98-86-2	8270D	ND		140000	ug/kg	1
Anthracene	120-12-7	8270D	450000		140000	ug/kg	1
Atrazine	1912-24-9	8270D	ND		140000	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		360000	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	340000		140000	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	380000		140000	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	220000		140000	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		140000	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		140000	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	300000		140000	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		140000	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		140000	ug/kg	1
Caprolactam	105-60-2	8270D	ND		360000	ug/kg	1
Carbazole	86-74-8	8270D	ND		140000	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		140000	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		140000	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		140000	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		140000	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		140000	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		140000	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		140000	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		140000	ug/kg	1
Chrysene	218-01-9	8270D	340000		140000	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		140000	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		140000	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		140000	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		140000	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		360000	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		140000	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		140000	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		140000	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		140000	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		360000	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		360000	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		140000	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		140000	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		140000	ug/kg	1
Fluoranthene	206-44-0	8270D	530000		140000	ug/kg	1
Fluorene	86-73-7	8270D	490000		140000	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		140000	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		140000	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		360000	ug/kg	1

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the PQL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: LF28025-001
Description: Congaree Sed-1	Matrix: Solid
Date Sampled: 06/28/2010 1430	% Solids: 87.9 06/28/2010 1956
Date Received: 06/28/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	400	07/01/2010 1435	JGH	06/29/2010 1010	36604

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		140000	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		140000	ug/kg	1
Isophorone	78-59-1	8270D	ND		140000	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	1700000		140000	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		140000	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		290000	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		140000	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		140000	ug/kg	1
Naphthalene	91-20-3	8270D	3100000		140000	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		140000	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		140000	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		140000	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		140000	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		140000	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		360000	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		360000	ug/kg	1
Phenanthrene	85-01-8	8270D	1600000		140000	ug/kg	1
Phenol	108-95-2	8270D	ND		140000	ug/kg	1
Pyrene	129-00-0	8270D	900000		140000	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		140000	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		140000	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol	N	0.00	30-117
2-Fluorobiphenyl		81	33-102
2-Fluorophenol		42	28-104
Nitrobenzene-d5		62	22-109
Phenol-d5		43	27-103
Terphenyl-d14		92	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the PQL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: LF28025-002
Description: Congaree Sed-2	Matrix: Solid
Date Sampled: 06/28/2010 1500	% Solids: 70.6 06/28/2010 1956
Date Received: 06/28/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	50	06/30/2010 0721	DLB		36704	5.00

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Acetone	67-64-1	8260B	ND		1400	ug/kg	1
Benzene	71-43-2	8260B	970		350	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		350	ug/kg	1
Bromoform	75-25-2	8260B	ND		350	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		350	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		710	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		350	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		350	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		350	ug/kg	1
Chloroethane	75-00-3	8260B	ND		350	ug/kg	1
Chloroform	67-66-3	8260B	ND		350	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		350	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		350	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		350	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		350	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		350	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		350	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		350	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		350	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		350	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		350	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		350	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		350	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		350	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		350	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		350	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		350	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		350	ug/kg	1
Ethylbenzene	100-41-4	8260B	10000		350	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		710	ug/kg	1
Isopropylbenzene	98-82-8	8260B	2200		350	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		350	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		350	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		710	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		350	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		350	ug/kg	1
Styrene	100-42-5	8260B	ND		350	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		350	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		350	ug/kg	1
Toluene	108-88-3	8260B	ND		350	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		350	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		350	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		350	ug/kg	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		350	ug/kg	1

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the PQL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: LF28025-002
Description: Congaree Sed-2	Matrix: Solid
Date Sampled: 06/28/2010 1500	% Solids: 70.6 06/28/2010 1956
Date Received: 06/28/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	50	06/30/2010 0721	DLB		36704	5.00

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Trichloroethene	79-01-6	8260B	ND		350	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		350	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		350	ug/kg	1
Xylenes (total)	1330-20-7	8260B	4100		350	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		81	53-142
Bromofluorobenzene		77	47-138
Toluene-d8		70	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the PQL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: **AECOM**

Laboratory ID: **LF28025-002**

Description: **Congaree Sed-2**

Matrix: **Solid**

Date Sampled: **06/28/2010 1500**

% Solids: **70.6 06/28/2010 1956**

Date Received: **06/28/2010**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	100	06/30/2010 2240	JGH	06/29/2010 1010	36604

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Acenaphthene	83-32-9	8270D	380000		44000	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		44000	ug/kg	1
Acetophenone	98-86-2	8270D	ND		44000	ug/kg	1
Anthracene	120-12-7	8270D	300000		44000	ug/kg	1
Atrazine	1912-24-9	8270D	ND		44000	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		110000	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	130000		44000	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	130000		44000	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	110000		44000	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	47000		44000	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		44000	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	64000		44000	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		44000	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		44000	ug/kg	1
Caprolactam	105-60-2	8270D	ND		110000	ug/kg	1
Carbazole	86-74-8	8270D	ND		44000	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		44000	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		44000	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		44000	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		44000	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		44000	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		44000	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		44000	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		44000	ug/kg	1
Chrysene	218-01-9	8270D	110000		44000	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		44000	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		44000	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		44000	ug/kg	1
Dibenzofuran	132-64-9	8270D	63000		44000	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		110000	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		44000	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		44000	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		44000	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		44000	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		110000	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		110000	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		44000	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		44000	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		44000	ug/kg	1
Fluoranthene	206-44-0	8270D	320000		44000	ug/kg	1
Fluorene	86-73-7	8270D	220000		44000	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		44000	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		44000	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		110000	ug/kg	1

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the PQL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: LF28025-002
Description: Congaree Sed-2	Matrix: Solid
Date Sampled: 06/28/2010 1500	% Solids: 70.6 06/28/2010 1956
Date Received: 06/28/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	100	06/30/2010 2240	JGH	06/29/2010 1010	36604

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		44000	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		44000	ug/kg	1
Isophorone	78-59-1	8270D	ND		44000	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	400000		44000	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		44000	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		89000	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		44000	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		44000	ug/kg	1
Naphthalene	91-20-3	8270D	470000		44000	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		44000	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		44000	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		44000	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		44000	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		44000	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		110000	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		110000	ug/kg	1
Phenanthrene	85-01-8	8270D	710000		44000	ug/kg	1
Phenol	108-95-2	8270D	ND		44000	ug/kg	1
Pyrene	129-00-0	8270D	380000		44000	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		44000	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		44000	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol		64	30-117
2-Fluorobiphenyl		77	33-102
2-Fluorophenol		66	28-104
Nitrobenzene-d5		69	22-109
Phenol-d5		62	27-103
Terphenyl-d14		87	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the PQL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: LF28025-003
Description: Congaree Sed-3	Matrix: Solid
Date Sampled: 06/28/2010 1520	% Solids: 77.5 06/28/2010 1956
Date Received: 06/28/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	500	06/30/2010 0749	DLB		36704	5.00

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Acetone	67-64-1	8260B	ND		13000	ug/kg	1
Benzene	71-43-2	8260B	8000		3200	ug/kg	1
Bromodichloromethane	75-27-4	8260B	ND		3200	ug/kg	1
Bromoform	75-25-2	8260B	ND		3200	ug/kg	1
Bromomethane (Methyl bromide)	74-83-9	8260B	ND		3200	ug/kg	1
2-Butanone (MEK)	78-93-3	8260B	ND		6500	ug/kg	1
Carbon disulfide	75-15-0	8260B	ND		3200	ug/kg	1
Carbon tetrachloride	56-23-5	8260B	ND		3200	ug/kg	1
Chlorobenzene	108-90-7	8260B	ND		3200	ug/kg	1
Chloroethane	75-00-3	8260B	ND		3200	ug/kg	1
Chloroform	67-66-3	8260B	ND		3200	ug/kg	1
Chloromethane (Methyl chloride)	74-87-3	8260B	ND		3200	ug/kg	1
Cyclohexane	110-82-7	8260B	ND		3200	ug/kg	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260B	ND		3200	ug/kg	1
Dibromochloromethane	124-48-1	8260B	ND		3200	ug/kg	1
1,2-Dibromoethane (EDB)	106-93-4	8260B	ND		3200	ug/kg	1
1,2-Dichlorobenzene	95-50-1	8260B	ND		3200	ug/kg	1
1,3-Dichlorobenzene	541-73-1	8260B	ND		3200	ug/kg	1
1,4-Dichlorobenzene	106-46-7	8260B	ND		3200	ug/kg	1
Dichlorodifluoromethane	75-71-8	8260B	ND		3200	ug/kg	1
1,1-Dichloroethane	75-34-3	8260B	ND		3200	ug/kg	1
1,2-Dichloroethane	107-06-2	8260B	ND		3200	ug/kg	1
1,1-Dichloroethene	75-35-4	8260B	ND		3200	ug/kg	1
cis-1,2-Dichloroethene	156-59-2	8260B	ND		3200	ug/kg	1
trans-1,2-Dichloroethene	156-60-5	8260B	ND		3200	ug/kg	1
1,2-Dichloropropane	78-87-5	8260B	ND		3200	ug/kg	1
cis-1,3-Dichloropropene	10061-01-5	8260B	ND		3200	ug/kg	1
trans-1,3-Dichloropropene	10061-02-6	8260B	ND		3200	ug/kg	1
Ethylbenzene	100-41-4	8260B	90000		3200	ug/kg	1
2-Hexanone	591-78-6	8260B	ND		6500	ug/kg	1
Isopropylbenzene	98-82-8	8260B	8000		3200	ug/kg	1
Methyl acetate	79-20-9	8260B	ND		3200	ug/kg	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		3200	ug/kg	1
4-Methyl-2-pentanone	108-10-1	8260B	ND		6500	ug/kg	1
Methylcyclohexane	108-87-2	8260B	ND		3200	ug/kg	1
Methylene chloride	75-09-2	8260B	ND		3200	ug/kg	1
Styrene	100-42-5	8260B	ND		3200	ug/kg	1
1,1,2,2-Tetrachloroethane	79-34-5	8260B	ND		3200	ug/kg	1
Tetrachloroethene	127-18-4	8260B	ND		3200	ug/kg	1
Toluene	108-88-3	8260B	ND		3200	ug/kg	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260B	ND		3200	ug/kg	1
1,2,4-Trichlorobenzene	120-82-1	8260B	ND		3200	ug/kg	1
1,1,1-Trichloroethane	71-55-6	8260B	ND		3200	ug/kg	1
1,1,2-Trichloroethane	79-00-5	8260B	ND		3200	ug/kg	1

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the PQL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: LF28025-003
Description: Congaree Sed-3	Matrix: Solid
Date Sampled: 06/28/2010 1520	% Solids: 77.5 06/28/2010 1956
Date Received: 06/28/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	500	06/30/2010 0749	DLB		36704	5.00

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Trichloroethene	79-01-6	8260B	ND		3200	ug/kg	1
Trichlorofluoromethane	75-69-4	8260B	ND		3200	ug/kg	1
Vinyl chloride	75-01-4	8260B	ND		3200	ug/kg	1
Xylenes (total)	1330-20-7	8260B	19000		3200	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4	N	9.4	53-142
Bromofluorobenzene	N	11	47-138
Toluene-d8	N	9.2	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the PQL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: **AECOM**

Laboratory ID: **LF28025-003**

Description: **Congaree Sed-3**

Matrix: **Solid**

Date Sampled: **06/28/2010 1520**

% Solids: **77.5 06/28/2010 1956**

Date Received: **06/28/2010**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	200	07/01/2010 1453	JGH	06/29/2010 1010	36604

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Acenaphthene	83-32-9	8270D	740000		82000	ug/kg	1
Acenaphthylene	208-96-8	8270D	100000		82000	ug/kg	1
Acetophenone	98-86-2	8270D	ND		82000	ug/kg	1
Anthracene	120-12-7	8270D	430000		82000	ug/kg	1
Atrazine	1912-24-9	8270D	ND		82000	ug/kg	1
Benzaldehyde	100-52-7	8270D	ND		210000	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	290000		82000	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	310000		82000	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	180000		82000	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	110000		82000	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	94000		82000	ug/kg	1
1,1'-Biphenyl	92-52-4	8270D	220000		82000	ug/kg	1
4-Bromophenyl phenyl ether	101-55-3	8270D	ND		82000	ug/kg	1
Butyl benzyl phthalate	85-68-7	8270D	ND		82000	ug/kg	1
Caprolactam	105-60-2	8270D	ND		210000	ug/kg	1
Carbazole	86-74-8	8270D	ND		82000	ug/kg	1
4-Chloro-3-methyl phenol	59-50-7	8270D	ND		82000	ug/kg	1
4-Chloroaniline	106-47-8	8270D	ND		82000	ug/kg	1
bis(2-Chloroethoxy)methane	111-91-1	8270D	ND		82000	ug/kg	1
bis(2-Chloroethyl)ether	111-44-4	8270D	ND		82000	ug/kg	1
bis(2-Chloroisopropyl)ether	108-60-1	8270D	ND		82000	ug/kg	1
2-Chloronaphthalene	91-58-7	8270D	ND		82000	ug/kg	1
2-Chlorophenol	95-57-8	8270D	ND		82000	ug/kg	1
4-Chlorophenyl phenyl ether	7005-72-3	8270D	ND		82000	ug/kg	1
Chrysene	218-01-9	8270D	280000		82000	ug/kg	1
Di-n-butyl phthalate	84-74-2	8270D	ND		82000	ug/kg	1
Di-n-octylphthalate	117-84-0	8270D	ND		82000	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		82000	ug/kg	1
Dibenzofuran	132-64-9	8270D	ND		82000	ug/kg	1
3,3'-Dichlorobenzidine	91-94-1	8270D	ND		210000	ug/kg	1
2,4-Dichlorophenol	120-83-2	8270D	ND		82000	ug/kg	1
Diethylphthalate	84-66-2	8270D	ND		82000	ug/kg	1
Dimethyl phthalate	131-11-3	8270D	ND		82000	ug/kg	1
2,4-Dimethylphenol	105-67-9	8270D	ND		82000	ug/kg	1
4,6-Dinitro-2-methylphenol	534-52-1	8270D	ND		210000	ug/kg	1
2,4-Dinitrophenol	51-28-5	8270D	ND		210000	ug/kg	1
2,4-Dinitrotoluene	121-14-2	8270D	ND		82000	ug/kg	1
2,6-Dinitrotoluene	606-20-2	8270D	ND		82000	ug/kg	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	ND		82000	ug/kg	1
Fluoranthene	206-44-0	8270D	480000		82000	ug/kg	1
Fluorene	86-73-7	8270D	420000		82000	ug/kg	1
Hexachlorobenzene	118-74-1	8270D	ND		82000	ug/kg	1
Hexachlorobutadiene	87-68-3	8270D	ND		82000	ug/kg	1
Hexachlorocyclopentadiene	77-47-4	8270D	ND		210000	ug/kg	1

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the PQL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: LF28025-003
Description: Congaree Sed-3	Matrix: Solid
Date Sampled: 06/28/2010 1520	% Solids: 77.5 06/28/2010 1956
Date Received: 06/28/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	200	07/01/2010 1453	JGH	06/29/2010 1010	36604

Parameter	CAS Number	Analytical Method	Result	Q	PQL	Units	Run
Hexachloroethane	67-72-1	8270D	ND		82000	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		82000	ug/kg	1
Isophorone	78-59-1	8270D	ND		82000	ug/kg	1
2-Methylnaphthalene	91-57-6	8270D	1200000		82000	ug/kg	1
2-Methylphenol	95-48-7	8270D	ND		82000	ug/kg	1
3 & 4-Methylphenol	106-44-5	8270D	ND		170000	ug/kg	1
N-Nitrosodi-n-propylamine	621-64-7	8270D	ND		82000	ug/kg	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270D	ND		82000	ug/kg	1
Naphthalene	91-20-3	8270D	2000000		82000	ug/kg	1
2-Nitroaniline	88-74-4	8270D	ND		82000	ug/kg	1
3-Nitroaniline	99-09-2	8270D	ND		82000	ug/kg	1
4-Nitroaniline	100-01-6	8270D	ND		82000	ug/kg	1
Nitrobenzene	98-95-3	8270D	ND		82000	ug/kg	1
2-Nitrophenol	88-75-5	8270D	ND		82000	ug/kg	1
4-Nitrophenol	100-02-7	8270D	ND		210000	ug/kg	1
Pentachlorophenol	87-86-5	8270D	ND		210000	ug/kg	1
Phenanthrene	85-01-8	8270D	1400000		82000	ug/kg	1
Phenol	108-95-2	8270D	ND		82000	ug/kg	1
Pyrene	129-00-0	8270D	800000		82000	ug/kg	1
2,4,5-Trichlorophenol	95-95-4	8270D	ND		82000	ug/kg	1
2,4,6-Trichlorophenol	88-06-2	8270D	ND		82000	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2,4,6-Tribromophenol	N	25	30-117
2-Fluorobiphenyl		85	33-102
2-Fluorophenol		51	28-104
Nitrobenzene-d5		78	22-109
Phenol-d5		54	27-103
Terphenyl-d14		108	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the PQL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: LQ36704-001

Matrix: Solid

Batch: 36704

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Acetone	ND		50	1000	ug/kg	06/30/2010 0113
Benzene	ND		50	250	ug/kg	06/30/2010 0113
Bromodichloromethane	ND		50	250	ug/kg	06/30/2010 0113
Bromoform	ND		50	250	ug/kg	06/30/2010 0113
Bromomethane (Methyl bromide)	ND		50	250	ug/kg	06/30/2010 0113
2-Butanone (MEK)	ND		50	500	ug/kg	06/30/2010 0113
Carbon disulfide	ND		50	250	ug/kg	06/30/2010 0113
Carbon tetrachloride	ND		50	250	ug/kg	06/30/2010 0113
Chlorobenzene	ND		50	250	ug/kg	06/30/2010 0113
Chloroethane	ND		50	250	ug/kg	06/30/2010 0113
Chloroform	ND		50	250	ug/kg	06/30/2010 0113
Chloromethane (Methyl chloride)	ND		50	250	ug/kg	06/30/2010 0113
Cyclohexane	ND		50	250	ug/kg	06/30/2010 0113
1,2-Dibromo-3-chloropropane (DBCP)	ND		50	250	ug/kg	06/30/2010 0113
Dibromochloromethane	ND		50	250	ug/kg	06/30/2010 0113
1,2-Dibromoethane (EDB)	ND		50	250	ug/kg	06/30/2010 0113
1,4-Dichlorobenzene	ND		50	250	ug/kg	06/30/2010 0113
1,3-Dichlorobenzene	ND		50	250	ug/kg	06/30/2010 0113
1,2-Dichlorobenzene	ND		50	250	ug/kg	06/30/2010 0113
Dichlorodifluoromethane	ND		50	250	ug/kg	06/30/2010 0113
1,2-Dichloroethane	ND		50	250	ug/kg	06/30/2010 0113
1,1-Dichloroethane	ND		50	250	ug/kg	06/30/2010 0113
trans-1,2-Dichloroethene	ND		50	250	ug/kg	06/30/2010 0113
cis-1,2-Dichloroethene	ND		50	250	ug/kg	06/30/2010 0113
1,1-Dichloroethene	ND		50	250	ug/kg	06/30/2010 0113
1,2-Dichloropropane	ND		50	250	ug/kg	06/30/2010 0113
trans-1,3-Dichloropropene	ND		50	250	ug/kg	06/30/2010 0113
cis-1,3-Dichloropropene	ND		50	250	ug/kg	06/30/2010 0113
Ethylbenzene	ND		50	250	ug/kg	06/30/2010 0113
2-Hexanone	ND		50	500	ug/kg	06/30/2010 0113
Isopropylbenzene	ND		50	250	ug/kg	06/30/2010 0113
Methyl acetate	ND		50	250	ug/kg	06/30/2010 0113
Methyl tertiary butyl ether (MTBE)	ND		50	250	ug/kg	06/30/2010 0113
4-Methyl-2-pentanone	ND		50	500	ug/kg	06/30/2010 0113
Methylcyclohexane	ND		50	250	ug/kg	06/30/2010 0113
Methylene chloride	ND		50	250	ug/kg	06/30/2010 0113
Styrene	ND		50	250	ug/kg	06/30/2010 0113
1,1,2,2-Tetrachloroethane	ND		50	250	ug/kg	06/30/2010 0113
Tetrachloroethene	ND		50	250	ug/kg	06/30/2010 0113
Toluene	ND		50	250	ug/kg	06/30/2010 0113
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		50	250	ug/kg	06/30/2010 0113
1,2,4-Trichlorobenzene	ND		50	250	ug/kg	06/30/2010 0113
1,1,2-Trichloroethane	ND		50	250	ug/kg	06/30/2010 0113
1,1,1-Trichloroethane	ND		50	250	ug/kg	06/30/2010 0113

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the PQL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: LQ36704-001

Matrix: Solid

Batch: 36704

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Trichloroethene	ND		50	250	ug/kg	06/30/2010 0113
Trichlorofluoromethane	ND		50	250	ug/kg	06/30/2010 0113
Vinyl chloride	ND		50	250	ug/kg	06/30/2010 0113
Xylenes (total)	ND		50	250	ug/kg	06/30/2010 0113
Surrogate	Q	% Rec	Acceptance Limit			
Bromofluorobenzene	N	4370	47-138			
1,2-Dichloroethane-d4	N	3950	53-142			
Toluene-d8	N	3860	68-124			

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the PQL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: LQ36704-002

Matrix: Solid

Batch: 36704

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acetone	5000	3900		50	78	42-149	06/30/2010 1844
Benzene	2500	1900		50	76	69-123	06/30/2010 1844
Bromodichloromethane	2500	2000		50	81	69-121	06/30/2010 1844
Bromoform	2500	2200		50	87	61-119	06/30/2010 1844
Bromomethane (Methyl bromide)	2500	1900		50	75	35-144	06/30/2010 1844
2-Butanone (MEK)	5000	3800		50	75	57-148	06/30/2010 1844
Carbon disulfide	2500	2000		50	79	58-122	06/30/2010 1844
Carbon tetrachloride	2500	1900		50	75	58-136	06/30/2010 1844
Chlorobenzene	2500	2200		50	87	59-129	06/30/2010 1844
Chloroethane	2500	1800		50	71	50-132	06/30/2010 1844
Chloroform	2500	1900		50	74	71-125	06/30/2010 1844
Chloromethane (Methyl chloride)	2500	1300		50	54	34-134	06/30/2010 1844
Cyclohexane	2500	1900		50	75	53-139	06/30/2010 1844
1,2-Dibromo-3-chloropropane (DBCP)	2500	2100		50	85	55-125	06/30/2010 1844
Dibromochloromethane	2500	2300		50	91	66-119	06/30/2010 1844
1,2-Dibromoethane (EDB)	2500	2100		50	84	74-124	06/30/2010 1844
1,4-Dichlorobenzene	2500	2300		50	93	52-133	06/30/2010 1844
1,3-Dichlorobenzene	2500	2300		50	91	51-134	06/30/2010 1844
1,2-Dichlorobenzene	2500	2200		50	90	57-131	06/30/2010 1844
Dichlorodifluoromethane	2500	830		50	33	10-157	06/30/2010 1844
1,2-Dichloroethane	2500	1900		50	74	67-129	06/30/2010 1844
1,1-Dichloroethane	2500	1900		50	76	71-127	06/30/2010 1844
trans-1,2-Dichloroethene	2500	1900		50	74	68-131	06/30/2010 1844
cis-1,2-Dichloroethene	2500	1800		50	74	70-122	06/30/2010 1844
1,1-Dichloroethene	2500	1800		50	73	69-138	06/30/2010 1844
1,2-Dichloropropane	2500	2000		50	79	72-124	06/30/2010 1844
trans-1,3-Dichloropropene	2500	2300		50	90	70-124	06/30/2010 1844
cis-1,3-Dichloropropene	2500	2100		50	85	70-126	06/30/2010 1844
Ethylbenzene	2500	2300		50	90	59-128	06/30/2010 1844
2-Hexanone	5000	4000		50	79	54-137	06/30/2010 1844
Isopropylbenzene	2500	2400		50	96	50-136	06/30/2010 1844
Methyl acetate	2500	2200		50	87	59-137	06/30/2010 1844
Methyl tertiary butyl ether (MTBE)	2500	1800		50	73	72-122	06/30/2010 1844
4-Methyl-2-pentanone	5000	3800		50	75	60-134	06/30/2010 1844
Methylcyclohexane	2500	2000		50	82	41-144	06/30/2010 1844
Methylene chloride	2500	1900	N	50	75	77-129	06/30/2010 1844
Styrene	2500	2300		50	92	54-136	06/30/2010 1844
1,1,2,2-Tetrachloroethane	2500	2100		50	83	69-132	06/30/2010 1844
Tetrachloroethene	2500	2300		50	92	70-130	06/30/2010 1844
Toluene	2500	2000		50	79	61-129	06/30/2010 1844
1,1,2-Trichloro-1,2,2-Trifluoroethane	2500	2200		50	86	49-136	06/30/2010 1844
1,2,4-Trichlorobenzene	2500	2400		50	95	34-145	06/30/2010 1844
1,1,2-Trichloroethane	2500	2000		50	82	55-128	06/30/2010 1844
1,1,1-Trichloroethane	2500	1900		50	75	63-128	06/30/2010 1844

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the PQL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: LQ36704-002

Matrix: Solid

Batch: 36704

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Trichloroethene	2500	2000		50	80	62-126	06/30/2010 1844
Trichlorofluoromethane	2500	1600		50	64	45-138	06/30/2010 1844
Vinyl chloride	2500	1300		50	51	42-132	06/30/2010 1844
Xylenes (total)	5000	4500		50	91	58-128	06/30/2010 1844
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene	N	1030	47-138				
1,2-Dichloroethane-d4	N	843	53-142				
Toluene-d8	N	903	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the PQL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: LQ36704-003

Batch: 36704

Matrix: Solid

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Acetone	5000	4600		50	92	17	42-149	20	06/30/2010 1907
Benzene	2500	2400	+	50	98	26	69-123	20	06/30/2010 1907
Bromodichloromethane	2500	2500	+	50	101	22	69-121	20	06/30/2010 1907
Bromoform	2500	2800	+	50	110	23	61-119	20	06/30/2010 1907
Bromomethane (Methyl bromide)	2500	2300		50	91	19	35-144	20	06/30/2010 1907
2-Butanone (MEK)	5000	4900	+	50	98	26	57-148	20	06/30/2010 1907
Carbon disulfide	2500	2500	+	50	100	24	58-122	20	06/30/2010 1907
Carbon tetrachloride	2500	2400	+	50	96	24	58-136	20	06/30/2010 1907
Chlorobenzene	2500	2700	+	50	110	23	59-129	20	06/30/2010 1907
Chloroethane	2500	2300	+	50	91	25	50-132	20	06/30/2010 1907
Chloroform	2500	2300	+	50	93	23	71-125	20	06/30/2010 1907
Chloromethane (Methyl chloride)	2500	1600		50	65	19	34-134	20	06/30/2010 1907
Cyclohexane	2500	2300	+	50	93	22	53-139	20	06/30/2010 1907
1,2-Dibromo-3-chloropropane (DBCP)	2500	2600		50	105	20	55-125	20	06/30/2010 1907
Dibromochloromethane	2500	2900	+	50	116	23	66-119	20	06/30/2010 1907
1,2-Dibromoethane (EDB)	2500	2700	+	50	106	23	74-124	20	06/30/2010 1907
1,4-Dichlorobenzene	2500	2900	+	50	118	24	52-133	20	06/30/2010 1907
1,3-Dichlorobenzene	2500	2900	+	50	117	25	51-134	20	06/30/2010 1907
1,2-Dichlorobenzene	2500	2800	+	50	114	24	57-131	20	06/30/2010 1907
Dichlorodifluoromethane	2500	990		50	40	18	10-157	20	06/30/2010 1907
1,2-Dichloroethane	2500	2300	+	50	94	23	67-129	20	06/30/2010 1907
1,1-Dichloroethane	2500	2400	+	50	96	23	71-127	20	06/30/2010 1907
trans-1,2-Dichloroethene	2500	2400	+	50	95	25	68-131	20	06/30/2010 1907
cis-1,2-Dichloroethene	2500	2400	+	50	96	26	70-122	20	06/30/2010 1907
1,1-Dichloroethene	2500	2300	+	50	93	24	69-138	20	06/30/2010 1907
1,2-Dichloropropane	2500	2400	+	50	98	21	72-124	20	06/30/2010 1907
trans-1,3-Dichloropropene	2500	2900	+	50	116	25	70-124	20	06/30/2010 1907
cis-1,3-Dichloropropene	2500	2700	+	50	107	24	70-126	20	06/30/2010 1907
Ethylbenzene	2500	2900	+	50	115	24	59-128	20	06/30/2010 1907
2-Hexanone	5000	5500	+	50	110	33	54-137	20	06/30/2010 1907
Isopropylbenzene	2500	3100	+	50	124	26	50-136	20	06/30/2010 1907
Methyl acetate	2500	2700	+	50	107	21	59-137	20	06/30/2010 1907
Methyl tertiary butyl ether (MTBE)	2500	2300	+	50	94	25	72-122	20	06/30/2010 1907
4-Methyl-2-pentanone	5000	5000	+	50	100	28	60-134	20	06/30/2010 1907
Methylcyclohexane	2500	2600	+	50	104	24	41-144	20	06/30/2010 1907
Methylene chloride	2500	2300	+	50	93	22	77-129	20	06/30/2010 1907
Styrene	2500	2900	+	50	116	22	54-136	20	06/30/2010 1907
1,1,2,2-Tetrachloroethane	2500	2700	+	50	108	27	69-132	20	06/30/2010 1907
Tetrachloroethene	2500	2900	+	50	114	22	70-130	20	06/30/2010 1907
Toluene	2500	2500	+	50	102	25	61-129	20	06/30/2010 1907
1,1,2-Trichloro-1,2,2-Trifluoroethane	2500	2700	+	50	108	22	49-136	20	06/30/2010 1907
1,2,4-Trichlorobenzene	2500	3000	+	50	120	23	34-145	20	06/30/2010 1907
1,1,2-Trichloroethane	2500	2600	+	50	104	24	55-128	20	06/30/2010 1907
1,1,1-Trichloroethane	2500	2300	+	50	94	23	63-128	20	06/30/2010 1907

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the PQL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: LQ36704-003

Matrix: Solid

Batch: 36704

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Trichloroethene	2500	2500	+	50	101	23	62-126	20	06/30/2010 1907
Trichlorofluoromethane	2500	2000	+	50	80	22	45-138	20	06/30/2010 1907
Vinyl chloride	2500	1700	+	50	69	29	42-132	20	06/30/2010 1907
Xylenes (total)	5000	5700	+	50	114	22	58-128	20	06/30/2010 1907
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene	N	1080	47-138						
1,2-Dichloroethane-d4	N	917	53-142						
Toluene-d8	N	951	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the PQL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: LQ36604-001

Batch: 36604

Analytical Method: 8270D

Matrix: Solid

Prep Method: 3550C

Prep Date: 06/29/2010 1010

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
1,1'-Biphenyl	ND		1	330	ug/kg	06/30/2010 1902
2,4,5-Trichlorophenol	ND		1	330	ug/kg	06/30/2010 1902
2,4,6-Trichlorophenol	ND		1	330	ug/kg	06/30/2010 1902
2,4-Dichlorophenol	ND		1	330	ug/kg	06/30/2010 1902
2,4-Dimethylphenol	ND		1	330	ug/kg	06/30/2010 1902
2,4-Dinitrophenol	ND		1	830	ug/kg	06/30/2010 1902
2,4-Dinitrotoluene	ND		1	330	ug/kg	06/30/2010 1902
2,6-Dinitrotoluene	ND		1	330	ug/kg	06/30/2010 1902
2-Chloronaphthalene	ND		1	330	ug/kg	06/30/2010 1902
2-Chlorophenol	ND		1	330	ug/kg	06/30/2010 1902
2-Methylnaphthalene	ND		1	330	ug/kg	06/30/2010 1902
2-Methylphenol	ND		1	330	ug/kg	06/30/2010 1902
2-Nitroaniline	ND		1	330	ug/kg	06/30/2010 1902
2-Nitrophenol	ND		1	330	ug/kg	06/30/2010 1902
3 & 4-Methylphenol	ND		1	670	ug/kg	06/30/2010 1902
3,3'-Dichlorobenzidine	ND		1	830	ug/kg	06/30/2010 1902
3-Nitroaniline	ND		1	330	ug/kg	06/30/2010 1902
4,6-Dinitro-2-methylphenol	ND		1	830	ug/kg	06/30/2010 1902
4-Bromophenyl phenyl ether	ND		1	330	ug/kg	06/30/2010 1902
4-Chloro-3-methyl phenol	ND		1	330	ug/kg	06/30/2010 1902
4-Chloroaniline	ND		1	330	ug/kg	06/30/2010 1902
4-Chlorophenyl phenyl ether	ND		1	330	ug/kg	06/30/2010 1902
4-Nitroaniline	ND		1	330	ug/kg	06/30/2010 1902
4-Nitrophenol	ND		1	830	ug/kg	06/30/2010 1902
Acenaphthene	ND		1	330	ug/kg	06/30/2010 1902
Acenaphthylene	ND		1	330	ug/kg	06/30/2010 1902
Acetophenone	ND		1	330	ug/kg	06/30/2010 1902
Anthracene	ND		1	330	ug/kg	06/30/2010 1902
Atrazine	ND		1	330	ug/kg	06/30/2010 1902
Benzaldehyde	ND		1	830	ug/kg	06/30/2010 1902
Benzo(a)anthracene	ND		1	330	ug/kg	06/30/2010 1902
Benzo(a)pyrene	ND		1	330	ug/kg	06/30/2010 1902
Benzo(b)fluoranthene	ND		1	330	ug/kg	06/30/2010 1902
Benzo(g,h,i)perylene	ND		1	330	ug/kg	06/30/2010 1902
Benzo(k)fluoranthene	ND		1	330	ug/kg	06/30/2010 1902
bis(2-Chloroethoxy)methane	ND		1	330	ug/kg	06/30/2010 1902
bis(2-Chloroethyl)ether	ND		1	330	ug/kg	06/30/2010 1902
bis(2-Chloroisopropyl)ether	ND		1	330	ug/kg	06/30/2010 1902
bis(2-Ethylhexyl)phthalate	ND		1	330	ug/kg	06/30/2010 1902
Butyl benzyl phthalate	ND		1	330	ug/kg	06/30/2010 1902
Caprolactam	ND		1	830	ug/kg	06/30/2010 1902
Carbazole	ND		1	330	ug/kg	06/30/2010 1902
Chrysene	ND		1	330	ug/kg	06/30/2010 1902
Di-n-butyl phthalate	ND		1	330	ug/kg	06/30/2010 1902

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the PQL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: LQ36604-001

Matrix: Solid

Batch: 36604

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 06/29/2010 1010

Parameter	Result	Q	Dil	PQL	Units	Analysis Date
Di-n-octylphthalate	ND		1	330	ug/kg	06/30/2010 1902
Dibenzo(a,h)anthracene	ND		1	330	ug/kg	06/30/2010 1902
Dibenzofuran	ND		1	330	ug/kg	06/30/2010 1902
Diethylphthalate	ND		1	330	ug/kg	06/30/2010 1902
Dimethyl phthalate	ND		1	330	ug/kg	06/30/2010 1902
Fluoranthene	ND		1	330	ug/kg	06/30/2010 1902
Fluorene	ND		1	330	ug/kg	06/30/2010 1902
Hexachlorobenzene	ND		1	330	ug/kg	06/30/2010 1902
Hexachlorobutadiene	ND		1	330	ug/kg	06/30/2010 1902
Hexachlorocyclopentadiene	ND		1	830	ug/kg	06/30/2010 1902
Hexachloroethane	ND		1	330	ug/kg	06/30/2010 1902
Indeno(1,2,3-c,d)pyrene	ND		1	330	ug/kg	06/30/2010 1902
Isophorone	ND		1	330	ug/kg	06/30/2010 1902
N-Nitrosodi-n-propylamine	ND		1	330	ug/kg	06/30/2010 1902
N-Nitrosodiphenylamine (Diphenylamine)	ND		1	330	ug/kg	06/30/2010 1902
Naphthalene	ND		1	330	ug/kg	06/30/2010 1902
Nitrobenzene	ND		1	330	ug/kg	06/30/2010 1902
Pentachlorophenol	ND		1	830	ug/kg	06/30/2010 1902
Phenanthrene	ND		1	330	ug/kg	06/30/2010 1902
Phenol	ND		1	330	ug/kg	06/30/2010 1902
Pyrene	ND		1	330	ug/kg	06/30/2010 1902

Surrogate	Q	% Rec	Acceptance Limit
2,4,6-Tribromophenol		67	30-117
2-Fluorobiphenyl		71	33-102
2-Fluorophenol		75	28-104
Nitrobenzene-d5		69	22-109
Phenol-d5		74	27-103
Terphenyl-d14		70	41-120

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the PQL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: LQ36604-002

Matrix: Solid

Batch: 36604

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 06/29/2010 1010

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
2,4,5-Trichlorophenol	3300	3300		1	100	30-130	06/29/2010 1504
2,4,6-Trichlorophenol	3300	3000		1	89	30-130	06/29/2010 1504
2,4-Dichlorophenol	3300	2900		1	87	30-130	06/29/2010 1504
2,4-Dimethylphenol	3300	2800		1	84	30-130	06/29/2010 1504
2,4-Dinitrophenol	17000	17000		1	104	30-130	06/29/2010 1504
2,4-Dinitrotoluene	6700	6000		1	90	30-130	06/29/2010 1504
2,6-Dinitrotoluene	6700	5900		1	88	30-130	06/29/2010 1504
2-Chloronaphthalene	3300	2700		1	82	30-130	06/29/2010 1504
2-Chlorophenol	3300	2700		1	80	30-130	06/29/2010 1504
2-Methylnaphthalene	3300	2600		1	79	30-130	06/29/2010 1504
2-Methylphenol	3300	2300		1	70	30-130	06/29/2010 1504
2-Nitroaniline	6700	6200		1	93	30-130	06/29/2010 1504
2-Nitrophenol	6700	5600		1	85	30-130	06/29/2010 1504
3 & 4-Methylphenol	6700	5300		1	79	30-130	06/29/2010 1504
3-Nitroaniline	6700	6800		1	101	30-130	06/29/2010 1504
4,6-Dinitro-2-methylphenol	17000	17000		1	102	30-130	06/29/2010 1504
4-Bromophenyl phenyl ether	3300	2800		1	85	30-130	06/29/2010 1504
4-Chloro-3-methyl phenol	3300	3100		1	93	30-130	06/29/2010 1504
4-Chloroaniline	3300	1700		1	51	10-130	06/29/2010 1504
4-Chlorophenyl phenyl ether	3300	2800		1	83	30-130	06/29/2010 1504
4-Nitroaniline	6700	9900	N	1	149	30-130	06/29/2010 1504
4-Nitrophenol	17000	18000		1	108	30-130	06/29/2010 1504
Acenaphthene	3300	2700		1	81	30-130	06/29/2010 1504
Acenaphthylene	3300	3700		1	110	30-130	06/29/2010 1504
Anthracene	3300	2900		1	88	30-130	06/29/2010 1504
Benzo(a)anthracene	3300	3100		1	92	30-130	06/29/2010 1504
Benzo(a)pyrene	3300	3900		1	117	30-130	06/29/2010 1504
Benzo(b)fluoranthene	3300	3100		1	92	30-130	06/29/2010 1504
Benzo(g,h,i)perylene	3300	3200		1	97	30-130	06/29/2010 1504
Benzo(k)fluoranthene	3300	2800		1	85	30-130	06/29/2010 1504
bis(2-Chloroethoxy)methane	3300	2400		1	72	30-130	06/29/2010 1504
bis(2-Chloroethyl)ether	3300	2200		1	67	30-130	06/29/2010 1504
bis(2-Chloroisopropyl)ether	3300	2000		1	59	30-130	06/29/2010 1504
bis(2-Ethylhexyl)phthalate	3300	3300		1	100	30-130	06/29/2010 1504
Butyl benzyl phthalate	3300	3500		1	106	30-130	06/29/2010 1504
Carbazole	3300	5300	N	1	159	30-130	06/29/2010 1504
Chrysene	3300	3000		1	91	30-130	06/29/2010 1504
Di-n-butyl phthalate	3300	3200		1	97	30-130	06/29/2010 1504
Di-n-octylphthalate	3300	3000		1	91	30-130	06/29/2010 1504
Dibenzo(a,h)anthracene	3300	3600		1	109	30-130	06/29/2010 1504
Dibenzofuran	3300	2700		1	82	30-130	06/29/2010 1504
Diethylphthalate	3300	3000		1	89	30-130	06/29/2010 1504
Dimethyl phthalate	3300	2900		1	88	30-130	06/29/2010 1504
Fluoranthene	3300	3000		1	91	30-130	06/29/2010 1504

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the PQL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: LQ36604-002

Matrix: Solid

Batch: 36604

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 06/29/2010 1010

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Fluorene	3300	2800		1	84	30-130	06/29/2010 1504
Hexachlorobenzene	3300	2700		1	82	30-130	06/29/2010 1504
Hexachlorobutadiene	3300	2400		1	72	30-130	06/29/2010 1504
Hexachlorocyclopentadiene	17000	15000		1	89	30-130	06/29/2010 1504
Hexachloroethane	3300	2400		1	72	30-130	06/29/2010 1504
Indeno(1,2,3-c,d)pyrene	3300	3600		1	107	30-130	06/29/2010 1504
Isophorone	3300	2600		1	79	30-130	06/29/2010 1504
N-Nitrosodi-n-propylamine	3300	2400		1	71	30-130	06/29/2010 1504
N-Nitrosodiphenylamine (Diphenylamine)	3300	3200		1	96	39-148	06/29/2010 1504
Naphthalene	3300	2500		1	75	30-130	06/29/2010 1504
Nitrobenzene	3300	2500		1	74	30-130	06/29/2010 1504
Pentachlorophenol	17000	15000		1	90	30-130	06/29/2010 1504
Phenanthrene	3300	2800		1	85	30-130	06/29/2010 1504
Phenol	3300	2600		1	79	30-130	06/29/2010 1504
Pyrene	3300	3100		1	92	30-130	06/29/2010 1504
Surrogate	Q	% Rec	Acceptance Limit				
2,4,6-Tribromophenol		98	30-117				
2-Fluorobiphenyl		78	33-102				
2-Fluorophenol		84	28-104				
Nitrobenzene-d5		74	22-109				
Phenol-d5		83	27-103				
Terphenyl-d14		76	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

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

SHEALY ENVIRONMENTAL SERVICES, INC.



SHEALY ENVIRONMENTAL SERVICES, INC.

106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number **109637**

Client AECOM	Report to Contact Scott Ross	Telephone No. / Fax No. / E-mail 803-798-1073	Quote No.
Address B10 Dutch Square Blvd	Sampler's Signature <i>[Signature]</i>	Waybill No.	Page 1 of 1
City Columbia	Printed Name Lucas Burgessford	Analysis (Attach test if more space is needed.)	
State SC	Zip Code 29210		
Project Name Congaree River			
Project No.	P.C. No.		

Sample ID / Description <small>(Containers for each sample may be combined on one line.)</small>	Date	Time	Matrix				No. of Containers by Preservative Type					Lot No. LF28025	Remarks / Cooler I.D.	
			Aqueous	Solid	Non-Aqueous	Other								
Congaree Sed-1	6/28/10	1430G	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	B270
Congaree Sed-2	6/28/10	1500G	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	
Congaree Sed-3	6/28/10	1520G	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown Turn Around Time Required (Prior lab approval required for expedited TAT) <input type="checkbox"/> Standard <input checked="" type="checkbox"/> Rush (Specify) 48 hrs or faster				Sample Disposal <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Dispose by Lab			
1. Refiniquished by <i>Lucas Burgessford</i>	Date 6/28/10	Time 1600H	1. Received by	Date	Time		
2. Refiniquished by	Date	Time	2. Received by	Date	Time		
3. Refiniquished by	Date	Time	3. Laboratory received by <i>[Signature]</i>	6/28/10	1444		
Comments			LAB USE ONLY Received on ice (Cmty) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Ice Pack				
			Receipt Temp 5.1 °C				

Document Number: F-AO-012 Effective Date: 08-04-02

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: F-AD-016
 Revision Number: 6

Page 1 of 1
 Replaces Date: 09/22/06
 Effective Date: 05/25/07

Sample Receipt Checklist (SRC)

Client: AECOM Cooler Inspected by/date: ECU 9/28/13 Lot #: LF28025

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	1. Were custody seals present on the cooler?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?
Cooler ID/temperature upon receipt <u>5-11</u> °C / °C / °C / °C			
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____ (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	5. Were proper custody procedures (relinquished/received) followed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	8. Were tests to be performed listed on the COC or was quote # provided?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) and toxicity (<0.1mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NH3 samples?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number): _____			
Sample(s) _____ were received with bubbles >6 mm in diameter.			
Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.			
Toxicity sample(s) _____ were received with TRC >0.1 mg/L and were analyzed by method 330.5.			

Corrective Action taken, if necessary:

Was client notified: Yes No

SESI employee: _____

Comments: _____

Did client respond: Yes No

Date of response: _____

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Congaree Sediments

Project Number: SCE-07001-30

Lot Number: LJ05002

Date Completed: 10/12/2010



Nisreen Saikaly
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* LJ 05002 *

SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DEHNR No: 329

Case Narrative Management and Technical Resources, Inc. Lot Number: LJ05002

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc.

Lot Number: LJ05002

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	P-5	Solid	10/04/2010 1008	10/04/2010
002	0-8	Solid	10/04/2010 1045	10/04/2010
003	0-11	Solid	10/04/2010 1130	10/04/2010

(3 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc.

Lot Number: LJ05002

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
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(0 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: LJ05002-001
Description: P-5	Matrix: Solid
Date Sampled: 10/04/2010 1008	% Solids: 89.9 10/05/2010 2141
Date Received: 10/04/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	10/08/2010 1322	DLB		44040	5.15

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.4	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.4	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.4	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.4	3.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	53-142
Bromofluorobenzene		110	47-138
Toluene-d8		108	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: LJ05002-001

Description: P-5

Matrix: Solid

Date Sampled: 10/04/2010 1008

% Solids: 89.9 10/05/2010 2141

Date Received: 10/04/2010

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	10/06/2010 2210	JGH	10/06/2010 1000	43756			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		360	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		360	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		360	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		360	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		360	26	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		360	24	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		360	24	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		360	29	ug/kg	1
Chrysene	218-01-9	8270D	ND		360	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		360	24	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		360	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		360	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		360	32	ug/kg	1
Naphthalene	91-20-3	8270D	ND		360	15	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		360	14	ug/kg	1
Pyrene	129-00-0	8270D	ND		360	15	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		84	33-102
Nitrobenzene-d5		78	22-109
Terphenyl-d14		82	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: LJ05002-002
Description: 0-8	Matrix: Solid
Date Sampled: 10/04/2010 1045	% Solids: 88.1 10/05/2010 2141
Date Received: 10/04/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	10/08/2010 1344	DLB		44040	5.83

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.9	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.9	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		4.9	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.9	2.8	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	53-142
Bromofluorobenzene		108	47-138
Toluene-d8		108	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: LJ05002-002

Description: 0-8

Matrix: Solid

Date Sampled: 10/04/2010 1045

% Solids: 88.1 10/05/2010 2141

Date Received: 10/04/2010

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	10/06/2010 2228	JGH	10/06/2010 1000	43756			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		350	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		350	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		350	15	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		350	11	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		350	25	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		350	24	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		350	24	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		350	29	ug/kg	1
Chrysene	218-01-9	8270D	ND		350	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		350	23	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		350	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		350	13	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		350	31	ug/kg	1
Naphthalene	91-20-3	8270D	ND		350	15	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		350	14	ug/kg	1
Pyrene	129-00-0	8270D	ND		350	15	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		79	33-102
Nitrobenzene-d5		77	22-109
Terphenyl-d14		79	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: LJ05002-003
Description: 0-11	Matrix: Solid
Date Sampled: 10/04/2010 1130	% Solids: 88.0 10/05/2010 2141
Date Received: 10/04/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	10/08/2010 1405	DLB		44040	5.45

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.2	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.2	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.2	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.2	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	53-142
Bromofluorobenzene		110	47-138
Toluene-d8		107	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: LJ05002-003

Description: 0-11

Matrix: Solid

Date Sampled: 10/04/2010 1130

% Solids: 88.0 10/05/2010 2141

Date Received: 10/04/2010

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	10/06/2010 2246	JGH	10/06/2010 1000	43756			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		360	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		360	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		360	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		360	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		360	26	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		360	24	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		360	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		360	30	ug/kg	1
Chrysene	218-01-9	8270D	ND		360	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		360	24	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		360	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		360	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		360	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		360	15	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		360	15	ug/kg	1
Pyrene	129-00-0	8270D	ND		360	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		75	33-102
Nitrobenzene-d5		70	22-109
Terphenyl-d14		78	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: LQ44040-001

Matrix: Solid

Batch: 44040

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	10/08/2010 1236
Ethylbenzene	ND		1	5.0	1.7	ug/kg	10/08/2010 1236
Toluene	ND		1	5.0	1.7	ug/kg	10/08/2010 1236
Xylenes (total)	ND		1	5.0	2.9	ug/kg	10/08/2010 1236
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		107	47-138				
1,2-Dichloroethane-d4		92	53-142				
Toluene-d8		107	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: LQ44040-002

Matrix: Solid

Batch: 44040

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	50		1	100	69-123	10/08/2010 1033
Ethylbenzene	50	58		1	116	59-128	10/08/2010 1033
Toluene	50	55		1	110	61-129	10/08/2010 1033
Xylenes (total)	100	110		1	113	58-128	10/08/2010 1033
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		111	47-138				
1,2-Dichloroethane-d4		87	53-142				
Toluene-d8		109	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: LQ44040-003

Matrix: Solid

Batch: 44040

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	56		1	112	11	69-123	20	10/08/2010 1055
Ethylbenzene	50	63		1	127	9.1	59-128	20	10/08/2010 1055
Toluene	50	61		1	123	11	61-129	20	10/08/2010 1055
Xylenes (total)	100	120		1	124	9.9	58-128	20	10/08/2010 1055
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		115	47-138						
1,2-Dichloroethane-d4		93	53-142						
Toluene-d8		114	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: LQ43756-001

Matrix: Solid

Batch: 43756

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 10/06/2010 1000

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	10/06/2010 1753
Acenaphthylene	ND		1	330	13	ug/kg	10/06/2010 1753
Anthracene	ND		1	330	15	ug/kg	10/06/2010 1753
Benzo(a)anthracene	ND		1	330	11	ug/kg	10/06/2010 1753
Benzo(a)pyrene	ND		1	330	24	ug/kg	10/06/2010 1753
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	10/06/2010 1753
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	10/06/2010 1753
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	10/06/2010 1753
Chrysene	ND		1	330	10	ug/kg	10/06/2010 1753
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	10/06/2010 1753
Fluoranthene	ND		1	330	10	ug/kg	10/06/2010 1753
Fluorene	ND		1	330	13	ug/kg	10/06/2010 1753
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	10/06/2010 1753
Naphthalene	ND		1	330	14	ug/kg	10/06/2010 1753
Phenanthrene	ND		1	330	13	ug/kg	10/06/2010 1753
Pyrene	ND		1	330	14	ug/kg	10/06/2010 1753
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		89	33-102				
Nitrobenzene-d5		85	22-109				
Terphenyl-d14		82	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: LQ43756-002

Matrix: Solid

Batch: 43756

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 10/06/2010 1000

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	3000		1	90	30-130	10/06/2010 1811
Acenaphthylene	3300	3800		1	115	30-130	10/06/2010 1811
Anthracene	3300	3100		1	93	30-130	10/06/2010 1811
Benzo(a)anthracene	3300	3000		1	89	30-130	10/06/2010 1811
Benzo(a)pyrene	3300	4000		1	119	30-130	10/06/2010 1811
Benzo(b)fluoranthene	3300	3100		1	94	30-130	10/06/2010 1811
Benzo(g,h,i)perylene	3300	3300		1	99	30-130	10/06/2010 1811
Benzo(k)fluoranthene	3300	3000		1	90	30-130	10/06/2010 1811
Chrysene	3300	3000		1	90	30-130	10/06/2010 1811
Dibenzo(a,h)anthracene	3300	3000		1	90	30-130	10/06/2010 1811
Fluoranthene	3300	2500		1	74	30-130	10/06/2010 1811
Fluorene	3300	2900		1	88	30-130	10/06/2010 1811
Indeno(1,2,3-c,d)pyrene	3300	3100		1	92	30-130	10/06/2010 1811
Naphthalene	3300	2800		1	84	30-130	10/06/2010 1811
Phenanthrene	3300	2900		1	88	30-130	10/06/2010 1811
Pyrene	3300	3000		1	90	30-130	10/06/2010 1811
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		90	33-102				
Nitrobenzene-d5		86	22-109				
Terphenyl-d14		81	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

SHEALY ENVIRONMENTAL SERVICES, INC.
 106 Vantage Point Drive
 West Columbia, South Carolina 29172
 Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 103983

SHEALY Chain of Custody Record
 MTR

Client: **1600 Commerce Circle**
 Address: **Tralford**
 City: **PA** Zip Code: **15085**

Report to Contact: **Cheryl Yushinski**
 Sampler's Signature: *[Signature]*
 Printed Name: **Mark Forlin**

Telephone No. / Fax No. / E-mail: **412-829-9650**
 Website No. _____

Project Name: **Coastline Sediments** Project No.: **SC-E-07001-30**
 Sample ID / Description: **SC-E-07001-30**
 (Containers for each sample may be combined on one form.)

Sample ID / Description	Date	Time	Matrix			No. of Containers by Preservative Type					Lot No.	Remarks / Container ID	
			Soil	Water	Sediment	Other	None	Formaldehyde	Other	None			Other
P-5	10/4/10	1008	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See attached Table
O-8	10/4/10	1045	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2-2 for list of PAHs
O-11	10/4/10	1130	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PAHs

Analysis (Attach list if more space is needed):
BTEX PAH
Lot No. C-105002
Remarks / Container ID

Sample Disposal: Return to Client Disposal by Lab
 Note: All samples are retained for six weeks from receipt unless other arrangements are made.

QC Requirements (Specify):
 1. Received by: **10/4/10** Date: **10/4/10** Time: **1008**
 2. Received by: **10/4/10** Date: **10/4/10** Time: **1045**
 3. Laboratory receiving by: **10/4/10** Date: **10/4/10** Time: **1818**

Comments: **Received on ice (Circle) Yes [X] No [] for Pack**
 LAB (USE ONLY)
 Received on ice (Circle) Yes [X] No [] for Pack

DISTRIBUTION: WHITE & YELLOW - Return to laboratory with Sample(s); PINK - Field Client Copy
 Document Number: F-AUD 012 Effective Date: 03-04-02

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: AD-015
 Revision Number: 5

Page 1 of 1
 Revision Date: 09/22/06
 Effective Date: 05/24/07

Sample Receipt Checklist (SRC)

Client: MTR Cooler Inspected by/date: ew 10/11/07 Lot #: LJ05002

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	1. Were custody seals present on the cooler?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?
Cooler ID/temperature upon receipt <u>60</u> / <u> </u> °C / <u> </u> °C / <u> </u> °C / <u> </u> °C			
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: <u> </u> . (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	5. Were proper custody procedures (relinquished/received) followed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	8. Were tests to be performed listed on the COC or was quote # provided?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	13. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH > 12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH ₃ /TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) and toxicity (<0.1mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) <u> </u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u> </u> (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) <u> </u>			
Sample(s) <u> </u> were received with bubbles >6 mm in diameter.			
Sample(s) <u> </u> were received with TRC >0.2 mg/L for NH ₃ /TKN/cyanide/BNA/pest/PCB/herb.			
Toxicity sample(s) <u> </u> were received with TRC >0.1 mg/L and were analyzed by method 330.5.			

Corrective Action taken, if necessary:

Was client notified: Yes No

SESI employee:

Comments:

Did client respond: Yes No

* Date of response:

TABLE 2-2

PROPOSED SEDIMENT ANALYTICAL PARAMETERS
AND ESTIMATED REPORTING LIMITS

Congaree River Sediments Investigation
Columbia, South Carolina

Parameter	Method	Reporting Limit (ug/Kg)
Volatile Organic Compounds		
Benzene	8260B	5
Ethylbenzene	8260B	5
Toluene	8260B	5
Total Xylenes	8260B	5
Semi-Volatile Organic Compounds		
Acenaphthene	8270D	330
Acenaphthylene	8270D	330
Anthracene	8270D	330
Benzo(a)anthracene	8270D	330
Benzo(a)pyrene	8270D	330
Benzo(b)fluoranthene	8270D	330
Benzo(k)fluoranthene	8270D	330
Benzo(g,h,i)perylene	8270D	330
Chrysene	8270D	330
Dibenz(a,h)anthracene	8270D	330
Fluoranthene	8270D	330
Fluorene	8270D	330
Indeno(1,2,3-cd)pyrene	8270D	330
Naphthalene	8270D	330
Phenanthrene	8270D	330
Pyrene	8270D	330

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Sediments

Project Number: SCE-07001-30

Lot Number: LJ06079

Date Completed: 10/14/2010



Nisreen Saikaly
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* LJ06079 *

SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DEHNR No: 329

Case Narrative Management and Technical Resources, Inc. Lot Number: LJ06079

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc.

Lot Number: LJ06079

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	O-14	Solid	10/05/2010 1345	10/06/2010
002	K-1	Solid	10/06/2010 1100	10/06/2010
003	I-1	Solid	10/06/2010 1000	10/06/2010
004	M-1	Solid	10/06/2010 1415	10/06/2010
005	O-2	Solid	10/06/2010 1500	10/06/2010

(5 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc.

Lot Number: LJ06079

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	0-14	Solid	Ethylbenzene	8260B	5.5		ug/kg	5
001	0-14	Solid	Toluene	8260B	2.3	J	ug/kg	5
001	0-14	Solid	Xylenes (total)	8260B	5.7		ug/kg	5
001	0-14	Solid	Phenanthrene	8270D	250	J	ug/kg	6
001	0-14	Solid	Pyrene	8270D	190	J	ug/kg	6
002	K-1	Solid	Xylenes (total)	8260B	3.0	J	ug/kg	7
003	I-1	Solid	Xylenes (total)	8260B	4.0	J	ug/kg	9

(7 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: LJ06079-001
Description: 0-14	Matrix: Solid
Date Sampled: 10/05/2010 1345	% Solids: 89.3 10/07/2010 0156
Date Received: 10/06/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	10/08/2010 1533	DLB		44040	5.84

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.8	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	5.5		4.8	1.6	ug/kg	1
Toluene	108-88-3	8260B	2.3	J	4.8	1.6	ug/kg	1
Xylenes (total)	1330-20-7	8260B	5.7		4.8	2.8	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	53-142
Bromofluorobenzene		112	47-138
Toluene-d8		106	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: LJ06079-001

Description: 0-14

Matrix: Solid

Date Sampled: 10/05/2010 1345

% Solids: 89.3 10/07/2010 0156

Date Received: 10/06/2010

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	10/12/2010 1938	WD	10/12/2010 1005	44146			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		350	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		350	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		350	15	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		350	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		350	25	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		350	24	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		350	24	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		350	29	ug/kg	1
Chrysene	218-01-9	8270D	ND		350	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		350	23	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		350	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		350	13	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		350	31	ug/kg	1
Naphthalene	91-20-3	8270D	ND		350	15	ug/kg	1
Phenanthrene	85-01-8	8270D	250	J	350	14	ug/kg	1
Pyrene	129-00-0	8270D	190	J	350	15	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		75	33-102
Nitrobenzene-d5		70	22-109
Terphenyl-d14		75	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: LJ06079-002
Description: K-1	Matrix: Solid
Date Sampled: 10/06/2010 1100	% Solids: 83.1 10/07/2010 0156
Date Received: 10/06/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	10/08/2010 1554	DLB		44040	6.04

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	3.0	J	5.0	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	53-142
Bromofluorobenzene		112	47-138
Toluene-d8		107	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: LJ06079-002

Description: K-1

Matrix: Solid

Date Sampled: 10/06/2010 1100

% Solids: 83.1 10/07/2010 0156

Date Received: 10/06/2010

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	10/13/2010 1856	JWS	10/12/2010 1005	44146			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		390	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		390	16	ug/kg	1
Anthracene	120-12-7	8270D	ND		390	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		390	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		390	29	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		390	26	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		390	27	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		390	32	ug/kg	1
Chrysene	218-01-9	8270D	ND		390	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		390	26	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		390	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		390	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		390	35	ug/kg	1
Naphthalene	91-20-3	8270D	ND		390	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		390	16	ug/kg	1
Pyrene	129-00-0	8270D	ND		390	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		75	33-102
Nitrobenzene-d5		69	22-109
Terphenyl-d14		77	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: LJ06079-003
Description: I-1	Matrix: Solid
Date Sampled: 10/06/2010 1000	% Solids: 79.2 10/07/2010 0156
Date Received: 10/06/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	10/08/2010 1615	DLB		44040	6.37

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	4.0	J	5.0	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	53-142
Bromofluorobenzene		108	47-138
Toluene-d8		108	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: LJ06079-003

Description: I-1

Matrix: Solid

Date Sampled: 10/06/2010 1000

% Solids: 79.2 10/07/2010 0156

Date Received: 10/06/2010

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	10/12/2010 2016	WD	10/12/2010 1005	44146			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		410	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		410	16	ug/kg	1
Anthracene	120-12-7	8270D	ND		410	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		410	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		410	30	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		410	28	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		410	28	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		410	34	ug/kg	1
Chrysene	218-01-9	8270D	ND		410	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		410	27	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		410	13	ug/kg	1
Fluorene	86-73-7	8270D	ND		410	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		410	37	ug/kg	1
Naphthalene	91-20-3	8270D	ND		410	17	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		410	17	ug/kg	1
Pyrene	129-00-0	8270D	ND		410	18	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		73	33-102
Nitrobenzene-d5		70	22-109
Terphenyl-d14		75	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: LJ06079-004
Description: M-1	Matrix: Solid
Date Sampled: 10/06/2010 1415	% Solids: 76.4 10/07/2010 0156
Date Received: 10/06/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	10/08/2010 1637	DLB		44040	6.53

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	53-142
Bromofluorobenzene		101	47-138
Toluene-d8		106	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: LJ06079-004

Description: M-1

Matrix: Solid

Date Sampled: 10/06/2010 1415

% Solids: 76.4 10/07/2010 0156

Date Received: 10/06/2010

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	10/12/2010 2034	WD	10/12/2010 1005	44146			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		410	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		410	16	ug/kg	1
Anthracene	120-12-7	8270D	ND		410	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		410	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		410	30	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		410	28	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		410	28	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		410	34	ug/kg	1
Chrysene	218-01-9	8270D	ND		410	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		410	27	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		410	13	ug/kg	1
Fluorene	86-73-7	8270D	ND		410	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		410	37	ug/kg	1
Naphthalene	91-20-3	8270D	ND		410	17	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		410	17	ug/kg	1
Pyrene	129-00-0	8270D	ND		410	18	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		73	33-102
Nitrobenzene-d5		68	22-109
Terphenyl-d14		73	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: LJ06079-005
Description: O-2	Matrix: Solid
Date Sampled: 10/06/2010 1500	% Solids: 87.0 10/07/2010 0156
Date Received: 10/06/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	10/08/2010 1658	DLB		44040	6.26

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.6	1.0	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.6	1.6	ug/kg	1
Toluene	108-88-3	8260B	ND		4.6	1.6	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.6	2.7	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	53-142
Bromofluorobenzene		109	47-138
Toluene-d8		106	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: LJ06079-005

Description: O-2

Matrix: Solid

Date Sampled: 10/06/2010 1500

% Solids: 87.0 10/07/2010 0156

Date Received: 10/06/2010

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	10/13/2010 1951	JWS	10/12/2010 1005	44146			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		370	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		370	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		370	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		370	30	ug/kg	1
Chrysene	218-01-9	8270D	ND		370	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		370	24	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		370	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		370	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		370	15	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		370	15	ug/kg	1
Pyrene	129-00-0	8270D	ND		370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		69	33-102
Nitrobenzene-d5		61	22-109
Terphenyl-d14		76	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: LQ44040-001

Matrix: Solid

Batch: 44040

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	10/08/2010 1236
Ethylbenzene	ND		1	5.0	1.7	ug/kg	10/08/2010 1236
Toluene	ND		1	5.0	1.7	ug/kg	10/08/2010 1236
Xylenes (total)	ND		1	5.0	2.9	ug/kg	10/08/2010 1236
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		107	47-138				
1,2-Dichloroethane-d4		92	53-142				
Toluene-d8		107	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: LQ44040-002

Matrix: Solid

Batch: 44040

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	50		1	100	69-123	10/08/2010 1033
Ethylbenzene	50	58		1	116	59-128	10/08/2010 1033
Toluene	50	55		1	110	61-129	10/08/2010 1033
Xylenes (total)	100	110		1	113	58-128	10/08/2010 1033
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		111	47-138				
1,2-Dichloroethane-d4		87	53-142				
Toluene-d8		109	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: LQ44040-003

Matrix: Solid

Batch: 44040

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	56		1	112	11	69-123	20	10/08/2010 1055
Ethylbenzene	50	63		1	127	9.1	59-128	20	10/08/2010 1055
Toluene	50	61		1	123	11	61-129	20	10/08/2010 1055
Xylenes (total)	100	120		1	124	9.9	58-128	20	10/08/2010 1055
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		115	47-138						
1,2-Dichloroethane-d4		93	53-142						
Toluene-d8		114	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: LQ44146-001

Matrix: Solid

Batch: 44146

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 10/12/2010 1005

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	10/12/2010 1727
Acenaphthylene	ND		1	330	13	ug/kg	10/12/2010 1727
Anthracene	ND		1	330	15	ug/kg	10/12/2010 1727
Benzo(a)anthracene	ND		1	330	11	ug/kg	10/12/2010 1727
Benzo(a)pyrene	ND		1	330	24	ug/kg	10/12/2010 1727
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	10/12/2010 1727
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	10/12/2010 1727
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	10/12/2010 1727
Chrysene	ND		1	330	10	ug/kg	10/12/2010 1727
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	10/12/2010 1727
Fluoranthene	ND		1	330	10	ug/kg	10/12/2010 1727
Fluorene	ND		1	330	13	ug/kg	10/12/2010 1727
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	10/12/2010 1727
Naphthalene	ND		1	330	14	ug/kg	10/12/2010 1727
Phenanthrene	ND		1	330	13	ug/kg	10/12/2010 1727
Pyrene	ND		1	330	14	ug/kg	10/12/2010 1727
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		63	33-102				
Nitrobenzene-d5		59	22-109				
Terphenyl-d14		72	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: LQ44146-002

Matrix: Solid

Batch: 44146

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 10/12/2010 1005

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	2500		1	74	30-130	10/12/2010 1746
Acenaphthylene	3300	3200		1	95	30-130	10/12/2010 1746
Anthracene	3300	2800		1	83	30-130	10/12/2010 1746
Benzo(a)anthracene	3300	2700		1	82	30-130	10/12/2010 1746
Benzo(a)pyrene	3300	3600		1	108	30-130	10/12/2010 1746
Benzo(b)fluoranthene	3300	2500		1	76	30-130	10/12/2010 1746
Benzo(g,h,i)perylene	3300	3100		1	94	30-130	10/12/2010 1746
Benzo(k)fluoranthene	3300	2900		1	87	30-130	10/12/2010 1746
Chrysene	3300	2700		1	80	30-130	10/12/2010 1746
Dibenzo(a,h)anthracene	3300	2800		1	85	30-130	10/12/2010 1746
Fluoranthene	3300	2600		1	77	30-130	10/12/2010 1746
Fluorene	3300	2500		1	76	30-130	10/12/2010 1746
Indeno(1,2,3-c,d)pyrene	3300	2900		1	87	30-130	10/12/2010 1746
Naphthalene	3300	2000		1	61	30-130	10/12/2010 1746
Phenanthrene	3300	2500		1	76	30-130	10/12/2010 1746
Pyrene	3300	2600		1	79	30-130	10/12/2010 1746
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		72	33-102				
Nitrobenzene-d5		64	22-109				
Terphenyl-d14		73	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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



Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
 106 Vantage Point Drive
 West Columbia, South Carolina 29172
 Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 104733

Client: MTR Telephone No. / Fax No. / E-mail: 412-829-9650/412-349-0350 Quote No. _____
 Address: 1600 Commerce Circle City: Tralford State: PA Zip Code: 15085 Worksheet No. Page 1 of 1
 Project Name: Sediments Printed Name: Mark Forlin Lot No. LJ06079
 Project No.: SC-E-07001-30 Sample ID / Description: _____ Remarks / Cooler I.D. _____
 Report to Contact: Cheryl Yushaski (X) Signatory's Signature: Mark Forlin (X) Signatory's Signature: _____
 Analysis (Attach list if more space is needed): _____

Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	Matrix		No. of Containers by Preservative Type		Remarks / Cooler I.D.
			Aqueous	Non-Aqueous	None	Other	
O-14	10/6/10	1345	✓				see attached
K-2	10/6/10	1100	✓				Table 2-2
I-1	10/6/10	1000	✓				for list of
M-1	10/6/10	1415	✓				PATE
O-2	10/6/10	1500	✓				

Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison Unknown
 Turn Around Time Required (Prior lab approval required for expedited TAT): _____
 Standard: Rush (Specify) _____
 1. Relinquished by: Mark Forlin Date: 10/6/10 Time: 1730
 2. Relinquished by: _____ Date: _____ Time: _____
 3. Relinquished by: _____ Date: _____ Time: _____
 Comments: _____
 Received on ice (Circle) No Yes Pack
 Receipt Temp: 4.0 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Samples; PINK-Field/Client Copy
 Document Number: F-40-012 Effective Date: 08-04-08

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: FAD-016
 Revision Number: 3

Page 1 of 1
 Replaces Date: 09/22/06
 Effective Date: 03/29/07

Sample Receipt Checklist (SRC)

Client: ATR Cooler Inspected by/date: WTL 10/6/10 Lot #: EJ06079

Means of receipt: <input checked="" type="checkbox"/> SESI <input type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	1. Were custody seals present on the cooler?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?
Cooler ID/temperature upon receipt: <u>46</u> °C / °C / °C / °C			
Method: <input type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____ (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	5. Were proper custody procedures (relinquished/received) followed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	8. Were tests to be performed listed on the COC or was quote # provided?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	13. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH ₃ /TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) and toxicity (<0.1mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) _____			
Sample(s) _____ were received with bubbles >6 mm in diameter.			
Sample(s) _____ were received with TRC >0.2 mg/L for NH ₃ /TKN/cyanide/BNA/pest/PCB/herb.			
Toxicity sample(s) _____ were received with TRC >0.1 mg/L and were analyzed by method 330.5.			

Corrective Action taken, if necessary:

Was client notified: Yes No

SESI employee: _____

Comments: _____

Did client respond: Yes No

*Date of response: _____

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Congaree Sediments

Project Number: SCE07001-30

Lot Number: LJ07053

Date Completed: 10/20/2010



Nisreen Saikaly
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* LJ07053 *

SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DEHNR No: 329

Case Narrative

Management and Technical Resources, Inc.

Lot Number: LJ07053

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc.

Lot Number: LJ07053

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	L-3	Solid	10/07/2010 0945	10/07/2010

(1 sample)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc. Lot Number: LJ07053

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	L-3	Solid	Toluene	8260B	3.5	J	ug/kg	5
001	L-3	Solid	Benzo(a)pyrene	8270D	910		ug/kg	6
001	L-3	Solid	Benzo(b)fluoranthene	8270D	920		ug/kg	6
001	L-3	Solid	Benzo(g,h,i)perylene	8270D	600		ug/kg	6
001	L-3	Solid	Benzo(k)fluoranthene	8270D	250	J	ug/kg	6
001	L-3	Solid	Chrysene	8270D	670		ug/kg	6
001	L-3	Solid	Fluoranthene	8270D	950		ug/kg	6
001	L-3	Solid	Indeno(1,2,3-c,d)pyrene	8270D	450		ug/kg	6
001	L-3	Solid	Pyrene	8270D	1100		ug/kg	6

(9 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: LJ07053-001
Description: L-3	Matrix: Solid
Date Sampled: 10/07/2010 0945	% Solids: 82.8 10/07/2010 2353
Date Received: 10/07/2010	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	10/20/2010 1903	BM		44834	6.34

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.8	1.0	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.8	1.6	ug/kg	1
Toluene	108-88-3	8260B	3.5	J	4.8	1.6	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.8	2.8	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		82	53-142
Bromofluorobenzene		90	47-138
Toluene-d8		96	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: LJ07053-001

Description: L-3

Matrix: Solid

Date Sampled: 10/07/2010 0945

% Solids: 82.8 10/07/2010 2353

Date Received: 10/07/2010

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	10/14/2010 1644	WD	10/13/2010 1709	44301			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		390	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		390	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		390	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		390	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	910		390	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	920		390	26	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	600		390	27	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	250	J	390	32	ug/kg	1
Chrysene	218-01-9	8270D	670		390	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		390	26	ug/kg	1
Fluoranthene	206-44-0	8270D	950		390	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		390	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	450		390	35	ug/kg	1
Naphthalene	91-20-3	8270D	ND		390	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		390	16	ug/kg	1
Pyrene	129-00-0	8270D	1100		390	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		79	33-102
Nitrobenzene-d5		67	22-109
Terphenyl-d14		73	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: LQ44834-001

Matrix: Solid

Batch: 44834

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	10/20/2010 1822
Ethylbenzene	ND		1	5.0	1.7	ug/kg	10/20/2010 1822
Toluene	ND		1	5.0	1.7	ug/kg	10/20/2010 1822
Xylenes (total)	ND		1	5.0	2.9	ug/kg	10/20/2010 1822
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		97	47-138				
1,2-Dichloroethane-d4		92	53-142				
Toluene-d8		98	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: LQ44834-002

Matrix: Solid

Batch: 44834

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	45		1	90	69-123	10/20/2010 1647
Ethylbenzene	50	47		1	95	59-128	10/20/2010 1647
Toluene	50	46		1	92	61-129	10/20/2010 1647
Xylenes (total)	100	94		1	94	58-128	10/20/2010 1647
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		99	47-138				
1,2-Dichloroethane-d4		87	53-142				
Toluene-d8		100	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: LQ44834-003

Matrix: Solid

Batch: 44834

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	47		1	93	3.8	69-123	20	10/20/2010 1711
Ethylbenzene	50	48		1	97	2.5	59-128	20	10/20/2010 1711
Toluene	50	48		1	97	4.6	61-129	20	10/20/2010 1711
Xylenes (total)	100	98		1	98	3.9	58-128	20	10/20/2010 1711
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		103	47-138						
1,2-Dichloroethane-d4		89	53-142						
Toluene-d8		102	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: LQ44301-001

Matrix: Solid

Batch: 44301

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 10/13/2010 1709

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	10/14/2010 1524
Acenaphthylene	ND		1	330	13	ug/kg	10/14/2010 1524
Anthracene	ND		1	330	15	ug/kg	10/14/2010 1524
Benzo(a)anthracene	ND		1	330	11	ug/kg	10/14/2010 1524
Benzo(a)pyrene	ND		1	330	24	ug/kg	10/14/2010 1524
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	10/14/2010 1524
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	10/14/2010 1524
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	10/14/2010 1524
Chrysene	ND		1	330	10	ug/kg	10/14/2010 1524
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	10/14/2010 1524
Fluoranthene	ND		1	330	10	ug/kg	10/14/2010 1524
Fluorene	ND		1	330	13	ug/kg	10/14/2010 1524
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	10/14/2010 1524
Naphthalene	ND		1	330	14	ug/kg	10/14/2010 1524
Phenanthrene	ND		1	330	13	ug/kg	10/14/2010 1524
Pyrene	ND		1	330	14	ug/kg	10/14/2010 1524
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		37	33-102				
Nitrobenzene-d5		40	22-109				
Terphenyl-d14		46	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: LQ44301-002

Matrix: Solid

Batch: 44301

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 10/13/2010 1709

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	1800		1	54	30-130	10/14/2010 1551
Acenaphthylene	3300	2400		1	71	30-130	10/14/2010 1551
Anthracene	3300	2000		1	59	30-130	10/14/2010 1551
Benzo(a)anthracene	3300	1800		1	54	30-130	10/14/2010 1551
Benzo(a)pyrene	3300	2400		1	72	30-130	10/14/2010 1551
Benzo(b)fluoranthene	3300	1800		1	55	30-130	10/14/2010 1551
Benzo(g,h,i)perylene	3300	2000		1	59	30-130	10/14/2010 1551
Benzo(k)fluoranthene	3300	2000		1	60	30-130	10/14/2010 1551
Chrysene	3300	1800		1	53	30-130	10/14/2010 1551
Dibenzo(a,h)anthracene	3300	2000		1	59	30-130	10/14/2010 1551
Fluoranthene	3300	1900		1	56	30-130	10/14/2010 1551
Fluorene	3300	1900		1	56	30-130	10/14/2010 1551
Indeno(1,2,3-c,d)pyrene	3300	1900		1	58	30-130	10/14/2010 1551
Naphthalene	3300	1600		1	48	30-130	10/14/2010 1551
Phenanthrene	3300	1900		1	56	30-130	10/14/2010 1551
Pyrene	3300	1800		1	53	30-130	10/14/2010 1551
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		52	33-102				
Nitrobenzene-d5		59	22-109				
Terphenyl-d14		47	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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



Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.
 106 Vantage Point Drive
 West Columbia, South Carolina 29172
 Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 103985

Client: MTR		Report to Contact: Cheryl Kusnurski		Telephone No. / Fax No. / E-mail: 412-929-9650		Quote No.
Address: 1600 Commerce Circle		Sampler's Signature: <i>William Zeli</i>		Waybill No.:		Page ___ of ___
City: Trafford PA 15085		Printed Name: William Zeli		Analysis (Attach list if more space is needed.)		
Project Name: Congaree Sediments		Matrix: Solid		L-3		
Project No.: SCE07001-30	P.O. No.:	No. of Containers by Preservative Type		Lot No.: W67053		
Sample ID / Description: (Containers for each sample may be combined on one line.)	Date: 10/10	Time: 9:45	GC	HC	HNO3	H2O2
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Possible Hazard Identification	Sample Disposal		QC Requirements (Specify)	
	<input checked="" type="checkbox"/> Non-Hazardous	<input type="checkbox"/> Return to Client	1. Received by	Time
<input checked="" type="checkbox"/> Skin Irritant	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Flammable	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Poison	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Unknown	<input type="checkbox"/>	<input type="checkbox"/>		
Long Around Time Required (Prior lab approval required for expedited TAT.)				
<input checked="" type="checkbox"/> Standard	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Rush (Specify)	<input type="checkbox"/>	<input type="checkbox"/>		
1. Relinquished by: <i>Muddy Palmi</i>	Date: 10/15	Time: 10:30	Date: 10/9/10	Time: 17:15
2. Relinquished by:	Date:	Time:	Date:	Time:
3. Relinquished by:	Date:	Time:	Date:	Time:
Comments:	LAB USE ONLY			
	Received on ice (Circle) <input checked="" type="checkbox"/>		Receipt Temp. 103 °C	

See attached Table A-2 for list of PAHs

GTEX PAHS

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: SESI-016
 Revision Number: 5

Page 1 of 1
 Replaces Date: 09/22/05
 Effective Date: 03/29/07

Sample Receipt Checklist (SRC)

Client: MTR Cooler Inspected by/date: ew 10/7/10 Lot #: LJ-67053

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other		
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>	1. Were custody seals present on the cooler?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?	
Cooler ID/temperature upon receipt <u>103</u> °C <u>1</u> °C <u>1</u> °C <u>1</u> °C <u>1</u> °C <u>1</u> °C <u>1</u> °C <u>1</u> °C		
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None		
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.		
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC phone, note (circle one), other: _____ (For coolers received via commercial courier, PMs are to be notified immediately.)	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	5. Were proper custody procedures (relinquished/received) followed?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	6. Were sample IDs listed?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	7. Was collection date & time listed?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	8. Were tests to be performed listed on the COC or was quote # provided?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	9. Did all samples arrive in the proper containers for each test?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	10. Did all container label information (ID, date, time) agree with COC?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	11. Did all containers arrive in good condition (unbroken, lids on, etc.)?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	12. Was adequate sample volume available?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	13. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?	
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>	14. Were any samples containers missing?	
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA <input type="checkbox"/>	15. Were there any excess samples not listed on COC?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any VOA vials?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	17. Were all metals/O&C/HEM/nutrient samples received at a pH of <2?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	19. Were all applicable NH ₃ /TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) and toxicity (<0.1mg/L) samples free of residual chlorine?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?	
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)		
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) _____		
Sample(s) _____ were received with bubbles >6 mm in diameter.		
Sample(s) _____ were received with TRC >0.2 mg/L for NH ₃ /TKN/cyanide/BNA/pest/PCB/herb.		
Toxicity sample(s) _____ were received with TRC >0.1 mg/L and were analyzed by method 330.5.		

Corrective Action taken, if necessary:

Was client notified: Yes No

SESI employee: _____

Comments: _____

Did client respond: Yes No

Date of response: _____

TABLE 2-2

PROPOSED SEDIMENT ANALYTICAL PARAMETERS
AND ESTIMATED REPORTING LIMITS

Congaree River Sediments Investigation
Columbia, South Carolina

Parameter	Method	Reporting Limit ($\mu\text{g}/\text{kg}$)
Volatile Organic Compounds		
Benzene	8260B	5
Ethylbenzene	8260B	5
Toluene	8260B	5
Total Xylenes	8260B	5
Semi-Volatile Organic Compounds		
Acenaphthene	8270D	330
Acenaphthylene	8270D	330
Anthracene	8270D	330
Benz(a)anthracene	8270D	330
Benzo(a)pyrene	8270D	330
Benzo(b)fluoranthene	8270D	330
Benzo(k)fluoranthene	8270D	330
Benzo(g,h,i)perylene	8270D	330
Chrysene	8270D	330
Dibenz(a,h)anthracene	8270D	330
Fluoranthene	8270D	330
Fluorene	8270D	330
Indeno(1,2,3-cd)pyrene	8270D	330
Naphthalene	8270D	330
Phenanthrene	8270D	330
Pyrene	8270D	330

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Sediments

Project Number: SCE-13001-02

Lot Number: MB23028

Date Completed: 03/08/2011



Nisreen Saikaly
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* MB23028 *

SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DEHNR No: 329

Case Narrative Management and Technical Resources, Inc. Lot Number: MB23028

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Dilutions greater than 5X impact the surrogate recoveries, thus negating their usefulness concerning quality control. The sample results are reported and no corrective action is required.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc. Lot Number: MB23028

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	J-19	Solid	02/22/2011 1300	02/23/2011
002	K-19	Solid	02/22/2011 1330	02/23/2011
003	L-19	Solid	02/22/2011 1345	02/23/2011
004	I-17	Solid	02/23/2011 1000	02/23/2011
005	O-17	Solid	02/23/2011 1015	02/23/2011

(5 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc.

Lot Number: MB23028

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	J-19	Solid	Benzene	8260B	37		ug/kg	6
001	J-19	Solid	Ethylbenzene	8260B	2200		ug/kg	6
001	J-19	Solid	Toluene	8260B	8.1		ug/kg	6
001	J-19	Solid	Xylenes (total)	8260B	190		ug/kg	6
001	J-19	Solid	Acenaphthene	8270D	58000		ug/kg	7
001	J-19	Solid	Acenaphthylene	8270D	4500		ug/kg	7
001	J-19	Solid	Anthracene	8270D	41000		ug/kg	7
001	J-19	Solid	Benzo(a)anthracene	8270D	29000		ug/kg	7
001	J-19	Solid	Benzo(a)pyrene	8270D	34000		ug/kg	7
001	J-19	Solid	Benzo(b)fluoranthene	8270D	18000		ug/kg	7
001	J-19	Solid	Benzo(g,h,i)perylene	8270D	9500		ug/kg	7
001	J-19	Solid	Chrysene	8270D	34000		ug/kg	7
001	J-19	Solid	Dibenzo(a,h)anthracene	8270D	2400		ug/kg	7
001	J-19	Solid	Fluoranthene	8270D	51000		ug/kg	7
001	J-19	Solid	Fluorene	8270D	35000		ug/kg	7
001	J-19	Solid	Indeno(1,2,3-c,d)pyrene	8270D	7200		ug/kg	7
001	J-19	Solid	Naphthalene	8270D	82000		ug/kg	7
001	J-19	Solid	Phenanthrene	8270D	150000		ug/kg	7
001	J-19	Solid	Pyrene	8270D	92000		ug/kg	7
002	K-19	Solid	Acenaphthene	8270D	890		ug/kg	9
002	K-19	Solid	Acenaphthylene	8270D	410		ug/kg	9
002	K-19	Solid	Anthracene	8270D	1800		ug/kg	9
002	K-19	Solid	Benzo(a)anthracene	8270D	1900		ug/kg	9
002	K-19	Solid	Benzo(a)pyrene	8270D	1900		ug/kg	9
002	K-19	Solid	Benzo(b)fluoranthene	8270D	1400		ug/kg	9
002	K-19	Solid	Benzo(g,h,i)perylene	8270D	650		ug/kg	9
002	K-19	Solid	Benzo(k)fluoranthene	8270D	540		ug/kg	9
002	K-19	Solid	Chrysene	8270D	2100		ug/kg	9
002	K-19	Solid	Dibenzo(a,h)anthracene	8270D	420		ug/kg	9
002	K-19	Solid	Fluoranthene	8270D	3600		ug/kg	9
002	K-19	Solid	Fluorene	8270D	810		ug/kg	9
002	K-19	Solid	Indeno(1,2,3-c,d)pyrene	8270D	500		ug/kg	9
002	K-19	Solid	Phenanthrene	8270D	4800		ug/kg	9
002	K-19	Solid	Pyrene	8270D	5800		ug/kg	9
003	L-19	Solid	Acenaphthene	8270D	210	J	ug/kg	11
003	L-19	Solid	Acenaphthylene	8270D	96	J	ug/kg	11
003	L-19	Solid	Anthracene	8270D	310	J	ug/kg	11
003	L-19	Solid	Benzo(a)anthracene	8270D	270	J	ug/kg	11
003	L-19	Solid	Benzo(a)pyrene	8270D	320	J	ug/kg	11
003	L-19	Solid	Benzo(b)fluoranthene	8270D	190	J	ug/kg	11
003	L-19	Solid	Benzo(g,h,i)perylene	8270D	120	J	ug/kg	11
003	L-19	Solid	Benzo(k)fluoranthene	8270D	130	J	ug/kg	11
003	L-19	Solid	Chrysene	8270D	280	J	ug/kg	11
003	L-19	Solid	Dibenzo(a,h)anthracene	8270D	350	J	ug/kg	11
003	L-19	Solid	Fluoranthene	8270D	450		ug/kg	11

Executive Summary (Continued)

Lot Number: MB23028

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
003	L-19	Solid	Fluorene	8270D	170	J	ug/kg	11
003	L-19	Solid	Indeno(1,2,3-c,d)pyrene	8270D	81	J	ug/kg	11
003	L-19	Solid	Naphthalene	8270D	170	J	ug/kg	11
003	L-19	Solid	Phenanthrene	8270D	940		ug/kg	11
003	L-19	Solid	Pyrene	8270D	750		ug/kg	11
004	I-17	Solid	Benzene	8260B	4.7	J	ug/kg	12
004	I-17	Solid	Ethylbenzene	8260B	5.5	J	ug/kg	12
004	I-17	Solid	Xylenes (total)	8260B	58		ug/kg	12
004	I-17	Solid	Acenaphthene	8270D	59000		ug/kg	13
004	I-17	Solid	Acenaphthylene	8270D	4700		ug/kg	13
004	I-17	Solid	Anthracene	8270D	65000		ug/kg	13
004	I-17	Solid	Benzo(a)anthracene	8270D	28000		ug/kg	13
004	I-17	Solid	Benzo(a)pyrene	8270D	27000		ug/kg	13
004	I-17	Solid	Benzo(b)fluoranthene	8270D	17000		ug/kg	13
004	I-17	Solid	Benzo(g,h,i)perylene	8270D	7400		ug/kg	13
004	I-17	Solid	Benzo(k)fluoranthene	8270D	6600		ug/kg	13
004	I-17	Solid	Chrysene	8270D	26000		ug/kg	13
004	I-17	Solid	Dibenzo(a,h)anthracene	8270D	1800		ug/kg	13
004	I-17	Solid	Fluoranthene	8270D	76000		ug/kg	13
004	I-17	Solid	Fluorene	8270D	37000		ug/kg	13
004	I-17	Solid	Indeno(1,2,3-c,d)pyrene	8270D	6800		ug/kg	13
004	I-17	Solid	Naphthalene	8270D	790		ug/kg	13
004	I-17	Solid	Phenanthrene	8270D	170000		ug/kg	13
004	I-17	Solid	Pyrene	8270D	97000		ug/kg	13
005	O-17	Solid	Acenaphthylene	8270D	16	J	ug/kg	15
005	O-17	Solid	Fluoranthene	8270D	18	J	ug/kg	15
005	O-17	Solid	Phenanthrene	8270D	19	J	ug/kg	15
005	O-17	Solid	Pyrene	8270D	27	J	ug/kg	15

(73 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-001
Description: J-19	Matrix: Solid
Date Sampled: 02/22/2011 1300	% Solids: 79.1 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/24/2011 1728	DLB		53650	6.49
2	5035	8260B	50	03/01/2011 0644	LBS		53878	5.77

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	37		4.9	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	2200		270	93	ug/kg	2
Toluene	108-88-3	8260B	8.1		4.9	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	190		4.9	2.8	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	53-142		64	53-142
Bromofluorobenzene		109	47-138		66	47-138
Toluene-d8		105	68-124	N	64	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-001
Description: J-19	Matrix: Solid
Date Sampled: 02/22/2011 1300	% Solids: 79.1 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	2	03/01/2011 1955	JGH	02/28/2011 2022	53787
2	3550C	8270D	20	03/06/2011 0909	JGH	02/28/2011 2022	53787

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	58000		8300	250	ug/kg	2
Acenaphthylene	208-96-8	8270D	4500		830	33	ug/kg	1
Anthracene	120-12-7	8270D	41000		8300	370	ug/kg	2
Benzo(a)anthracene	56-55-3	8270D	29000		8300	270	ug/kg	2
Benzo(a)pyrene	50-32-8	8270D	34000		8300	600	ug/kg	2
Benzo(b)fluoranthene	205-99-2	8270D	18000		830	56	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	9500		830	56	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		830	68	ug/kg	1
Chrysene	218-01-9	8270D	34000		8300	260	ug/kg	2
Dibenzo(a,h)anthracene	53-70-3	8270D	2400		830	55	ug/kg	1
Fluoranthene	206-44-0	8270D	51000		8300	260	ug/kg	2
Fluorene	86-73-7	8270D	35000		8300	320	ug/kg	2
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	7200		830	75	ug/kg	1
Naphthalene	91-20-3	8270D	82000		8300	350	ug/kg	2
Phenanthrene	85-01-8	8270D	150000		8300	340	ug/kg	2
Pyrene	129-00-0	8270D	92000		8300	360	ug/kg	2

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
2-Fluorobiphenyl		79	33-102		81	33-102
Nitrobenzene-d5		61	22-109		66	22-109
Terphenyl-d14		72	41-120		87	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-002
Description: K-19	Matrix: Solid
Date Sampled: 02/22/2011 1330	% Solids: 91.6 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/23/2011 2034	DLB		53530	5.22

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.2	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.2	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.2	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.2	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	53-142
Bromofluorobenzene		113	47-138
Toluene-d8		104	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MB23028-002

Description: K-19

Matrix: Solid

Date Sampled: 02/22/2011 1330

% Solids: 91.6 02/23/2011 2014

Date Received: 02/23/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	03/06/2011 0927	JGH	02/28/2011 2022	53787			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	890		340	10	ug/kg	1
Acenaphthylene	208-96-8	8270D	410		340	13	ug/kg	1
Anthracene	120-12-7	8270D	1800		340	15	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	1900		340	11	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	1900		340	25	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	1400		340	23	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	650		340	23	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	540		340	28	ug/kg	1
Chrysene	218-01-9	8270D	2100		340	10	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	420		340	22	ug/kg	1
Fluoranthene	206-44-0	8270D	3600		340	11	ug/kg	1
Fluorene	86-73-7	8270D	810		340	13	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	500		340	30	ug/kg	1
Naphthalene	91-20-3	8270D	ND		340	14	ug/kg	1
Phenanthrene	85-01-8	8270D	4800		340	14	ug/kg	1
Pyrene	129-00-0	8270D	5800		340	15	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		90	33-102
Nitrobenzene-d5		86	22-109
Terphenyl-d14		95	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-003
Description: L-19	Matrix: Solid
Date Sampled: 02/22/2011 1345	% Solids: 85.2 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/23/2011 2056	DLB		53530	5.70

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.1	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.1	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.1	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.1	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	53-142
Bromofluorobenzene		114	47-138
Toluene-d8		104	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MB23028-003

Description: L-19

Matrix: Solid

Date Sampled: 02/22/2011 1345

% Solids: 85.2 02/23/2011 2014

Date Received: 02/23/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	03/06/2011 0946	JGH	02/28/2011 2022	53787			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	210	J	370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	96	J	370	15	ug/kg	1
Anthracene	120-12-7	8270D	310	J	370	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	270	J	370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	320	J	370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	190	J	370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	120	J	370	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	130	J	370	31	ug/kg	1
Chrysene	218-01-9	8270D	280	J	370	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	350	J	370	25	ug/kg	1
Fluoranthene	206-44-0	8270D	450		370	12	ug/kg	1
Fluorene	86-73-7	8270D	170	J	370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	81	J	370	34	ug/kg	1
Naphthalene	91-20-3	8270D	170	J	370	16	ug/kg	1
Phenanthrene	85-01-8	8270D	940		370	15	ug/kg	1
Pyrene	129-00-0	8270D	750		370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		86	33-102
Nitrobenzene-d5		84	22-109
Terphenyl-d14		90	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-004
Description: I-17	Matrix: Solid
Date Sampled: 02/23/2011 1000	% Solids: 59.9 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/24/2011 1750	DLB		53650	4.98

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	4.7	J	8.4	1.8	ug/kg	1
Ethylbenzene	100-41-4	8260B	5.5	J	8.4	2.8	ug/kg	1
Toluene	108-88-3	8260B	ND		8.4	2.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	58		8.4	4.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	53-142
Bromofluorobenzene		85	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MB23028-004

Description: I-17

Matrix: Solid

Date Sampled: 02/23/2011 1000

% Solids: 59.9 02/23/2011 2014

Date Received: 02/23/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	03/01/2011 2013	JGH	02/28/2011 2022	53787
2	3550C	8270D	20	03/06/2011 1005	JGH	02/28/2011 2022	53787

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	59000		11000	330	ug/kg	2
Acenaphthylene	208-96-8	8270D	4700		530	21	ug/kg	1
Anthracene	120-12-7	8270D	65000		11000	470	ug/kg	2
Benzo(a)anthracene	56-55-3	8270D	28000		11000	350	ug/kg	2
Benzo(a)pyrene	50-32-8	8270D	27000		11000	780	ug/kg	2
Benzo(b)fluoranthene	205-99-2	8270D	17000		11000	720	ug/kg	2
Benzo(g,h,i)perylene	191-24-2	8270D	7400		530	36	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	6600		530	44	ug/kg	1
Chrysene	218-01-9	8270D	26000		11000	330	ug/kg	2
Dibenzo(a,h)anthracene	53-70-3	8270D	1800		530	35	ug/kg	1
Fluoranthene	206-44-0	8270D	76000		11000	340	ug/kg	2
Fluorene	86-73-7	8270D	37000		11000	410	ug/kg	2
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	6800		530	48	ug/kg	1
Naphthalene	91-20-3	8270D	790		530	23	ug/kg	1
Phenanthrene	85-01-8	8270D	170000		11000	430	ug/kg	2
Pyrene	129-00-0	8270D	97000		11000	460	ug/kg	2

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
2-Fluorobiphenyl		73	33-102		75	33-102
Nitrobenzene-d5		67	22-109		62	22-109
Terphenyl-d14		58	41-120		73	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-005
Description: O-17	Matrix: Solid
Date Sampled: 02/23/2011 1015	% Solids: 87.9 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/23/2011 2118	DLB		53530	5.18

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.5	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.5	1.9	ug/kg	1
Toluene	108-88-3	8260B	ND		5.5	1.9	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.5	3.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	53-142
Bromofluorobenzene		116	47-138
Toluene-d8		106	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MB23028-005

Description: O-17

Matrix: Solid

Date Sampled: 02/23/2011 1015

% Solids: 87.9 02/23/2011 2014

Date Received: 02/23/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	03/01/2011 2032	JGH	02/28/2011 2022	53787			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	16	J	370	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		370	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		370	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		370	30	ug/kg	1
Chrysene	218-01-9	8270D	ND		370	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		370	24	ug/kg	1
Fluoranthene	206-44-0	8270D	18	J	370	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		370	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		370	16	ug/kg	1
Phenanthrene	85-01-8	8270D	19	J	370	15	ug/kg	1
Pyrene	129-00-0	8270D	27	J	370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		69	33-102
Nitrobenzene-d5		66	22-109
Terphenyl-d14		65	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ53530-001

Matrix: Solid

Batch: 53530

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	02/23/2011 1418
Ethylbenzene	ND		1	5.0	1.7	ug/kg	02/23/2011 1418
Toluene	ND		1	5.0	1.7	ug/kg	02/23/2011 1418
Xylenes (total)	ND		1	5.0	2.9	ug/kg	02/23/2011 1418
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		112	47-138				
1,2-Dichloroethane-d4		91	53-142				
Toluene-d8		103	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ53530-002

Matrix: Solid

Batch: 53530

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	49		1	98	69-123	02/23/2011 1250
Ethylbenzene	50	55		1	109	59-128	02/23/2011 1250
Toluene	50	52		1	104	61-129	02/23/2011 1250
Xylenes (total)	100	110		1	111	58-128	02/23/2011 1250
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		120	47-138				
1,2-Dichloroethane-d4		92	53-142				
Toluene-d8		108	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ53530-003

Matrix: Solid

Batch: 53530

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	48		1	97	1.6	69-123	20	02/23/2011 1312
Ethylbenzene	50	52		1	105	3.9	59-128	20	02/23/2011 1312
Toluene	50	51		1	102	1.9	61-129	20	02/23/2011 1312
Xylenes (total)	100	110		1	107	2.9	58-128	20	02/23/2011 1312
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		119	47-138						
1,2-Dichloroethane-d4		92	53-142						
Toluene-d8		107	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ53650-001

Matrix: Solid

Batch: 53650

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	02/24/2011 1313
Ethylbenzene	ND		1	5.0	1.7	ug/kg	02/24/2011 1313
Toluene	ND		1	5.0	1.7	ug/kg	02/24/2011 1313
Xylenes (total)	ND		1	5.0	2.9	ug/kg	02/24/2011 1313
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		107	47-138				
1,2-Dichloroethane-d4		90	53-142				
Toluene-d8		105	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ53650-002

Matrix: Solid

Batch: 53650

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	47		1	94	69-123	02/24/2011 1145
Ethylbenzene	50	54		1	107	59-128	02/24/2011 1145
Toluene	50	53		1	106	61-129	02/24/2011 1145
Xylenes (total)	100	110		1	110	58-128	02/24/2011 1145
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		126	47-138				
1,2-Dichloroethane-d4		89	53-142				
Toluene-d8		110	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ53650-003

Matrix: Solid

Batch: 53650

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	49		1	98	3.9	69-123	20	02/24/2011 1207
Ethylbenzene	50	52		1	105	2.0	59-128	20	02/24/2011 1207
Toluene	50	52		1	104	2.5	61-129	20	02/24/2011 1207
Xylenes (total)	100	110		1	106	4.1	58-128	20	02/24/2011 1207
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		120	47-138						
1,2-Dichloroethane-d4		95	53-142						
Toluene-d8		111	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ53878-001

Matrix: Solid

Batch: 53878

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Ethylbenzene	ND		50	250	85	ug/kg	02/25/2011 1342
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		100	47-138				
1,2-Dichloroethane-d4		97	53-142				
Toluene-d8		102	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ53878-002

Matrix: Solid

Batch: 53878

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Ethylbenzene	2500	3000		50	118	59-128	02/25/2011 1237
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		110	47-138				
1,2-Dichloroethane-d4		96	53-142				
Toluene-d8		106	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ53878-003

Matrix: Solid

Batch: 53878

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Ethylbenzene	2500	2800		50	113	4.0	59-128	20	02/25/2011 1259
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		104	47-138						
1,2-Dichloroethane-d4		92	53-142						
Toluene-d8		101	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: MQ53787-001

Matrix: Solid

Batch: 53787

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 02/28/2011 2022

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	03/01/2011 1407
Acenaphthylene	ND		1	330	13	ug/kg	03/01/2011 1407
Anthracene	ND		1	330	15	ug/kg	03/01/2011 1407
Benzo(a)anthracene	ND		1	330	11	ug/kg	03/01/2011 1407
Benzo(a)pyrene	ND		1	330	24	ug/kg	03/01/2011 1407
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	03/01/2011 1407
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	03/01/2011 1407
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	03/01/2011 1407
Chrysene	ND		1	330	10	ug/kg	03/01/2011 1407
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	03/01/2011 1407
Fluoranthene	ND		1	330	10	ug/kg	03/01/2011 1407
Fluorene	ND		1	330	13	ug/kg	03/01/2011 1407
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	03/01/2011 1407
Naphthalene	ND		1	330	14	ug/kg	03/01/2011 1407
Phenanthrene	ND		1	330	13	ug/kg	03/01/2011 1407
Pyrene	ND		1	330	14	ug/kg	03/01/2011 1407
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		73	33-102				
Nitrobenzene-d5		66	22-109				
Terphenyl-d14		76	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: MQ53787-002

Matrix: Solid

Batch: 53787

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 02/28/2011 2022

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	2700		1	82	30-130	03/01/2011 1426
Acenaphthylene	3300	2900		1	86	30-130	03/01/2011 1426
Anthracene	3300	3000		1	89	30-130	03/01/2011 1426
Benzo(a)anthracene	3300	2900		1	88	30-130	03/01/2011 1426
Benzo(a)pyrene	3300	3100		1	94	30-130	03/01/2011 1426
Benzo(b)fluoranthene	3300	2300		1	70	30-130	03/01/2011 1426
Benzo(g,h,i)perylene	3300	2400		1	72	30-130	03/01/2011 1426
Benzo(k)fluoranthene	3300	3200		1	96	30-130	03/01/2011 1426
Chrysene	3300	3000		1	89	30-130	03/01/2011 1426
Dibenzo(a,h)anthracene	3300	2700		1	80	30-130	03/01/2011 1426
Fluoranthene	3300	2900		1	86	30-130	03/01/2011 1426
Fluorene	3300	2800		1	84	30-130	03/01/2011 1426
Indeno(1,2,3-c,d)pyrene	3300	2700		1	81	30-130	03/01/2011 1426
Naphthalene	3300	2500		1	74	30-130	03/01/2011 1426
Phenanthrene	3300	2800		1	85	30-130	03/01/2011 1426
Pyrene	3300	3000		1	90	30-130	03/01/2011 1426
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		84	33-102				
Nitrobenzene-d5		74	22-109				
Terphenyl-d14		77	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Shealy Environmental Services, Inc.
 106 Vantage Point Drive
 West Columbia, South Carolina 29172
 Telephone No. (803) 791-9700 Fax No. (803) 791-9111
 www.shealylab.com

Chain of Custody Record



Number 03261

Client: MTR		Report to Contact: Cheryl Yushynski		Sampler (Printed Name): Mark Fern		Quote No.
Address: 1600 Commerce Circle		Telephone No. / Fax No. / Email: 412-829-9650		Waybill No.		Page of
City: Waltham	State: PA	Zip Code: 15085	Preservative			
Project Name: Sediments		P.O. Number		Number of Containers		
Project Number: SCE-13001-02		Sample ID / Description (Containers for each sample may be combined on one line)		Bottle (See instructions on back)		
Date: 2/22/11		Time: 1300		Lot No. MB23028		
Date: 11		Time: 1330		Remarks / Cooler ID		
Date: 11		Time: 1345		See attached list for PAHs		
Date: 2/23/11		Time: 1000				
Date: 2/23/11		Time: 1015				

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal		QC Requirements (Specify)		Possible Hazard Identification		
	Return to Client	Disposal by Lab	Non-Hazard	Flammable	Skin Irritant	Poison	Unknown
1. Relinquished by / Sample: Mark Fern	Date: 2/23/11	Time: 1430	1. Received by	Date	Date	Time	Time
2. Relinquished by	Date	Time	2. Received by	Date	Date	Time	Time
3. Relinquished by	Date	Time	3. Received by	Date	Date	Time	Time
4. Relinquished by	Date	Time	4. Laboratory Received by: Mark Fern	Date: 2/23/11	Date	Time: 1430	Temp. Blank (Y/N)

LAB USE ONLY
 Received on ice (Check) Yes No Ice Pack Receipt Temp: 56 °C

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: F-AD-016
 Revision Number: 6

Page 1 of 1
 Replaces Date: 09/22/06
 Effective Date: 05/29/07

Sample Receipt Checklist (SRC)

Client: MTR Cooler Inspected by/date: 6/23/11 Lot #: MB23028

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	1. Were custody seals present on the cooler?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?
Cooler ID/temperature upon receipt: <u>516</u> °C <u>1</u> °C <u>1</u> °C <u>1</u> °C			
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____ (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	5. Were proper custody procedures (relinquished/received) followed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	8. Were tests to be performed listed on the COC or was quote # provided?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	13. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>	15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) and toxicity (<0.1mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) _____.			
Sample(s) _____ were received with bubbles >6 mm in diameter.			
Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.			
Toxicity sample(s) _____ were received with TRC >0.1 mg/L and were analyzed by method 330.5.			

Corrective Action taken, if necessary:

Was client notified: Yes No

Did client respond: Yes No

SESI employee: _____

Date of response: _____

Comments: _____

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Congaree Sediments

Lot Number: MG20083
Date Completed: 08/03/2011



Nisreen Saikaly
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* MG20083 *

Case Narrative
Management and Technical Resources, Inc.
Lot Number: MG20083

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

Shealy is not NELAC certified for Phosphorus by 365.1 but is certified in SC and NC.

Shealy is not NELAC certified for VPH, but is certified for VPH in NC.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc.

Lot Number: MG20083

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	N36	Solid	07/19/2011 1430	07/20/2011
002	N36.5	Solid	07/19/2011 1430	07/20/2011
003	P36	Solid	07/19/2011 1450	07/20/2011
004	L30	Solid	07/20/2011 0945	07/20/2011
005	I30	Solid	07/20/2011 1020	07/20/2011
006	H24	Solid	07/20/2011 1350	07/20/2011
007	L24	Solid	07/20/2011 1420	07/20/2011

(7 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc. Lot Number: MG20083

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	N36	Solid	Acenaphthene	8270D	3100		ug/kg	8
001	N36	Solid	Acenaphthylene	8270D	940	J	ug/kg	8
001	N36	Solid	Anthracene	8270D	6200		ug/kg	8
001	N36	Solid	Benzo(a)anthracene	8270D	7700		ug/kg	8
001	N36	Solid	Benzo(a)pyrene	8270D	8200		ug/kg	8
001	N36	Solid	Benzo(b)fluoranthene	8270D	7900		ug/kg	8
001	N36	Solid	Benzo(g,h,i)perylene	8270D	3200		ug/kg	8
001	N36	Solid	Chrysene	8270D	8600		ug/kg	8
001	N36	Solid	Fluoranthene	8270D	13000		ug/kg	8
001	N36	Solid	Fluorene	8270D	3700		ug/kg	8
001	N36	Solid	Indeno(1,2,3-c,d)pyrene	8270D	2500		ug/kg	8
001	N36	Solid	Naphthalene	8270D	260	J	ug/kg	8
001	N36	Solid	Phenanthrene	8270D	19000		ug/kg	8
001	N36	Solid	Pyrene	8270D	23000		ug/kg	8
002	N36.5	Solid	Benzene	8260B	67	J	ug/kg	9
002	N36.5	Solid	Ethylbenzene	8260B	4700		ug/kg	9
002	N36.5	Solid	Toluene	8260B	190	J	ug/kg	9
002	N36.5	Solid	Xylenes (total)	8260B	1700		ug/kg	9
002	N36.5	Solid	Acenaphthene	8270D	660000		ug/kg	10
002	N36.5	Solid	Anthracene	8270D	460000		ug/kg	10
002	N36.5	Solid	Benzo(a)anthracene	8270D	370000		ug/kg	10
002	N36.5	Solid	Benzo(a)pyrene	8270D	390000		ug/kg	10
002	N36.5	Solid	Benzo(b)fluoranthene	8270D	320000		ug/kg	10
002	N36.5	Solid	Benzo(g,h,i)perylene	8270D	150000		ug/kg	10
002	N36.5	Solid	Chrysene	8270D	360000		ug/kg	10
002	N36.5	Solid	Dibenzo(a,h)anthracene	8270D	33000	J	ug/kg	10
002	N36.5	Solid	Fluoranthene	8270D	590000		ug/kg	10
002	N36.5	Solid	Fluorene	8270D	450000		ug/kg	10
002	N36.5	Solid	Indeno(1,2,3-c,d)pyrene	8270D	97000		ug/kg	10
002	N36.5	Solid	Naphthalene	8270D	690000		ug/kg	10
002	N36.5	Solid	Phenanthrene	8270D	1800000		ug/kg	10
002	N36.5	Solid	Pyrene	8270D	1000000		ug/kg	10
003	P36	Solid	Acenaphthene	8270D	44	J	ug/kg	12
003	P36	Solid	Acenaphthylene	8270D	22	J	ug/kg	12
003	P36	Solid	Anthracene	8270D	24	J	ug/kg	12
003	P36	Solid	Benzo(a)anthracene	8270D	74	J	ug/kg	12
003	P36	Solid	Benzo(a)pyrene	8270D	56	J	ug/kg	12
003	P36	Solid	Benzo(b)fluoranthene	8270D	47	J	ug/kg	12
003	P36	Solid	Benzo(g,h,i)perylene	8270D	30	J	ug/kg	12
003	P36	Solid	Chrysene	8270D	46	J	ug/kg	12
003	P36	Solid	Fluoranthene	8270D	65	J	ug/kg	12
003	P36	Solid	Fluorene	8270D	18	J	ug/kg	12
003	P36	Solid	Naphthalene	8270D	230	J	ug/kg	12
003	P36	Solid	Phenanthrene	8270D	77	J	ug/kg	12
003	P36	Solid	Pyrene	8270D	110	J	ug/kg	12

Executive Summary (Continued)

Lot Number: MG20083

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	L30	Solid	Acenaphthene	8270D	77	J	ug/kg	14
004	L30	Solid	Acenaphthylene	8270D	14	J	ug/kg	14
004	L30	Solid	Benzo(a)anthracene	8270D	53	J	ug/kg	14
004	L30	Solid	Benzo(a)pyrene	8270D	36	J	ug/kg	14
004	L30	Solid	Benzo(b)fluoranthene	8270D	34	J	ug/kg	14
004	L30	Solid	Chrysene	8270D	32	J	ug/kg	14
004	L30	Solid	Fluoranthene	8270D	40	J	ug/kg	14
004	L30	Solid	Fluorene	8270D	23	J	ug/kg	14
004	L30	Solid	Naphthalene	8270D	480		ug/kg	14
004	L30	Solid	Phenanthrene	8270D	42	J	ug/kg	14
004	L30	Solid	Pyrene	8270D	61	J	ug/kg	14
005	I30	Solid	Acenaphthene	8270D	420	J	ug/kg	16
005	I30	Solid	Acenaphthylene	8270D	51	J	ug/kg	16
005	I30	Solid	Anthracene	8270D	120	J	ug/kg	16
005	I30	Solid	Benzo(a)anthracene	8270D	470		ug/kg	16
005	I30	Solid	Benzo(a)pyrene	8270D	590		ug/kg	16
005	I30	Solid	Benzo(b)fluoranthene	8270D	850		ug/kg	16
005	I30	Solid	Benzo(g,h,i)perylene	8270D	390	J	ug/kg	16
005	I30	Solid	Chrysene	8270D	640		ug/kg	16
005	I30	Solid	Fluoranthene	8270D	900		ug/kg	16
005	I30	Solid	Fluorene	8270D	120	J	ug/kg	16
005	I30	Solid	Indeno(1,2,3-c,d)pyrene	8270D	310	J	ug/kg	16
005	I30	Solid	Naphthalene	8270D	57	J	ug/kg	16
005	I30	Solid	Phenanthrene	8270D	710		ug/kg	16
005	I30	Solid	Pyrene	8270D	1100		ug/kg	16
006	H24	Solid	Acenaphthene	8270D	220	J	ug/kg	18
006	H24	Solid	Acenaphthylene	8270D	110	J	ug/kg	18
006	H24	Solid	Anthracene	8270D	220	J	ug/kg	18
006	H24	Solid	Benzo(a)anthracene	8270D	570		ug/kg	18
006	H24	Solid	Benzo(a)pyrene	8270D	710		ug/kg	18
006	H24	Solid	Benzo(b)fluoranthene	8270D	920		ug/kg	18
006	H24	Solid	Benzo(g,h,i)perylene	8270D	350	J	ug/kg	18
006	H24	Solid	Chrysene	8270D	720		ug/kg	18
006	H24	Solid	Fluoranthene	8270D	1000		ug/kg	18
006	H24	Solid	Fluorene	8270D	150	J	ug/kg	18
006	H24	Solid	Indeno(1,2,3-c,d)pyrene	8270D	290	J	ug/kg	18
006	H24	Solid	Naphthalene	8270D	25	J	ug/kg	18
006	H24	Solid	Phenanthrene	8270D	650		ug/kg	18
006	H24	Solid	Pyrene	8270D	1400		ug/kg	18
007	L24	Solid	Benzene	8260B	9.4		ug/kg	19
007	L24	Solid	Ethylbenzene	8260B	62		ug/kg	19
007	L24	Solid	Toluene	8260B	9.0		ug/kg	19
007	L24	Solid	Xylenes (total)	8260B	26		ug/kg	19
007	L24	Solid	Acenaphthene	8270D	310	J	ug/kg	20
007	L24	Solid	Acenaphthylene	8270D	290	J	ug/kg	20
007	L24	Solid	Anthracene	8270D	430		ug/kg	20
007	L24	Solid	Benzo(a)anthracene	8270D	1100		ug/kg	20
007	L24	Solid	Benzo(a)pyrene	8270D	1300		ug/kg	20

Executive Summary (Continued)

Lot Number: MG20083

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
007	L24	Solid	Benzo(b)fluoranthene	8270D	1300		ug/kg	20
007	L24	Solid	Benzo(g,h,i)perylene	8270D	610		ug/kg	20
007	L24	Solid	Chrysene	8270D	1300		ug/kg	20
007	L24	Solid	Fluoranthene	8270D	1600		ug/kg	20
007	L24	Solid	Fluorene	8270D	290	J	ug/kg	20
007	L24	Solid	Indeno(1,2,3-c,d)pyrene	8270D	460		ug/kg	20
007	L24	Solid	Naphthalene	8270D	120	J	ug/kg	20
007	L24	Solid	Phenanthrene	8270D	1700		ug/kg	20
007	L24	Solid	Pyrene	8270D	3000		ug/kg	20

(102 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-001
Description: N36	Matrix: Solid
Date Sampled: 07/19/2011 1430	% Solids: 83.1 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2030	JJG		64322	6.09

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.9	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.9	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		4.9	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.9	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	53-142
Bromofluorobenzene		102	47-138
Toluene-d8		110	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG20083-001

Description: N36

Matrix: Solid

Date Sampled: 07/19/2011 1430

% Solids: 83.1 07/20/2011 2151

Date Received: 07/20/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	5	07/25/2011 2042	WD	07/22/2011 1845	64265			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	3100		2000	60	ug/kg	1
Acenaphthylene	208-96-8	8270D	940	J	2000	78	ug/kg	1
Anthracene	120-12-7	8270D	6200		2000	87	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	7700		2000	65	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	8200		2000	140	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	7900		2000	130	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	3200		2000	130	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		2000	160	ug/kg	1
Chrysene	218-01-9	8270D	8600		2000	62	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		2000	130	ug/kg	1
Fluoranthene	206-44-0	8270D	13000		2000	62	ug/kg	1
Fluorene	86-73-7	8270D	3700		2000	76	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	2500		2000	180	ug/kg	1
Naphthalene	91-20-3	8270D	260	J	2000	83	ug/kg	1
Phenanthrene	85-01-8	8270D	19000		2000	80	ug/kg	1
Pyrene	129-00-0	8270D	23000		2000	85	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		71	33-102
Nitrobenzene-d5		61	22-109
Terphenyl-d14		76	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-002
Description: N36.5	Matrix: Solid
Date Sampled: 07/19/2011 1430	% Solids: 78.3 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	50	07/26/2011 1418	SAS		64469	5.95

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	67	J	270	59	ug/kg	2
Ethylbenzene	100-41-4	8260B	4700		270	91	ug/kg	2
Toluene	108-88-3	8260B	190	J	270	91	ug/kg	2
Xylenes (total)	1330-20-7	8260B	1700		270	160	ug/kg	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	53-142
Bromofluorobenzene		77	47-138
Toluene-d8		90	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-002
Description: N36.5	Matrix: Solid
Date Sampled: 07/19/2011 1430	% Solids: 78.3 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	100	07/29/2011 1155	WD	07/22/2011 1845	64265
2	3550C	8270D	200	08/02/2011 2123	JGH	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	660000		41000	1300	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		41000	1600	ug/kg	1
Anthracene	120-12-7	8270D	460000		41000	1800	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	370000		41000	1400	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	390000		41000	3000	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	320000		41000	2800	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	150000		41000	2800	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		41000	3400	ug/kg	1
Chrysene	218-01-9	8270D	360000		41000	1300	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	33000	J	41000	2700	ug/kg	1
Fluoranthene	206-44-0	8270D	590000		41000	1300	ug/kg	1
Fluorene	86-73-7	8270D	450000		41000	1600	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	97000		41000	3700	ug/kg	1
Naphthalene	91-20-3	8270D	690000		41000	1700	ug/kg	1
Phenanthrene	85-01-8	8270D	1800000		83000	3400	ug/kg	2
Pyrene	129-00-0	8270D	1000000		41000	1800	ug/kg	1

Surrogate	Q	Run 1		Q	Run 2	
		% Recovery	Acceptance Limits		% Recovery	Acceptance Limits
2-Fluorobiphenyl	N	0.00	33-102	N	0.00	33-102
Nitrobenzene-d5	N	0.00	22-109	N	0.00	22-109
Terphenyl-d14	N	0.00	41-120		101	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-003
Description: P36	Matrix: Solid
Date Sampled: 07/19/2011 1450	% Solids: 87.2 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2114	JJG		64322	6.60

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.3	0.96	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.3	1.5	ug/kg	1
Toluene	108-88-3	8260B	ND		4.3	1.5	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.3	2.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		84	53-142
Bromofluorobenzene		104	47-138
Toluene-d8		113	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG20083-003

Description: P36

Matrix: Solid

Date Sampled: 07/19/2011 1450

% Solids: 87.2 07/20/2011 2151

Date Received: 07/20/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	08/02/2011 2143	JGH	07/22/2011 1845	64265			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	44	J	380	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	22	J	380	15	ug/kg	1
Anthracene	120-12-7	8270D	24	J	380	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	74	J	380	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	56	J	380	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	47	J	380	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	30	J	380	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		380	31	ug/kg	1
Chrysene	218-01-9	8270D	46	J	380	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		380	25	ug/kg	1
Fluoranthene	206-44-0	8270D	65	J	380	12	ug/kg	1
Fluorene	86-73-7	8270D	18	J	380	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		380	34	ug/kg	1
Naphthalene	91-20-3	8270D	230	J	380	16	ug/kg	1
Phenanthrene	85-01-8	8270D	77	J	380	15	ug/kg	1
Pyrene	129-00-0	8270D	110	J	380	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		81	33-102
Nitrobenzene-d5		69	22-109
Terphenyl-d14		91	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-004
Description: L30	Matrix: Solid
Date Sampled: 07/20/2011 0945	% Solids: 86.3 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2136	JJG		64322	5.85

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	53-142
Bromofluorobenzene		108	47-138
Toluene-d8		116	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG20083-004

Description: L30

Matrix: Solid

Date Sampled: 07/20/2011 0945

% Solids: 86.3 07/20/2011 2151

Date Received: 07/20/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	08/02/2011 2204	JGH	07/22/2011 1845	64265			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	77	J	360	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	14	J	360	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		360	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	53	J	360	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	36	J	360	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	34	J	360	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		360	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		360	30	ug/kg	1
Chrysene	218-01-9	8270D	32	J	360	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		360	24	ug/kg	1
Fluoranthene	206-44-0	8270D	40	J	360	11	ug/kg	1
Fluorene	86-73-7	8270D	23	J	360	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		360	33	ug/kg	1
Naphthalene	91-20-3	8270D	480		360	15	ug/kg	1
Phenanthrene	85-01-8	8270D	42	J	360	15	ug/kg	1
Pyrene	129-00-0	8270D	61	J	360	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		81	33-102
Nitrobenzene-d5		70	22-109
Terphenyl-d14		95	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-005
Description: I30	Matrix: Solid
Date Sampled: 07/20/2011 1020	% Solids: 69.2 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2157	JJG		64322	5.85

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		6.2	1.4	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		6.2	2.1	ug/kg	1
Toluene	108-88-3	8260B	ND		6.2	2.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		6.2	3.6	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	53-142
Bromofluorobenzene		103	47-138
Toluene-d8		112	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG20083-005

Description: I30

Matrix: Solid

Date Sampled: 07/20/2011 1020

% Solids: 69.2 07/20/2011 2151

Date Received: 07/20/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	07/25/2011 2246	WD	07/22/2011 1845	64265			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	420	J	470	14	ug/kg	1
Acenaphthylene	208-96-8	8270D	51	J	470	19	ug/kg	1
Anthracene	120-12-7	8270D	120	J	470	21	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	470		470	16	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	590		470	35	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	850		470	32	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	390	J	470	32	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		470	39	ug/kg	1
Chrysene	218-01-9	8270D	640		470	15	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		470	31	ug/kg	1
Fluoranthene	206-44-0	8270D	900		470	15	ug/kg	1
Fluorene	86-73-7	8270D	120	J	470	18	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	310	J	470	43	ug/kg	1
Naphthalene	91-20-3	8270D	57	J	470	20	ug/kg	1
Phenanthrene	85-01-8	8270D	710		470	19	ug/kg	1
Pyrene	129-00-0	8270D	1100		470	21	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		66	33-102
Nitrobenzene-d5		65	22-109
Terphenyl-d14		72	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-006
Description: H24	Matrix: Solid
Date Sampled: 07/20/2011 1350	% Solids: 77.1 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2219	JJG		64322	6.43

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		81	53-142
Bromofluorobenzene		98	47-138
Toluene-d8		99	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG20083-006

Description: H24

Matrix: Solid

Date Sampled: 07/20/2011 1350

% Solids: 77.1 07/20/2011 2151

Date Received: 07/20/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	07/25/2011 2306	WD	07/22/2011 1845	64265			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	220	J	410	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	110	J	410	16	ug/kg	1
Anthracene	120-12-7	8270D	220	J	410	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	570		410	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	710		410	30	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	920		410	28	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	350	J	410	28	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		410	34	ug/kg	1
Chrysene	218-01-9	8270D	720		410	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		410	27	ug/kg	1
Fluoranthene	206-44-0	8270D	1000		410	13	ug/kg	1
Fluorene	86-73-7	8270D	150	J	410	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	290	J	410	37	ug/kg	1
Naphthalene	91-20-3	8270D	25	J	410	17	ug/kg	1
Phenanthrene	85-01-8	8270D	650		410	17	ug/kg	1
Pyrene	129-00-0	8270D	1400		410	18	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		65	33-102
Nitrobenzene-d5		59	22-109
Terphenyl-d14		74	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-007
Description: L24	Matrix: Solid
Date Sampled: 07/20/2011 1420	% Solids: 75.8 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2241	JJG		64322	5.41

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	9.4		6.1	1.3	ug/kg	1
Ethylbenzene	100-41-4	8260B	62		6.1	2.1	ug/kg	1
Toluene	108-88-3	8260B	9.0		6.1	2.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	26		6.1	3.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	53-142
Bromofluorobenzene		93	47-138
Toluene-d8		107	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG20083-007

Description: L24

Matrix: Solid

Date Sampled: 07/20/2011 1420

% Solids: 75.8 07/20/2011 2151

Date Received: 07/20/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	07/25/2011 2327	WD	07/22/2011 1845	64265			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	310	J	430	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	290	J	430	17	ug/kg	1
Anthracene	120-12-7	8270D	430		430	19	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	1100		430	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	1300		430	31	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	1300		430	29	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	610		430	29	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		430	35	ug/kg	1
Chrysene	218-01-9	8270D	1300		430	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		430	28	ug/kg	1
Fluoranthene	206-44-0	8270D	1600		430	13	ug/kg	1
Fluorene	86-73-7	8270D	290	J	430	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	460		430	39	ug/kg	1
Naphthalene	91-20-3	8270D	120	J	430	18	ug/kg	1
Phenanthrene	85-01-8	8270D	1700		430	17	ug/kg	1
Pyrene	129-00-0	8270D	3000		430	19	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		58	33-102
Nitrobenzene-d5		50	22-109
Terphenyl-d14		71	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ64322-001

Matrix: Solid

Batch: 64322

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	07/22/2011 1732
Ethylbenzene	ND		1	5.0	1.7	ug/kg	07/22/2011 1732
Toluene	ND		1	5.0	1.7	ug/kg	07/22/2011 1732
Xylenes (total)	ND		1	5.0	2.9	ug/kg	07/22/2011 1732
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		110	47-138				
1,2-Dichloroethane-d4		105	53-142				
Toluene-d8		118	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ64322-002

Matrix: Solid

Batch: 64322

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	43		1	86	69-123	07/22/2011 1605
Ethylbenzene	50	46		1	92	59-128	07/22/2011 1605
Toluene	50	46		1	92	61-129	07/22/2011 1605
Xylenes (total)	100	91		1	91	58-128	07/22/2011 1605
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		100	47-138				
1,2-Dichloroethane-d4		94	53-142				
Toluene-d8		104	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ64322-003

Matrix: Solid

Batch: 64322

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	43		1	86	0.072	69-123	20	07/22/2011 1627
Ethylbenzene	50	40		1	79	15	59-128	20	07/22/2011 1627
Toluene	50	40		1	81	12	61-129	20	07/22/2011 1627
Xylenes (total)	100	79		1	79	15	58-128	20	07/22/2011 1627
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		90	47-138						
1,2-Dichloroethane-d4		92	53-142						
Toluene-d8		96	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ64469-001

Matrix: Solid

Batch: 64469

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		50	250	55	ug/kg	08/04/2011 1931
Ethylbenzene	ND		50	250	85	ug/kg	08/04/2011 1931
Toluene	ND		50	250	85	ug/kg	08/04/2011 1931
Xylenes (total)	ND		50	250	150	ug/kg	08/04/2011 1931
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		117	47-138				
1,2-Dichloroethane-d4		105	53-142				
Toluene-d8		111	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ64469-002

Matrix: Solid

Batch: 64469

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	2500	2300		50	93	69-123	08/04/2011 1819
Ethylbenzene	2500	2700		50	109	59-128	08/04/2011 1819
Toluene	2500	2500		50	99	61-129	08/04/2011 1819
Xylenes (total)	5000	5400		50	109	58-128	08/04/2011 1819
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		110	47-138				
1,2-Dichloroethane-d4		88	53-142				
Toluene-d8		111	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ64469-003

Matrix: Solid

Batch: 64469

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	2500	2500		50	98	5.5	69-123	20	08/04/2011 1843
Ethylbenzene	2500	2800		50	110	0.56	59-128	20	08/04/2011 1843
Toluene	2500	2600		50	103	3.8	61-129	20	08/04/2011 1843
Xylenes (total)	5000	5500		50	109	0.68	58-128	20	08/04/2011 1843
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		113	47-138						
1,2-Dichloroethane-d4		102	53-142						
Toluene-d8		112	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: MQ64265-001

Matrix: Solid

Batch: 64265

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 07/22/2011 1845

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	07/25/2011 1940
Acenaphthylene	ND		1	330	13	ug/kg	07/25/2011 1940
Anthracene	ND		1	330	15	ug/kg	07/25/2011 1940
Benzo(a)anthracene	ND		1	330	11	ug/kg	07/25/2011 1940
Benzo(a)pyrene	ND		1	330	24	ug/kg	07/25/2011 1940
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	07/25/2011 1940
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	07/25/2011 1940
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	07/25/2011 1940
Chrysene	ND		1	330	10	ug/kg	07/25/2011 1940
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	07/25/2011 1940
Fluoranthene	ND		1	330	10	ug/kg	07/25/2011 1940
Fluorene	ND		1	330	13	ug/kg	07/25/2011 1940
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	07/25/2011 1940
Naphthalene	ND		1	330	14	ug/kg	07/25/2011 1940
Phenanthrene	ND		1	330	13	ug/kg	07/25/2011 1940
Pyrene	ND		1	330	14	ug/kg	07/25/2011 1940
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		78	33-102				
Nitrobenzene-d5		75	22-109				
Terphenyl-d14		81	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: MQ64265-002

Matrix: Solid

Batch: 64265

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 07/22/2011 1845

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	1900		1	58	46-114	07/27/2011 1019
Acenaphthylene	3300	2500		1	76	44-122	07/27/2011 1019
Anthracene	3300	2000		1	61	50-119	07/27/2011 1019
Benzo(a)anthracene	3300	2100		1	63	47-121	07/27/2011 1019
Benzo(a)pyrene	3300	2300		1	70	55-134	07/27/2011 1019
Benzo(b)fluoranthene	3300	2100		1	62	28-139	07/27/2011 1019
Benzo(g,h,i)perylene	3300	2100		1	62	36-125	07/27/2011 1019
Benzo(k)fluoranthene	3300	2000		1	61	47-130	07/27/2011 1019
Chrysene	3300	2100		1	64	45-126	07/27/2011 1019
Dibenzo(a,h)anthracene	3300	2100		1	62	45-122	07/27/2011 1019
Fluoranthene	3300	2100		1	62	50-123	07/27/2011 1019
Fluorene	3300	2000		1	60	48-117	07/27/2011 1019
Indeno(1,2,3-c,d)pyrene	3300	2000		1	61	45-123	07/27/2011 1019
Naphthalene	3300	1800		1	54	36-110	07/27/2011 1019
Phenanthrene	3300	2000		1	60	49-117	07/27/2011 1019
Pyrene	3300	2100		1	63	47-119	07/27/2011 1019
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		52	33-102				
Nitrobenzene-d5		68	22-109				
Terphenyl-d14		53	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MS

Sample ID: MG20083-004MS

Matrix: Solid

Batch: 64265

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 07/22/2011 1845

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	77	3800	1600		1	40	30-130	08/03/2011 0601
Acenaphthylene	14	3800	2100		1	56	30-130	08/03/2011 0601
Anthracene	ND	3800	1700		1	44	30-130	08/03/2011 0601
Benzo(a)anthracene	53	3800	1800		1	46	30-130	08/03/2011 0601
Benzo(a)pyrene	36	3800	2200		1	56	30-130	08/03/2011 0601
Benzo(b)fluoranthene	34	3800	1900		1	48	30-130	08/03/2011 0601
Benzo(g,h,i)perylene	ND	3800	1800		1	47	30-130	08/03/2011 0601
Benzo(k)fluoranthene	ND	3800	1900		1	50	30-130	08/03/2011 0601
Chrysene	32	3800	1800		1	48	30-130	08/03/2011 0601
Dibenzo(a,h)anthracene	ND	3800	1800		1	47	30-130	08/03/2011 0601
Fluoranthene	40	3800	1800		1	48	30-130	08/03/2011 0601
Fluorene	23	3800	1700		1	44	30-130	08/03/2011 0601
Indeno(1,2,3-c,d)pyrene	ND	3800	1800		1	47	30-130	08/03/2011 0601
Naphthalene	480	3800	1600		1	30	30-130	08/03/2011 0601
Phenanthrene	42	3800	1700		1	44	30-130	08/03/2011 0601
Pyrene	61	3800	1900		1	49	30-130	08/03/2011 0601
Surrogate	Q	% Rec	Acceptance Limit					
2-Fluorobiphenyl		38	33-102					
Nitrobenzene-d5		36	22-109					
Terphenyl-d14		43	41-120					

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: MG20083-004MD

Matrix: Solid

Batch: 64265

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 07/22/2011 1845

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date	
Acenaphthene	77	3700	1500		1	39	3.7	30-130	40	08/03/2011 0621	
Acenaphthylene	14	3700	2000		1	55	4.0	30-130	40	08/03/2011 0621	
Anthracene	ND	3700	1700		1	45	0.36	30-130	40	08/03/2011 0621	
Benzo(a)anthracene	53	3700	1900		1	49	4.9	30-130	40	08/03/2011 0621	
Benzo(a)pyrene	36	3700	2200		1	58	1.5	30-130	40	08/03/2011 0621	
Benzo(b)fluoranthene	34	3700	2000		1	52	6.4	30-130	40	08/03/2011 0621	
Benzo(g,h,i)perylene	ND	3700	1800		1	49	2.5	30-130	40	08/03/2011 0621	
Benzo(k)fluoranthene	ND	3700	1700		1	47	8.4	30-130	40	08/03/2011 0621	
Chrysene	32	3700	1800		1	47	2.3	30-130	40	08/03/2011 0621	
Dibenzo(a,h)anthracene	ND	3700	1800		1	49	2.0	30-130	40	08/03/2011 0621	
Fluoranthene	40	3700	1900		1	49	1.6	30-130	40	08/03/2011 0621	
Fluorene	23	3700	1600		1	43	2.7	30-130	40	08/03/2011 0621	
Indeno(1,2,3-c,d)pyrene	ND	3700	1800		1	48	0.13	30-130	40	08/03/2011 0621	
Naphthalene	480	3700	1400	N	1	24	15	30-130	40	08/03/2011 0621	
Phenanthrene	42	3700	1800		1	48	5.9	30-130	40	08/03/2011 0621	
Pyrene	61	3700	2000		1	52	3.1	30-130	40	08/03/2011 0621	
Surrogate	Q	% Rec	Acceptance Limit								
2-Fluorobiphenyl		37	33-102								
Nitrobenzene-d5		34	22-109								
Terphenyl-d14		43	41-120								

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Shealy Environmental Services, Inc.
 106 Vantage Point Drive
 West Columbia, South Carolina 29172
 Telephone No. (803) 791-9700 Fax No. (803) 791-9111
 www.shealylab.com

Number 13308

Chain of Custody Record

Client: MTR		Report to Contact: C. Y. J. W. S. C.		Sampler (Printed Name):		Quote No.:	
Address: 1600 Commerce Circle		Telephone No. / Fax No. / Email: 412-829-9650		Waybill No.:		Page 1 of 1	
City: Trarford		State: PA		Zip Code: 15085		Number of Containers: 1	
Project Name: Commerce Segments		Preservative: 1. Urpres. 4. HNO3 7. NaOH		Lot No.: M620083		Bohls (See instructions on back):	
Project Number:		3. H2SO4 6. Na Thio.		Preservative:		Remarks / Cooler ID:	
Sample ID / Description (Containers for each sample may be combined on one line)		Date		Time		Remarks	
N36		7/19/11		1430		See Table 1	
N36.5		7/19/11		1430		that list	
P36		7/19/11		1450		Parameters	
L30		7/20/11		0945			
I30		7/20/11		1020			
H24		7/20/11		1350			
L24		7/20/11		1420			

Turn Around Time Required (Prior lab approval required for expedited TAT)		Sample Disposal		QC Requirements (Specify)		Possible Hazard Identification	
Standard <input type="checkbox"/> Rush <input type="checkbox"/> (Please Specify)		<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown			
1. Relinquished by: Goldy Cole		Date: 7-20-11		1. Received by:		Time:	
2. Relinquished by:		Date:		2. Received by:		Time:	
3. Relinquished by:		Date:		3. Received by:		Time:	
4. Relinquished by:		Date:		4. Laboratory Received by: [Signature]		Time: 1658	
Note: All samples are retained for six weeks from receipt unless other arrangements are made.				LAB USE ONLY		Receipt Temp. 1.0 °C	
				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Ice Pack		Temp. Blank <input type="checkbox"/> Y / <input checked="" type="checkbox"/> N	

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: F-AD-016
 Revision Number: 8

Page 1 of 1
 Replaces Date: 02/23/11
 Effective Date: 05/06/11

Sample Receipt Checklist (SRC)

Client: MTR Cooler Inspected by/date: JL 7/20/11 Lot #: MG2083

Means of receipt: <input checked="" type="checkbox"/> SESI <input type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	1. Were custody seals present on the cooler?	
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?	
Cooler ID/temperature upon receipt: <u>101</u> °C / °C / °C / °C			
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____ . (For coolers received via commercial courier, PMs are to be notified immediately.
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		5. Were proper custody procedures (relinquished/received) followed?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	5a Were samples relinquished by client to commercial courier?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		8. Were tests to be performed listed on the COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) _____			
Sample(s) _____ were received with bubbles >6 mm in diameter.			
Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.			

Corrective Action taken, if necessary:

Was client notified: Yes No

Did client respond: Yes No

SESI employee: _____

Date of response: _____

Comments: _____

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Congaree River

Lot Number: MG21009
Date Completed: 08/04/2011



Nisreen Saikaly
Project Manager



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The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* MG21009 *

Case Narrative
Management and Technical Resources, Inc.
Lot Number: MG21009

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

Shealy is not NELAC certified for Phosphorus by 365.1 but is certified in SC and NC.

Shealy is not NELAC certified for VPH, but is certified for VPH in NC.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc. Lot Number: MG21009

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	M-20	Solid	07/21/2011 0820	07/21/2011
002	K-20	Solid	07/21/2011 0810	07/21/2011
003	I-20	Solid	07/21/2011 0750	07/21/2011

(3 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc.

Lot Number: MG21009

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	M-20	Solid	Benzo(b)fluoranthene	8270D	36	J	ug/kg	6
001	M-20	Solid	Naphthalene	8270D	24	J	ug/kg	6
002	K-20	Solid	Acenaphthene	8270D	85	J	ug/kg	8
002	K-20	Solid	Acenaphthylene	8270D	170	J	ug/kg	8
002	K-20	Solid	Anthracene	8270D	220	J	ug/kg	8
002	K-20	Solid	Benzo(a)anthracene	8270D	830		ug/kg	8
002	K-20	Solid	Benzo(a)pyrene	8270D	920		ug/kg	8
002	K-20	Solid	Benzo(b)fluoranthene	8270D	740		ug/kg	8
002	K-20	Solid	Benzo(g,h,i)perylene	8270D	360	J	ug/kg	8
002	K-20	Solid	Benzo(k)fluoranthene	8270D	370	J	ug/kg	8
002	K-20	Solid	Chrysene	8270D	770		ug/kg	8
002	K-20	Solid	Dibenzo(a,h)anthracene	8270D	85	J	ug/kg	8
002	K-20	Solid	Fluoranthene	8270D	1200		ug/kg	8
002	K-20	Solid	Fluorene	8270D	87	J	ug/kg	8
002	K-20	Solid	Indeno(1,2,3-c,d)pyrene	8270D	290	J	ug/kg	8
002	K-20	Solid	Naphthalene	8270D	37	J	ug/kg	8
002	K-20	Solid	Phenanthrene	8270D	490		ug/kg	8
002	K-20	Solid	Pyrene	8270D	1700		ug/kg	8
003	I-20	Solid	Anthracene	8270D	83	J	ug/kg	10
003	I-20	Solid	Benzo(a)anthracene	8270D	390		ug/kg	10
003	I-20	Solid	Benzo(a)pyrene	8270D	360	J	ug/kg	10
003	I-20	Solid	Benzo(b)fluoranthene	8270D	630		ug/kg	10
003	I-20	Solid	Benzo(g,h,i)perylene	8270D	270	J	ug/kg	10
003	I-20	Solid	Chrysene	8270D	420		ug/kg	10
003	I-20	Solid	Fluoranthene	8270D	770		ug/kg	10
003	I-20	Solid	Fluorene	8270D	28	J	ug/kg	10
003	I-20	Solid	Indeno(1,2,3-c,d)pyrene	8270D	220	J	ug/kg	10
003	I-20	Solid	Naphthalene	8270D	42	J	ug/kg	10
003	I-20	Solid	Phenanthrene	8270D	490		ug/kg	10
003	I-20	Solid	Pyrene	8270D	770		ug/kg	10

(30 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG21009-001
Description: M-20	Matrix: Solid
Date Sampled: 07/21/2011 0820	% Solids: 80.7 07/21/2011 2053
Date Received: 07/21/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	1	07/26/2011 1607	SAS		64470	6.23

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	2
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	2
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	2
Xylenes (total)	1330-20-7	8260B	ND		5.0	2.9	ug/kg	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	53-142
Bromofluorobenzene		95	47-138
Toluene-d8		109	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG21009-001

Description: M-20

Matrix: Solid

Date Sampled: 07/21/2011 0820

% Solids: 80.7 07/21/2011 2053

Date Received: 07/21/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	07/26/2011 0007	WD	07/22/2011 1845	64265			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		390	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		390	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		390	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		390	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		390	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	36	J	390	26	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		390	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		390	32	ug/kg	1
Chrysene	218-01-9	8270D	ND		390	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		390	26	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		390	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		390	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		390	35	ug/kg	1
Naphthalene	91-20-3	8270D	24	J	390	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		390	16	ug/kg	1
Pyrene	129-00-0	8270D	ND		390	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		61	33-102
Nitrobenzene-d5		60	22-109
Terphenyl-d14		68	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG21009-002
Description: K-20	Matrix: Solid
Date Sampled: 07/21/2011 0810	% Solids: 79.7 07/21/2011 2053
Date Received: 07/21/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/25/2011 1759	BM		64394	6.07

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.2	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.2	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.2	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.2	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	53-142
Bromofluorobenzene		102	47-138
Toluene-d8		104	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG21009-002

Description: K-20

Matrix: Solid

Date Sampled: 07/21/2011 0810

% Solids: 79.7 07/21/2011 2053

Date Received: 07/21/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	08/03/2011 0641	JGH	07/22/2011 1845	64265			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	85	J	400	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	170	J	400	16	ug/kg	1
Anthracene	120-12-7	8270D	220	J	400	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	830		400	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	920		400	29	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	740		400	27	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	360	J	400	27	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	370	J	400	33	ug/kg	1
Chrysene	218-01-9	8270D	770		400	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	85	J	400	27	ug/kg	1
Fluoranthene	206-44-0	8270D	1200		400	13	ug/kg	1
Fluorene	86-73-7	8270D	87	J	400	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	290	J	400	36	ug/kg	1
Naphthalene	91-20-3	8270D	37	J	400	17	ug/kg	1
Phenanthrene	85-01-8	8270D	490		400	16	ug/kg	1
Pyrene	129-00-0	8270D	1700		400	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		41	33-102
Nitrobenzene-d5		35	22-109
Terphenyl-d14		45	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG21009-003
Description: I-20	Matrix: Solid
Date Sampled: 07/21/2011 0750	% Solids: 84.5 07/21/2011 2053
Date Received: 07/21/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/25/2011 1821	BM		64394	6.40

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.6	1.0	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.6	1.6	ug/kg	1
Toluene	108-88-3	8260B	ND		4.6	1.6	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.6	2.7	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	53-142
Bromofluorobenzene		99	47-138
Toluene-d8		111	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG21009-003

Description: I-20

Matrix: Solid

Date Sampled: 07/21/2011 0750

% Solids: 84.5 07/21/2011 2053

Date Received: 07/21/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	07/26/2011 0048	WD	07/22/2011 1845	64265			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		380	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		380	15	ug/kg	1
Anthracene	120-12-7	8270D	83	J	380	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	390		380	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	360	J	380	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	630		380	26	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	270	J	380	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		380	32	ug/kg	1
Chrysene	218-01-9	8270D	420		380	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		380	25	ug/kg	1
Fluoranthene	206-44-0	8270D	770		380	12	ug/kg	1
Fluorene	86-73-7	8270D	28	J	380	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	220	J	380	35	ug/kg	1
Naphthalene	91-20-3	8270D	42	J	380	16	ug/kg	1
Phenanthrene	85-01-8	8270D	490		380	16	ug/kg	1
Pyrene	129-00-0	8270D	770		380	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		66	33-102
Nitrobenzene-d5		64	22-109
Terphenyl-d14		66	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ64394-001

Matrix: Solid

Batch: 64394

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	07/25/2011 1059
Ethylbenzene	ND		1	5.0	1.7	ug/kg	07/25/2011 1059
Toluene	ND		1	5.0	1.7	ug/kg	07/25/2011 1059
Xylenes (total)	ND		1	5.0	2.9	ug/kg	07/25/2011 1059
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		108	47-138				
1,2-Dichloroethane-d4		93	53-142				
Toluene-d8		113	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ64394-002

Matrix: Solid

Batch: 64394

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	48		1	96	69-123	07/25/2011 0932
Ethylbenzene	50	54		1	107	59-128	07/25/2011 0932
Toluene	50	52		1	103	61-129	07/25/2011 0932
Xylenes (total)	100	110		1	105	58-128	07/25/2011 0932
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		104	47-138				
1,2-Dichloroethane-d4		92	53-142				
Toluene-d8		111	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ64394-003

Matrix: Solid

Batch: 64394

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	49		1	98	1.4	69-123	20	07/25/2011 0953
Ethylbenzene	50	54		1	108	0.20	59-128	20	07/25/2011 0953
Toluene	50	52		1	105	1.7	61-129	20	07/25/2011 0953
Xylenes (total)	100	110		1	106	0.79	58-128	20	07/25/2011 0953
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		103	47-138						
1,2-Dichloroethane-d4		91	53-142						
Toluene-d8		110	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ64470-001

Matrix: Solid

Batch: 64470

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	07/26/2011 1134
Ethylbenzene	ND		1	5.0	1.7	ug/kg	07/26/2011 1134
Toluene	ND		1	5.0	1.7	ug/kg	07/26/2011 1134
Xylenes (total)	ND		1	5.0	2.9	ug/kg	07/26/2011 1134
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		81	47-138				
1,2-Dichloroethane-d4		86	53-142				
Toluene-d8		111	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ64470-002

Matrix: Solid

Batch: 64470

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	54		1	108	69-123	07/26/2011 1006
Ethylbenzene	50	56		1	111	59-128	07/26/2011 1006
Toluene	50	40		1	81	61-129	07/26/2011 1006
Xylenes (total)	100	110		1	110	58-128	07/26/2011 1006
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		100	47-138				
1,2-Dichloroethane-d4		80	53-142				
Toluene-d8		80	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ64470-003

Matrix: Solid

Batch: 64470

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	49		1	98	10	69-123	20	07/26/2011 1028
Ethylbenzene	50	54		1	108	3.1	59-128	20	07/26/2011 1028
Toluene	50	53	+	1	107	28	61-129	20	07/26/2011 1028
Xylenes (total)	100	110		1	106	3.2	58-128	20	07/26/2011 1028
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		104	47-138						
1,2-Dichloroethane-d4		95	53-142						
Toluene-d8		110	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: MQ64265-001

Matrix: Solid

Batch: 64265

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 07/22/2011 1845

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	07/25/2011 1940
Acenaphthylene	ND		1	330	13	ug/kg	07/25/2011 1940
Anthracene	ND		1	330	15	ug/kg	07/25/2011 1940
Benzo(a)anthracene	ND		1	330	11	ug/kg	07/25/2011 1940
Benzo(a)pyrene	ND		1	330	24	ug/kg	07/25/2011 1940
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	07/25/2011 1940
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	07/25/2011 1940
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	07/25/2011 1940
Chrysene	ND		1	330	10	ug/kg	07/25/2011 1940
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	07/25/2011 1940
Fluoranthene	ND		1	330	10	ug/kg	07/25/2011 1940
Fluorene	ND		1	330	13	ug/kg	07/25/2011 1940
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	07/25/2011 1940
Naphthalene	ND		1	330	14	ug/kg	07/25/2011 1940
Phenanthrene	ND		1	330	13	ug/kg	07/25/2011 1940
Pyrene	ND		1	330	14	ug/kg	07/25/2011 1940
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		78	33-102				
Nitrobenzene-d5		75	22-109				
Terphenyl-d14		81	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: MQ64265-002

Matrix: Solid

Batch: 64265

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 07/22/2011 1845

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	1900		1	58	46-114	07/27/2011 1019
Acenaphthylene	3300	2500		1	76	44-122	07/27/2011 1019
Anthracene	3300	2000		1	61	50-119	07/27/2011 1019
Benzo(a)anthracene	3300	2100		1	63	47-121	07/27/2011 1019
Benzo(a)pyrene	3300	2300		1	70	55-134	07/27/2011 1019
Benzo(b)fluoranthene	3300	2100		1	62	28-139	07/27/2011 1019
Benzo(g,h,i)perylene	3300	2100		1	62	36-125	07/27/2011 1019
Benzo(k)fluoranthene	3300	2000		1	61	47-130	07/27/2011 1019
Chrysene	3300	2100		1	64	45-126	07/27/2011 1019
Dibenzo(a,h)anthracene	3300	2100		1	62	45-122	07/27/2011 1019
Fluoranthene	3300	2100		1	62	50-123	07/27/2011 1019
Fluorene	3300	2000		1	60	48-117	07/27/2011 1019
Indeno(1,2,3-c,d)pyrene	3300	2000		1	61	45-123	07/27/2011 1019
Naphthalene	3300	1800		1	54	36-110	07/27/2011 1019
Phenanthrene	3300	2000		1	60	49-117	07/27/2011 1019
Pyrene	3300	2100		1	63	47-119	07/27/2011 1019
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		52	33-102				
Nitrobenzene-d5		68	22-109				
Terphenyl-d14		53	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Shealy Environmental Services, Inc.
 106 Vantage Point Drive
 West Columbia, South Carolina 29172
 Telephone No. (803) 791-9700 Fax No. (803) 791-9111
 www.shealylab.com

Chain of Custody Record

Number 13309



Client: MTR		Report to Contact: Cheryl Yushinski		Sampler (Printed Name): Gordon O'Toole		Quote No.:
Address: 1600 Commerce Circle		Telephone No. / Fax No. / Email: 412-829-9650 / 412-349-0350		Waybill No.:		Page of
City: Trafford	State: PA	Zip Code: 15085	Preservative:		Number of Containers:	of
Project Name: Congaree River		1. Unpres.	4. HNO3	7. NaOH	Bottles (See Instructions on back):	
Project Number:		2. NaOH/ZnA	5. HCL	Preservative:		
P.O. Number:		3. H2SO4	6. Na Tho.	Lot No.: M621009		
Sample ID / Description	Date	Time	Matrix		Remarks / Cooler ID	
M-20	6-21-11	08:20	G-Grab	GW/DW/WW/S	X	STEX
K-20	7-21-11	08:10	G-Composite	Other	X	PAH's
I-20	7-21-11	07:50		Sediment	X	

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	CC Requirements (Specify)	Possible Hazard Identification
<input type="checkbox"/> Standard <input type="checkbox"/> Rush (Please Specify)	<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown
1. Relinquished by / Sampler: Gordon O'Toole	Date: 7-21-11	1. Received by:	Date:
2. Relinquished by:	Date:	2. Received by:	Date:
3. Relinquished by:	Date:	3. Received by:	Date:
4. Relinquished by:	Date:	4. Laboratory Received by: [Signature]	Date: 7/21/11

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAD USE ONLY	Received on Ice (Check) <input type="checkbox"/> Yes <input type="checkbox"/> No	Ice Pack <input type="checkbox"/> Yes <input type="checkbox"/> No	Receipt Temp. 4.0 °C	Temp. Blank <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
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SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: F-AD-016
 Revision Number: 8

Page 1 of 1
 Replaces Date: 02/23/11
 Effective Date: 05/06/11

Sample Receipt Checklist (SRC)

Client: MTR Cooler Inspected by/date: EE 7/24/11 Lot # 192109

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	1. Were custody seals present on the cooler?	
Yes <input type="checkbox"/>	No <input type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?	
Cooler ID/temperature upon receipt <u>4.10</u> °C <u> </u> °C <u> </u> °C <u> </u> °C			
Method: <input type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: <u> </u> . (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		5. Were proper custody procedures (relinquished/received) followed?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	5a Were samples relinquished by client to commercial courier?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		8. Were tests to be performed listed on the COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) <u> </u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u> </u> (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) <u> </u> .			
Sample(s) <u> </u> were received with bubbles >6 mm in diameter.			
Sample(s) <u> </u> were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.			

Corrective Action taken, if necessary:

Was client notified: Yes No

Did client respond: Yes No

SESI employee:

Date of response:

Comments:

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushinski

Project Name: Congaree River Sediment

Lot Number: MG28025
Date Completed: 08/08/2011



Nisreen Saikaly
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* MG28025 *

SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DEHNR No: 329

Case Narrative Management and Technical Resources, Inc. Lot Number: MG28025

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

Shealy is not NELAC certified for Phosphorus by 365.1 but is certified in SC and NC.

Shealy is not NELAC certified for VPH, but is certified for VPH in NC.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc.

Lot Number: MG28025

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	J8 (20-23)	Solid	07/27/2011 1245	07/28/2011
002	J11 (17-21)	Solid	07/27/2011 1545	07/28/2011
003	J14 (17.5-22)	Solid	07/27/2011 1700	07/28/2011
004	K4 (12-14)	Solid	07/28/2011 1020	07/28/2011
005	I17 (22-26)	Solid	07/28/2011 1230	07/28/2011

(5 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc. Lot Number: MG28025

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	K4 (12-14)	Solid	Acenaphthylene	8270D	33	J	ug/kg	12
004	K4 (12-14)	Solid	Anthracene	8270D	26	J	ug/kg	12
004	K4 (12-14)	Solid	Benzo(a)anthracene	8270D	62	J	ug/kg	12
004	K4 (12-14)	Solid	Benzo(a)pyrene	8270D	44	J	ug/kg	12
004	K4 (12-14)	Solid	Benzo(b)fluoranthene	8270D	39	J	ug/kg	12
004	K4 (12-14)	Solid	Chrysene	8270D	45	J	ug/kg	12
004	K4 (12-14)	Solid	Fluoranthene	8270D	110	J	ug/kg	12
004	K4 (12-14)	Solid	Phenanthrene	8270D	78	J	ug/kg	12
004	K4 (12-14)	Solid	Pyrene	8270D	150	J	ug/kg	12

(9 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-001
Description: J8 (20-23)	Matrix: Solid
Date Sampled: 07/27/2011 1245	% Solids: 84.0 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/01/2011 1957	SAS		64800	5.83

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.1	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.1	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.1	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.1	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	53-142
Bromofluorobenzene		93	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-001
Description: J8 (20-23)	Matrix: Solid
Date Sampled: 07/27/2011 1245	% Solids: 84.0 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/03/2011 0420	JGH	08/01/2011 2010	64808

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		370	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		370	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		370	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		370	30	ug/kg	1
Chrysene	218-01-9	8270D	ND		370	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		370	25	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		370	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		370	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		370	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		370	15	ug/kg	1
Pyrene	129-00-0	8270D	ND		370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		37	33-102
Nitrobenzene-d5		34	22-109
Terphenyl-d14		49	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-002
Description: J11 (17-21)	Matrix: Solid
Date Sampled: 07/27/2011 1545	% Solids: 64.8 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	1	08/05/2011 0738	DLB		65109	6.09

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		6.3	1.4	ug/kg	2
Ethylbenzene	100-41-4	8260B	ND		6.3	2.2	ug/kg	2
Toluene	108-88-3	8260B	ND		6.3	2.2	ug/kg	2
Xylenes (total)	1330-20-7	8260B	ND		6.3	3.7	ug/kg	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		85	53-142
Bromofluorobenzene		86	47-138
Toluene-d8		96	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG28025-002

Description: J11 (17-21)

Matrix: Solid

Date Sampled: 07/27/2011 1545

% Solids: 64.8 07/28/2011 2222

Date Received: 07/28/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	08/03/2011 0440	JGH	08/01/2011 2010	64808			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		510	16	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		510	20	ug/kg	1
Anthracene	120-12-7	8270D	ND		510	23	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		510	17	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		510	37	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		510	34	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		510	35	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		510	42	ug/kg	1
Chrysene	218-01-9	8270D	ND		510	16	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		510	34	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		510	16	ug/kg	1
Fluorene	86-73-7	8270D	ND		510	20	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		510	46	ug/kg	1
Naphthalene	91-20-3	8270D	ND		510	21	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		510	21	ug/kg	1
Pyrene	129-00-0	8270D	ND		510	22	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		39	33-102
Nitrobenzene-d5		36	22-109
Terphenyl-d14		47	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-003
Description: J14 (17.5-22)	Matrix: Solid
Date Sampled: 07/27/2011 1700	% Solids: 69.4 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	1	08/05/2011 0759	DLB		65109	6.35

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.7	1.2	ug/kg	2
Ethylbenzene	100-41-4	8260B	ND		5.7	1.9	ug/kg	2
Toluene	108-88-3	8260B	ND		5.7	1.9	ug/kg	2
Xylenes (total)	1330-20-7	8260B	ND		5.7	3.3	ug/kg	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	53-142
Bromofluorobenzene		80	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-003
Description: J14 (17.5-22)	Matrix: Solid
Date Sampled: 07/27/2011 1700	% Solids: 69.4 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/03/2011 0500	JGH	08/01/2011 2010	64808

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		460	14	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		460	18	ug/kg	1
Anthracene	120-12-7	8270D	ND		460	20	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		460	15	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		460	33	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		460	31	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		460	31	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		460	38	ug/kg	1
Chrysene	218-01-9	8270D	ND		460	14	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		460	30	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		460	14	ug/kg	1
Fluorene	86-73-7	8270D	ND		460	18	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		460	41	ug/kg	1
Naphthalene	91-20-3	8270D	ND		460	19	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		460	19	ug/kg	1
Pyrene	129-00-0	8270D	ND		460	20	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		37	33-102
Nitrobenzene-d5		33	22-109
Terphenyl-d14		45	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-004
Description: K4 (12-14)	Matrix: Solid
Date Sampled: 07/28/2011 1020	% Solids: 86.3 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/05/2011 0820	DLB		65109	4.63

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		6.3	1.4	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		6.3	2.1	ug/kg	1
Toluene	108-88-3	8260B	ND		6.3	2.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		6.3	3.6	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	53-142
Bromofluorobenzene		94	47-138
Toluene-d8		98	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG28025-004

Description: K4 (12-14)

Matrix: Solid

Date Sampled: 07/28/2011 1020

% Solids: 86.3 07/28/2011 2222

Date Received: 07/28/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	08/03/2011 0521	JGH	08/01/2011 2010	64808			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		380	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	33	J	380	15	ug/kg	1
Anthracene	120-12-7	8270D	26	J	380	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	62	J	380	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	44	J	380	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	39	J	380	26	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		380	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		380	31	ug/kg	1
Chrysene	218-01-9	8270D	45	J	380	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		380	25	ug/kg	1
Fluoranthene	206-44-0	8270D	110	J	380	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		380	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		380	34	ug/kg	1
Naphthalene	91-20-3	8270D	ND		380	16	ug/kg	1
Phenanthrene	85-01-8	8270D	78	J	380	15	ug/kg	1
Pyrene	129-00-0	8270D	150	J	380	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		39	33-102
Nitrobenzene-d5		35	22-109
Terphenyl-d14		48	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-005
Description: 117 (22-26)	Matrix: Solid
Date Sampled: 07/28/2011 1230	% Solids: 73.4 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/05/2011 0841	DLB		65109	5.94

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.7	1.3	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.7	2.0	ug/kg	1
Toluene	108-88-3	8260B	ND		5.7	2.0	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.7	3.3	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	53-142
Bromofluorobenzene		85	47-138
Toluene-d8		98	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MG28025-005

Description: 117 (22-26)

Matrix: Solid

Date Sampled: 07/28/2011 1230

% Solids: 73.4 07/28/2011 2222

Date Received: 07/28/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	08/03/2011 0541	JGH	08/01/2011 2010	64808			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		440	14	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		440	18	ug/kg	1
Anthracene	120-12-7	8270D	ND		440	20	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		440	15	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		440	32	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		440	30	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		440	30	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		440	37	ug/kg	1
Chrysene	218-01-9	8270D	ND		440	14	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		440	29	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		440	14	ug/kg	1
Fluorene	86-73-7	8270D	ND		440	17	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		440	40	ug/kg	1
Naphthalene	91-20-3	8270D	ND		440	19	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		440	18	ug/kg	1
Pyrene	129-00-0	8270D	ND		440	19	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		40	33-102
Nitrobenzene-d5		36	22-109
Terphenyl-d14		46	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ64800-001

Matrix: Solid

Batch: 64800

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	08/01/2011 1104
Ethylbenzene	ND		1	5.0	1.7	ug/kg	08/01/2011 1104
Toluene	ND		1	5.0	1.7	ug/kg	08/01/2011 1104
Xylenes (total)	ND		1	5.0	2.9	ug/kg	08/01/2011 1104
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		100	47-138				
1,2-Dichloroethane-d4		103	53-142				
Toluene-d8		98	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ64800-002

Matrix: Solid

Batch: 64800

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	50		1	99	69-123	08/01/2011 0936
Ethylbenzene	50	50		1	100	59-128	08/01/2011 0936
Toluene	50	49		1	99	61-129	08/01/2011 0936
Xylenes (total)	100	100		1	100	58-128	08/01/2011 0936
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		102	47-138				
1,2-Dichloroethane-d4		106	53-142				
Toluene-d8		101	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ64800-003

Matrix: Solid

Batch: 64800

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	46		1	92	7.2	69-123	20	08/01/2011 0958
Ethylbenzene	50	46		1	91	9.2	59-128	20	08/01/2011 0958
Toluene	50	47		1	93	5.6	61-129	20	08/01/2011 0958
Xylenes (total)	100	92		1	92	8.0	58-128	20	08/01/2011 0958
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		96	47-138						
1,2-Dichloroethane-d4		96	53-142						
Toluene-d8		96	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ65109-001

Matrix: Solid

Batch: 65109

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	08/05/2011 0652
Ethylbenzene	ND		1	5.0	1.7	ug/kg	08/05/2011 0652
Toluene	ND		1	5.0	1.7	ug/kg	08/05/2011 0652
Xylenes (total)	ND		1	5.0	2.9	ug/kg	08/05/2011 0652
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		98	47-138				
1,2-Dichloroethane-d4		99	53-142				
Toluene-d8		101	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ65109-002

Matrix: Solid

Batch: 65109

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	44		1	89	69-123	08/05/2011 0528
Ethylbenzene	50	46		1	91	59-128	08/05/2011 0528
Toluene	50	45		1	90	61-129	08/05/2011 0528
Xylenes (total)	100	90		1	90	58-128	08/05/2011 0528
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		99	47-138				
1,2-Dichloroethane-d4		98	53-142				
Toluene-d8		101	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ65109-003

Matrix: Solid

Batch: 65109

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	45		1	89	0.54	69-123	20	08/05/2011 0549
Ethylbenzene	50	45		1	90	1.6	59-128	20	08/05/2011 0549
Toluene	50	44		1	89	1.7	61-129	20	08/05/2011 0549
Xylenes (total)	100	90		1	90	0.48	58-128	20	08/05/2011 0549
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		99	47-138						
1,2-Dichloroethane-d4		97	53-142						
Toluene-d8		98	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: MQ64808-001

Matrix: Solid

Batch: 64808

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 08/01/2011 2010

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	08/02/2011 1532
Acenaphthylene	ND		1	330	13	ug/kg	08/02/2011 1532
Anthracene	ND		1	330	15	ug/kg	08/02/2011 1532
Benzo(a)anthracene	ND		1	330	11	ug/kg	08/02/2011 1532
Benzo(a)pyrene	ND		1	330	24	ug/kg	08/02/2011 1532
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	08/02/2011 1532
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	08/02/2011 1532
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	08/02/2011 1532
Chrysene	ND		1	330	10	ug/kg	08/02/2011 1532
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	08/02/2011 1532
Fluoranthene	ND		1	330	10	ug/kg	08/02/2011 1532
Fluorene	ND		1	330	13	ug/kg	08/02/2011 1532
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	08/02/2011 1532
Naphthalene	ND		1	330	14	ug/kg	08/02/2011 1532
Phenanthrene	ND		1	330	13	ug/kg	08/02/2011 1532
Pyrene	ND		1	330	14	ug/kg	08/02/2011 1532
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		68	33-102				
Nitrobenzene-d5		56	22-109				
Terphenyl-d14		73	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: MQ64808-002

Matrix: Solid

Batch: 64808

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 08/01/2011 2010

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	2500		1	74	46-114	08/02/2011 1715
Acenaphthylene	3300	3400		1	102	44-122	08/02/2011 1715
Anthracene	3300	2600		1	77	50-119	08/02/2011 1715
Benzo(a)anthracene	3300	2700		1	80	47-121	08/02/2011 1715
Benzo(a)pyrene	3300	2900		1	88	55-134	08/02/2011 1715
Benzo(b)fluoranthene	3300	2700		1	82	28-139	08/02/2011 1715
Benzo(g,h,i)perylene	3300	2700		1	80	36-125	08/02/2011 1715
Benzo(k)fluoranthene	3300	2500		1	75	47-130	08/02/2011 1715
Chrysene	3300	2600		1	78	45-126	08/02/2011 1715
Dibenzo(a,h)anthracene	3300	2600		1	79	45-122	08/02/2011 1715
Fluoranthene	3300	2700		1	80	50-123	08/02/2011 1715
Fluorene	3300	2600		1	77	48-117	08/02/2011 1715
Indeno(1,2,3-c,d)pyrene	3300	2600		1	79	45-123	08/02/2011 1715
Naphthalene	3300	2200		1	65	36-110	08/02/2011 1715
Phenanthrene	3300	2600		1	77	49-117	08/02/2011 1715
Pyrene	3300	2700		1	81	47-119	08/02/2011 1715
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		72	33-102				
Nitrobenzene-d5		61	22-109				
Terphenyl-d14		75	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Shealy Environmental Services, Inc.
 106 Vantage Point Drive
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 www.shealylab.com

Chain of Custody Record

Number 12837



Client MTR		Report to Contact G. W. Shynski		Sampler (Printed Name) Mark Fortin		Quote No.
Address 1600 Commerce Circle		Telephone No. / Fax No. / Email 42-829-9650		Waybill No.		Page of
City Trafford	State PA	Zip Code 15085	Preservative		Number of Containers	
Project Name Congaree River Sediment			1. Urines.	4. HNO3	7. NaOH	Bottle (See instructions on back)
Project Number			2. NaOH/ZnA	5. HCL	Preservative	
P.O. Number			3. H2SO4	6. Na Tho.	Lot No.	
Sample ID / Description (Containers for each sample may be combined on one line)		Date	Time	Remarks / Cooler ID		
SO (015-20) Mult		7/21/11	1230	MTG 28615		
J8 (20-23)	7/21/11	1245	Sample Not Included			
J11 (17-21)	7/21/11	1545	Sample Not Included			
J14 (7.5-22)	7/21/11	1700	Sample Not Included			
KA (12-1A)	7/21/11	1020	Sample Not Included			
J17 (22-26)	7/22/11	1230	Sample Not Included			

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	QC Requirements (Specify)	Possible Hazard Identification
<input type="checkbox"/> Standard <input type="checkbox"/> Rush (Please Specify)	<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab	<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown	
1. Relinquished by Mark Fortin	Date 7/28/11 Time 1300	1. Received by	Date
2. Relinquished by	Date	2. Received by	Date
3. Relinquished by	Date	3. Received by	Date
4. Relinquished by	Date	4. Laboratory Received by	Date
Note: All samples are retained for six weeks from receipt unless other arrangements are made.		LAB USE ONLY Received on Ice (Check) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Ice Pack <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Y / N / O	

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: F-AD-016
 Revision Number: 8

Page 1 of 1
 Replaces Date: 02/23/11
 Effective Date: 05/06/11

Sample Receipt Checklist (SRC)

Client: MTR Cooler Inspected by/date: ECU 7/28/11 Lot #: MG 28026

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other		
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	1. Were custody seals present on the cooler?	
Yes <input type="checkbox"/> No <input type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?	
Cooler ID/temperature upon receipt: <u>1213</u> °C _____ °C _____ °C _____ °C		
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles		
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None		
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.		
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____ (For coolers received via commercial courier, PMs are to be notified immediately.)	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	5. Were proper custody procedures (relinquished/received) followed?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	5a. Were samples relinquished by client to commercial courier?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	6. Were sample IDs listed?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	7. Was collection date & time listed?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	8. Were tests to be performed listed on the COC?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	9. Did all samples arrive in the proper containers for each test?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	10. Did all container label information (ID, date, time) agree with COC?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	11. Did all containers arrive in good condition (unbroken, lids on, etc.)?	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	12. Was adequate sample volume available?	
Yes <input type="checkbox"/> No <input type="checkbox"/>	13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?	
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	14. Were any samples containers missing?	
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	15. Were there any excess samples not listed on COC?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?	
Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?	
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)		
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) _____		
Sample(s) _____ were received with bubbles >6 mm in diameter.		
Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.		

Corrective Action taken, if necessary:

Was client notified: Yes No

Did client respond: Yes No

SESI employee: _____

Date of response: _____

Comments: _____

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Congaree River

Lot Number: MH10046
Date Completed: 08/22/2011



Nisreen Saikaly
Project Manager



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The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* MH10046 *

SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DEHNR No: 329

Case Narrative Management and Technical Resources, Inc. Lot Number: MH10046

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

Shealy is not NELAC certified for Phosphorus by 365.1 but is certified in SC and NC.

Shealy is not NELAC certified for VPH, but is certified for VPH in NC.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc.

Lot Number: MH10046

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	CR-4	Solid	08/10/2011 0845	08/10/2011
002	CR-7	Solid	08/10/2011 0930	08/10/2011
003	CR-9	Solid	08/10/2011 0950	08/10/2011
004	CR-1	Solid	08/10/2011 0750	08/10/2011

(4 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc. Lot Number: MH10046

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	CR-7	Solid	Benzo(a)anthracene	8270D	50	J	ug/kg	8
002	CR-7	Solid	Benzo(b)fluoranthene	8270D	43	J	ug/kg	8
002	CR-7	Solid	Chrysene	8270D	45	J	ug/kg	8
002	CR-7	Solid	Fluoranthene	8270D	51	J	ug/kg	8
002	CR-7	Solid	Pyrene	8270D	89	J	ug/kg	8
004	CR-1	Solid	Anthracene	8270D	25	J	ug/kg	12
004	CR-1	Solid	Benzo(a)anthracene	8270D	230	J	ug/kg	12
004	CR-1	Solid	Benzo(a)pyrene	8270D	260	J	ug/kg	12
004	CR-1	Solid	Benzo(b)fluoranthene	8270D	410		ug/kg	12
004	CR-1	Solid	Benzo(g,h,i)perylene	8270D	190	J	ug/kg	12
004	CR-1	Solid	Chrysene	8270D	330	J	ug/kg	12
004	CR-1	Solid	Fluoranthene	8270D	640		ug/kg	12
004	CR-1	Solid	Indeno(1,2,3-c,d)pyrene	8270D	160	J	ug/kg	12
004	CR-1	Solid	Phenanthrene	8270D	190	J	ug/kg	12
004	CR-1	Solid	Pyrene	8270D	480		ug/kg	12

(15 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-001
Description: CR-4	Matrix: Solid
Date Sampled: 08/10/2011 0845	% Solids: 81.6 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/11/2011 1326	SAS		65534	3.42

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		9.0	2.0	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		9.0	3.0	ug/kg	1
Toluene	108-88-3	8260B	ND		9.0	3.0	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		9.0	5.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		116	53-142
Bromofluorobenzene		102	47-138
Toluene-d8		97	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-001
Description: CR-4	Matrix: Solid
Date Sampled: 08/10/2011 0845	% Solids: 81.6 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/17/2011 2011	JWS	08/16/2011 1757	65820

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		400	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		400	16	ug/kg	1
Anthracene	120-12-7	8270D	ND		400	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		400	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		400	29	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		400	27	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		400	27	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		400	33	ug/kg	1
Chrysene	218-01-9	8270D	ND		400	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		400	27	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		400	13	ug/kg	1
Fluorene	86-73-7	8270D	ND		400	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		400	36	ug/kg	1
Naphthalene	91-20-3	8270D	ND		400	17	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		400	16	ug/kg	1
Pyrene	129-00-0	8270D	ND		400	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		57	33-102
Nitrobenzene-d5		60	22-109
Terphenyl-d14		70	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-002
Description: CR-7	Matrix: Solid
Date Sampled: 08/10/2011 0930	% Solids: 80.4 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/11/2011 1348	SAS		65534	3.96

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		7.9	1.7	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		7.9	2.7	ug/kg	1
Toluene	108-88-3	8260B	ND		7.9	2.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		7.9	4.6	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		119	53-142
Bromofluorobenzene		101	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-002
Description: CR-7	Matrix: Solid
Date Sampled: 08/10/2011 0930	% Solids: 80.4 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/17/2011 2030	JWS	08/16/2011 1757	65820

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		400	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		400	16	ug/kg	1
Anthracene	120-12-7	8270D	ND		400	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	50	J	400	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		400	29	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	43	J	400	27	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		400	27	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		400	33	ug/kg	1
Chrysene	218-01-9	8270D	45	J	400	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		400	26	ug/kg	1
Fluoranthene	206-44-0	8270D	51	J	400	13	ug/kg	1
Fluorene	86-73-7	8270D	ND		400	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		400	36	ug/kg	1
Naphthalene	91-20-3	8270D	ND		400	17	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		400	16	ug/kg	1
Pyrene	129-00-0	8270D	89	J	400	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		69	33-102
Nitrobenzene-d5		69	22-109
Terphenyl-d14		77	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-003
Description: CR-9	Matrix: Solid
Date Sampled: 08/10/2011 0950	% Solids: 88.3 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/11/2011 1410	SAS		65534	3.00

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		9.4	2.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		9.4	3.2	ug/kg	1
Toluene	108-88-3	8260B	ND		9.4	3.2	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		9.4	5.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		124	53-142
Bromofluorobenzene		103	47-138
Toluene-d8		100	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MH10046-003

Description: CR-9

Matrix: Solid

Date Sampled: 08/10/2011 0950

% Solids: 88.3 08/10/2011 2314

Date Received: 08/10/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	08/17/2011 2049	JWS	08/16/2011 1757	65820			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		370	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		370	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		370	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		370	30	ug/kg	1
Chrysene	218-01-9	8270D	ND		370	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		370	24	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		370	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		370	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		370	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		370	15	ug/kg	1
Pyrene	129-00-0	8270D	ND		370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		57	33-102
Nitrobenzene-d5		61	22-109
Terphenyl-d14		68	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-004
Description: CR-1	Matrix: Solid
Date Sampled: 08/10/2011 0750	% Solids: 78.2 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/11/2011 1432	SAS		65534	3.87

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		8.3	1.8	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		8.3	2.8	ug/kg	1
Toluene	108-88-3	8260B	ND		8.3	2.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		8.3	4.8	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		129	53-142
Bromofluorobenzene		104	47-138
Toluene-d8		100	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MH10046-004

Description: CR-1

Matrix: Solid

Date Sampled: 08/10/2011 0750

% Solids: 78.2 08/10/2011 2314

Date Received: 08/10/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch				
1	3550C	8270D	1	08/17/2011 2108	JWS	08/16/2011 1757	65820				
Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run			
Acenaphthene	83-32-9	8270D	ND		400	12	ug/kg	1			
Acenaphthylene	208-96-8	8270D	ND		400	16	ug/kg	1			
Anthracene	120-12-7	8270D	25	J	400	18	ug/kg	1			
Benzo(a)anthracene	56-55-3	8270D	230	J	400	13	ug/kg	1			
Benzo(a)pyrene	50-32-8	8270D	260	J	400	29	ug/kg	1			
Benzo(b)fluoranthene	205-99-2	8270D	410		400	27	ug/kg	1			
Benzo(g,h,i)perylene	191-24-2	8270D	190	J	400	27	ug/kg	1			
Benzo(k)fluoranthene	207-08-9	8270D	ND		400	33	ug/kg	1			
Chrysene	218-01-9	8270D	330	J	400	13	ug/kg	1			
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		400	27	ug/kg	1			
Fluoranthene	206-44-0	8270D	640		400	13	ug/kg	1			
Fluorene	86-73-7	8270D	ND		400	15	ug/kg	1			
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	160	J	400	36	ug/kg	1			
Naphthalene	91-20-3	8270D	ND		400	17	ug/kg	1			
Phenanthrene	85-01-8	8270D	190	J	400	16	ug/kg	1			
Pyrene	129-00-0	8270D	480		400	17	ug/kg	1			
Surrogate	Q	Run 1 % Recovery	Acceptance Limits								
2-Fluorobiphenyl		57	33-102								
Nitrobenzene-d5		59	22-109								
Terphenyl-d14		67	41-120								

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: MQ65534-001

Matrix: Solid

Batch: 65534

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	08/11/2011 1044
Ethylbenzene	ND		1	5.0	1.7	ug/kg	08/11/2011 1044
Toluene	ND		1	5.0	1.7	ug/kg	08/11/2011 1044
Xylenes (total)	ND		1	5.0	2.9	ug/kg	08/11/2011 1044
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		104	47-138				
1,2-Dichloroethane-d4		121	53-142				
Toluene-d8		98	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: MQ65534-002

Matrix: Solid

Batch: 65534

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	43		1	85	69-123	08/11/2011 0916
Ethylbenzene	50	42		1	83	59-128	08/11/2011 0916
Toluene	50	41		1	81	61-129	08/11/2011 0916
Xylenes (total)	100	85		1	85	58-128	08/11/2011 0916
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		103	47-138				
1,2-Dichloroethane-d4		115	53-142				
Toluene-d8		98	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: MQ65534-003

Matrix: Solid

Batch: 65534

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	42		1	84	1.8	69-123	20	08/11/2011 0938
Ethylbenzene	50	42		1	84	1.5	59-128	20	08/11/2011 0938
Toluene	50	42		1	84	3.0	61-129	20	08/11/2011 0938
Xylenes (total)	100	84		1	84	1.1	58-128	20	08/11/2011 0938
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		101	47-138						
1,2-Dichloroethane-d4		114	53-142						
Toluene-d8		101	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: MQ65820-001

Matrix: Solid

Batch: 65820

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 08/16/2011 1757

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	08/17/2011 1635
Acenaphthylene	ND		1	330	13	ug/kg	08/17/2011 1635
Anthracene	ND		1	330	15	ug/kg	08/17/2011 1635
Benzo(a)anthracene	ND		1	330	11	ug/kg	08/17/2011 1635
Benzo(a)pyrene	ND		1	330	24	ug/kg	08/17/2011 1635
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	08/17/2011 1635
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	08/17/2011 1635
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	08/17/2011 1635
Chrysene	ND		1	330	10	ug/kg	08/17/2011 1635
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	08/17/2011 1635
Fluoranthene	ND		1	330	10	ug/kg	08/17/2011 1635
Fluorene	ND		1	330	13	ug/kg	08/17/2011 1635
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	08/17/2011 1635
Naphthalene	ND		1	330	14	ug/kg	08/17/2011 1635
Phenanthrene	ND		1	330	13	ug/kg	08/17/2011 1635
Pyrene	ND		1	330	14	ug/kg	08/17/2011 1635
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		74	33-102				
Nitrobenzene-d5		75	22-109				
Terphenyl-d14		80	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: MQ65820-002

Matrix: Solid

Batch: 65820

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 08/16/2011 1757

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	2600		1	77	46-114	08/17/2011 1732
Acenaphthylene	3300	2500		1	74	44-122	08/17/2011 1732
Anthracene	3300	2800		1	84	50-119	08/17/2011 1732
Benzo(a)anthracene	3300	2900		1	87	47-121	08/17/2011 1732
Benzo(a)pyrene	3300	3300		1	99	55-134	08/17/2011 1732
Benzo(b)fluoranthene	3300	3100		1	94	28-139	08/17/2011 1732
Benzo(g,h,i)perylene	3300	2800		1	83	36-125	08/17/2011 1732
Benzo(k)fluoranthene	3300	3000		1	89	47-130	08/17/2011 1732
Chrysene	3300	2900		1	87	45-126	08/17/2011 1732
Dibenzo(a,h)anthracene	3300	2900		1	87	45-122	08/17/2011 1732
Fluoranthene	3300	3000		1	90	50-123	08/17/2011 1732
Fluorene	3300	2700		1	82	48-117	08/17/2011 1732
Indeno(1,2,3-c,d)pyrene	3300	2800		1	85	45-123	08/17/2011 1732
Naphthalene	3300	2200		1	65	36-110	08/17/2011 1732
Phenanthrene	3300	2800		1	85	49-117	08/17/2011 1732
Pyrene	3300	3000		1	90	47-119	08/17/2011 1732
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		72	33-102				
Nitrobenzene-d5		79	22-109				
Terphenyl-d14		73	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MS

Sample ID: MH10046-004MS

Matrix: Solid

Batch: 65820

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 08/16/2011 1757

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	ND	4200	3000		1	72	30-130	08/17/2011 2128
Acenaphthylene	ND	4200	2900		1	71	30-130	08/17/2011 2128
Anthracene	25	4200	3500		1	83	30-130	08/17/2011 2128
Benzo(a)anthracene	230	4200	3900		1	89	30-130	08/17/2011 2128
Benzo(a)pyrene	260	4200	4400		1	100	30-130	08/17/2011 2128
Benzo(b)fluoranthene	410	4200	4100		1	89	30-130	08/17/2011 2128
Benzo(g,h,i)perylene	190	4200	3900		1	89	30-130	08/17/2011 2128
Benzo(k)fluoranthene	ND	4200	4100		1	98	30-130	08/17/2011 2128
Chrysene	330	4200	3700		1	82	30-130	08/17/2011 2128
Dibenzo(a,h)anthracene	ND	4200	4000		1	95	30-130	08/17/2011 2128
Fluoranthene	640	4200	4000		1	80	30-130	08/17/2011 2128
Fluorene	ND	4200	3300		1	79	30-130	08/17/2011 2128
Indeno(1,2,3-c,d)pyrene	160	4200	3900		1	90	30-130	08/17/2011 2128
Naphthalene	ND	4200	2800		1	67	30-130	08/17/2011 2128
Phenanthrene	190	4200	3600		1	81	30-130	08/17/2011 2128
Pyrene	480	4200	4000		1	86	30-130	08/17/2011 2128
Surrogate	Q	% Rec	Acceptance Limit					
2-Fluorobiphenyl		67	33-102					
Nitrobenzene-d5		70	22-109					
Terphenyl-d14		75	41-120					

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: MH10046-004MD

Matrix: Solid

Batch: 65820

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 08/16/2011 1757

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date	
Acenaphthene	ND	4200	3200	1		77	7.4	30-130	40	08/17/2011 2147	
Acenaphthylene	ND	4200	3100	1		74	6.4	30-130	40	08/17/2011 2147	
Anthracene	25	4200	3500	1		82	0.032	30-130	40	08/17/2011 2147	
Benzo(a)anthracene	230	4200	3800	1		84	3.8	30-130	40	08/17/2011 2147	
Benzo(a)pyrene	260	4200	4500	1		100	1.3	30-130	40	08/17/2011 2147	
Benzo(b)fluoranthene	410	4200	3900	1		82	6.0	30-130	40	08/17/2011 2147	
Benzo(g,h,i)perylene	190	4200	3900	1		87	0.030	30-130	40	08/17/2011 2147	
Benzo(k)fluoranthene	ND	4200	4300	1		102	4.6	30-130	40	08/17/2011 2147	
Chrysene	330	4200	3800	1		83	2.5	30-130	40	08/17/2011 2147	
Dibenzo(a,h)anthracene	ND	4200	3900	1		93	1.7	30-130	40	08/17/2011 2147	
Fluoranthene	640	4200	4200	1		84	5.2	30-130	40	08/17/2011 2147	
Fluorene	ND	4200	3400	1		81	3.7	30-130	40	08/17/2011 2147	
Indeno(1,2,3-c,d)pyrene	160	4200	3900	1		88	1.3	30-130	40	08/17/2011 2147	
Naphthalene	ND	4200	2900	1		68	3.9	30-130	40	08/17/2011 2147	
Phenanthrene	190	4200	3600	1		81	1.4	30-130	40	08/17/2011 2147	
Pyrene	480	4200	4100	1		86	2.0	30-130	40	08/17/2011 2147	
Surrogate	Q	% Rec	Acceptance Limit								
2-Fluorobiphenyl		69	33-102								
Nitrobenzene-d5		70	22-109								
Terphenyl-d14		72	41-120								

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Shealy Environmental Services, Inc.
 106 Vantage Point Drive
 West Columbia, South Carolina 29172
 Telephone No. (803) 791-9700 Fax No. (803) 791-9111
 www.shealylab.com

Number 12838

Chain of Custody Record

Client: MTR		Report to Contact: Cheryl Yushuski		Sampler (Printed Name)		Quote No.	
Address: 1600 Commerce Circle		Telephone No. / Fax No. / Email		Waybill No.		Page _____ of _____	
City: Trotter PA 15085		Preservative		Number of Containers		Bottle (See instructions on back)	
Project Name: Congaree River		1. Unpres. 4. HNO3 7. NaOH		Preservative		Lot No. MH16046	
P.O. Number		2. NaOH/ZnA 5. HCL		Lot No. MH16046		8/10/11	
3. H2SO4 6. Na Thio.		Matrix		Remarks / Cooler ID			
Sample ID / Description (Containers for each sample may be combined on one line)		Date		Time			
CR-4		8/10/11		0845		Use list of	
CR-7		11		0930		DATA from	
CR-9		11		0950		Congaree River	
CR-1		8/10/11		0750		Project	
Turn Around Time Required (Prior lab approval required for expedited TAT)		Sample Disposal		QC Requirements (Specify)		Possible Hazard Identification	
<input type="checkbox"/> Standard <input type="checkbox"/> Rush (Please Specify)		<input type="checkbox"/> Return to Client <input type="checkbox"/> Dispose by Lab		1. Received by		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown	
1. Relinquished by Muller		Date 8/10/11 Time 1500		Date		Date	
2. Relinquished by		Date		Date		Date	
3. Relinquished by		Date		Date		Date	
4. Relinquished by		Date		Date		Date	
4. Laboratory Received by [Signature]		Date 8/10/11		Time 1500		Temp. Blank <input type="checkbox"/> Y / <input checked="" type="checkbox"/> N	

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
Document Number: F-AD-016
Revision Number: 8

Page 1 of 1
Replaces Date: 02/23/11
Effective Date: 05/06/11

Sample Receipt Checklist (SRC)

Client: MTR Cooler Inspected by/date: ec-8/10/11 Lot #: MH10046

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	1. Were custody seals present on the cooler?	
Yes <input type="checkbox"/>	No <input type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?	
Cooler ID/temperature upon receipt <u>4.9</u> °C <u> </u> / <u> </u> °C <u> </u> / <u> </u> °C <u> </u> / <u> </u> °C			
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: <u> </u> . (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		5. Were proper custody procedures (relinquished/received) followed?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	5a Were samples relinquished by client to commercial courier?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		8. Were tests to be performed listed on the COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) <u> </u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u> </u> (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) <u> </u> .			
Sample(s) <u> </u> were received with bubbles >6 mm in diameter.			
Sample(s) <u> </u> were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.			

Corrective Action taken, if necessary:

Was client notified: Yes No

Did client respond: Yes No

SESI employee:

Date of response:

Comments:

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Congaree River Sediments

Lot Number: NA11018
Date Completed: 01/23/2012



Nisreen Saikaly
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

*** NA11018 ***

Case Narrative
Management and Technical Resources, Inc.
Lot Number: NA11018

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc. Lot Number: NA11018

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	AK-80	Solid	01/10/2012 1530	01/11/2012
002	AM-71.5	Solid	01/10/2012 1700	01/11/2012
003	AQ-71.5	Solid	01/10/2012 1710	01/11/2012

(3 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc. Lot Number: NA11018

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	AM-71.5	Solid	Benzo(a)anthracene	8270D	27	J	ug/kg	8
002	AM-71.5	Solid	Fluoranthene	8270D	13	J	ug/kg	8
002	AM-71.5	Solid	Pyrene	8270D	20	J	ug/kg	8
003	AQ-71.5	Solid	Benzo(a)anthracene	8270D	25	J	ug/kg	10
003	AQ-71.5	Solid	Fluoranthene	8270D	22	J	ug/kg	10
003	AQ-71.5	Solid	Pyrene	8270D	16	J	ug/kg	10

(6 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA11018-001
Description: AK-80	Matrix: Solid
Date Sampled: 01/10/2012 1530	% Solids: 87.9 01/11/2012 2323
Date Received: 01/11/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/16/2012 1319	BM		75735	5.09

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.6	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.6	1.9	ug/kg	1
Toluene	108-88-3	8260B	ND		5.6	1.9	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.6	3.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		85	53-142
Bromofluorobenzene		113	47-138
Toluene-d8		92	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: NA11018-001

Description: AK-80

Matrix: Solid

Date Sampled: 01/10/2012 1530

% Solids: 87.9 01/11/2012 2323

Date Received: 01/11/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	01/16/2012 1949	JCG	01/13/2012 1647	75652			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		360	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		360	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		360	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		360	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		360	26	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		360	24	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		360	24	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		360	29	ug/kg	1
Chrysene	218-01-9	8270D	ND		360	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		360	24	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		360	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		360	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		360	32	ug/kg	1
Naphthalene	91-20-3	8270D	ND		360	15	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		360	15	ug/kg	1
Pyrene	129-00-0	8270D	ND		360	15	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		94	33-102
Nitrobenzene-d5		82	22-109
Terphenyl-d14		88	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA11018-002
Description: AM-71.5	Matrix: Solid
Date Sampled: 01/10/2012 1700	% Solids: 87.7 01/11/2012 2323
Date Received: 01/11/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/16/2012 1343	BM		75735	5.26

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.4	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.4	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.4	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.4	3.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	53-142
Bromofluorobenzene		113	47-138
Toluene-d8		92	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: NA11018-002

Description: AM-71.5

Matrix: Solid

Date Sampled: 01/10/2012 1700

% Solids: 87.7 01/11/2012 2323

Date Received: 01/11/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	01/16/2012 2014	JCG	01/13/2012 1647	75652			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		370	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		370	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	27	J	370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		370	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		370	31	ug/kg	1
Chrysene	218-01-9	8270D	ND		370	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		370	25	ug/kg	1
Fluoranthene	206-44-0	8270D	13	J	370	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		370	34	ug/kg	1
Naphthalene	91-20-3	8270D	ND		370	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		370	15	ug/kg	1
Pyrene	129-00-0	8270D	20	J	370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		91	33-102
Nitrobenzene-d5		83	22-109
Terphenyl-d14		85	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA11018-003
Description: AQ-71.5	Matrix: Solid
Date Sampled: 01/10/2012 1710	% Solids: 90.6 01/11/2012 2323
Date Received: 01/11/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/16/2012 1407	BM		75735	5.36

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.1	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.1	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.1	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.1	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	53-142
Bromofluorobenzene		111	47-138
Toluene-d8		93	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: NA11018-003

Description: AQ-71.5

Matrix: Solid

Date Sampled: 01/10/2012 1710

% Solids: 90.6 01/11/2012 2323

Date Received: 01/11/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	01/16/2012 2038	JCG	01/13/2012 1647	75652			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		350	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		350	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		350	15	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	25	J	350	11	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		350	25	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		350	23	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		350	24	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		350	29	ug/kg	1
Chrysene	218-01-9	8270D	ND		350	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		350	23	ug/kg	1
Fluoranthene	206-44-0	8270D	22	J	350	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		350	13	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		350	31	ug/kg	1
Naphthalene	91-20-3	8270D	ND		350	15	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		350	14	ug/kg	1
Pyrene	129-00-0	8270D	16	J	350	15	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		87	33-102
Nitrobenzene-d5		78	22-109
Terphenyl-d14		83	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ75735-001

Matrix: Solid

Batch: 75735

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	01/16/2012 1220
Ethylbenzene	ND		1	5.0	1.7	ug/kg	01/16/2012 1220
Toluene	ND		1	5.0	1.7	ug/kg	01/16/2012 1220
Xylenes (total)	ND		1	5.0	2.9	ug/kg	01/16/2012 1220
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		116	47-138				
1,2-Dichloroethane-d4		86	53-142				
Toluene-d8		96	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ75735-002

Matrix: Solid

Batch: 75735

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	54		1	108	69-123	01/16/2012 1004
Ethylbenzene	50	55		1	110	59-128	01/16/2012 1004
Toluene	50	57		1	114	61-129	01/16/2012 1004
Xylenes (total)	100	110		1	111	58-128	01/16/2012 1004
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		111	47-138				
1,2-Dichloroethane-d4		92	53-142				
Toluene-d8		99	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ75735-003

Matrix: Solid

Batch: 75735

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	53		1	105	2.6	69-123	20	01/16/2012 1027
Ethylbenzene	50	52		1	105	5.1	59-128	20	01/16/2012 1027
Toluene	50	56		1	112	1.4	61-129	20	01/16/2012 1027
Xylenes (total)	100	110		1	108	2.4	58-128	20	01/16/2012 1027
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		108	47-138						
1,2-Dichloroethane-d4		87	53-142						
Toluene-d8		96	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ75652-001

Matrix: Solid

Batch: 75652

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 01/13/2012 1647

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	01/16/2012 1246
Acenaphthylene	ND		1	330	13	ug/kg	01/16/2012 1246
Anthracene	ND		1	330	15	ug/kg	01/16/2012 1246
Benzo(a)anthracene	ND		1	330	11	ug/kg	01/16/2012 1246
Benzo(a)pyrene	ND		1	330	24	ug/kg	01/16/2012 1246
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	01/16/2012 1246
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	01/16/2012 1246
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	01/16/2012 1246
Chrysene	ND		1	330	10	ug/kg	01/16/2012 1246
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	01/16/2012 1246
Fluoranthene	ND		1	330	10	ug/kg	01/16/2012 1246
Fluorene	ND		1	330	13	ug/kg	01/16/2012 1246
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	01/16/2012 1246
Naphthalene	ND		1	330	14	ug/kg	01/16/2012 1246
Phenanthrene	ND		1	330	13	ug/kg	01/16/2012 1246
Pyrene	ND		1	330	14	ug/kg	01/16/2012 1246
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		71	33-102				
Nitrobenzene-d5		67	22-109				
Terphenyl-d14		68	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ75652-002

Matrix: Solid

Batch: 75652

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 01/13/2012 1647

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	2500		1	76	46-114	01/16/2012 1311
Acenaphthylene	3300	2900		1	88	44-122	01/16/2012 1311
Anthracene	3300	2600		1	77	50-119	01/16/2012 1311
Benzo(a)anthracene	3300	2600		1	77	47-121	01/16/2012 1311
Benzo(a)pyrene	3300	3000		1	90	55-134	01/16/2012 1311
Benzo(b)fluoranthene	3300	2800		1	85	28-139	01/16/2012 1311
Benzo(g,h,i)perylene	3300	2900		1	86	36-125	01/16/2012 1311
Benzo(k)fluoranthene	3300	2800		1	83	47-130	01/16/2012 1311
Chrysene	3300	2500		1	74	45-126	01/16/2012 1311
Dibenzo(a,h)anthracene	3300	2900		1	87	45-122	01/16/2012 1311
Fluoranthene	3300	2700		1	80	50-123	01/16/2012 1311
Fluorene	3300	2500		1	76	48-117	01/16/2012 1311
Indeno(1,2,3-c,d)pyrene	3300	2800		1	85	45-123	01/16/2012 1311
Naphthalene	3300	2400		1	71	36-110	01/16/2012 1311
Phenanthrene	3300	2500		1	76	49-117	01/16/2012 1311
Pyrene	3300	2600		1	79	47-119	01/16/2012 1311
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		76	33-102				
Nitrobenzene-d5		73	22-109				
Terphenyl-d14		74	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Shealy Environmental Services, Inc.
 106 Vantage Point Drive
 West Columbia, South Carolina 29172
 Telephone No. (803) 791-9700 Fax No. (803) 791-9111
 www.shealylab.com

Chain of Custody Record

Number 10568

Client MTR		Report to Contact Cheryl Yushunski		Sampler (Printed Name) Mark Ferlin		Quote No.
Address 1600 Commerce Circle		Telephone No. / Fax No. / Email 412-829-9650		Waybill No.		Page 1 of 1
City/State/Zip Code Prattville PA 15065		Preservative		Number of Containers		Bottle (See instructions on back)
Project Name Congaree River Sediments		1. Urines, 4. HNO3, 7. NaOH		Preservative		Lot No.
Project Number		2. NaOH/ZnA, 5. HCL		Remarks / Cooler ID		NA11018
P.O. Number		3. H2SO4, 6. Na Tho.		Analysis		
Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	Matrix	Analysis	QC Requirements (Specify)	Possible Hazard Identification
AK-80	1/10/12	1530	G	GW DW/WW S	BTE-5260 CAB	contact Cheryl
AM-71.5	1/10/12	1700	G	GW DW/WW S	PHTs 62700	Yushunski it goes
AQ-71.5	1/10/12	1710	G	GW DW/WW S		Eons about exact parameters
Turn Around Time Required (Prior lab approval required for expedited TAT)						
<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush (Please Specify) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab						
1. Relinquished by / Sampler # Mark Ferlin						
2. Relinquished by						
3. Relinquished by						
4. Relinquished by						
Note: All samples are retained for six weeks from receipt unless other arrangements are made.						
				Received on Ice (Check) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Ice Pack		Temp. Blank <input type="checkbox"/> Y / <input type="checkbox"/> N
				Receipt Temp. 4.4 °C		Date 1/11/12 Time 1130

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: F-AD-016
 Revision Number: 9

Page 1 of 1
 Replaces Date: 05/06/11
 Effective Date: 10/11/11

Sample Receipt Checklist (SRC)

Client: MTR Cooler Inspected by/date: Wkr 11/11/12 Lot #: NA11018

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	1. Were custody seals present on the cooler?	
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?	
Cooler ID/temperature upon receipt: <u>4.4</u> °C _____ °C _____ °C _____ °C			
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____ (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		5. Were proper custody procedures (relinquished/received) followed?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	5a. Were samples relinquished by client to commercial courier?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		8. Were tests to be performed listed on the COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) _____			
Sample(s) _____ were received with bubbles >6 mm in diameter.			
Sample(s) _____ were received with TRC >0.2 mg/L for NH ₃ /TKN/cyanide/BNA/pest/PCB/herb.			

Corrective Action taken, if necessary:

Was client notified: Yes No Did client respond: Yes No

SESI employee: _____ Date of response: _____

Comments: _____

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Congaree River Sediments

Lot Number: NA12017
Date Completed: 01/23/2012



Nisreen Saikaly
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* NA12017 *

Case Narrative
Management and Technical Resources, Inc.
Lot Number: NA12017

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc.

Lot Number: NA12017

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	Y-57	Solid	01/12/2012 1110	01/12/2012

(1 sample)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc. Lot Number: NA12017

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	Y-57	Solid	Anthracene	8270D	67	J	ug/kg	6
001	Y-57	Solid	Benzo(a)anthracene	8270D	260	J	ug/kg	6
001	Y-57	Solid	Benzo(a)pyrene	8270D	280	J	ug/kg	6
001	Y-57	Solid	Benzo(b)fluoranthene	8270D	210	J	ug/kg	6
001	Y-57	Solid	Benzo(g,h,i)perylene	8270D	130	J	ug/kg	6
001	Y-57	Solid	Benzo(k)fluoranthene	8270D	99	J	ug/kg	6
001	Y-57	Solid	Chrysene	8270D	280	J	ug/kg	6
001	Y-57	Solid	Fluoranthene	8270D	360		ug/kg	6
001	Y-57	Solid	Indeno(1,2,3-c,d)pyrene	8270D	98	J	ug/kg	6
001	Y-57	Solid	Phenanthrene	8270D	260	J	ug/kg	6
001	Y-57	Solid	Pyrene	8270D	620		ug/kg	6

(11 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA12017-001
Description: Y-57	Matrix: Solid
Date Sampled: 01/12/2012 1110	% Solids: 84.1 01/12/2012 2202
Date Received: 01/12/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/16/2012 1541	BM		75735	5.72

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.2	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.2	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.2	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.2	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	53-142
Bromofluorobenzene		114	47-138
Toluene-d8		98	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: NA12017-001

Description: Y-57

Matrix: Solid

Date Sampled: 01/12/2012 1110

% Solids: 84.1 01/12/2012 2202

Date Received: 01/12/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	01/16/2012 2218	JCG	01/13/2012 1647	75652			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		360	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		360	14	ug/kg	1
Anthracene	120-12-7	8270D	67	J	360	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	260	J	360	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	280	J	360	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	210	J	360	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	130	J	360	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	99	J	360	30	ug/kg	1
Chrysene	218-01-9	8270D	280	J	360	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		360	24	ug/kg	1
Fluoranthene	206-44-0	8270D	360		360	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		360	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	98	J	360	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		360	15	ug/kg	1
Phenanthrene	85-01-8	8270D	260	J	360	15	ug/kg	1
Pyrene	129-00-0	8270D	620		360	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		92	33-102
Nitrobenzene-d5		84	22-109
Terphenyl-d14		90	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ75735-001

Matrix: Solid

Batch: 75735

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	01/16/2012 1220
Ethylbenzene	ND		1	5.0	1.7	ug/kg	01/16/2012 1220
Toluene	ND		1	5.0	1.7	ug/kg	01/16/2012 1220
Xylenes (total)	ND		1	5.0	2.9	ug/kg	01/16/2012 1220
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		116	47-138				
1,2-Dichloroethane-d4		86	53-142				
Toluene-d8		96	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ75735-002

Matrix: Solid

Batch: 75735

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	54		1	108	69-123	01/16/2012 1004
Ethylbenzene	50	55		1	110	59-128	01/16/2012 1004
Toluene	50	57		1	114	61-129	01/16/2012 1004
Xylenes (total)	100	110		1	111	58-128	01/16/2012 1004
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		111	47-138				
1,2-Dichloroethane-d4		92	53-142				
Toluene-d8		99	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ75735-003

Matrix: Solid

Batch: 75735

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	53		1	105	2.6	69-123	20	01/16/2012 1027
Ethylbenzene	50	52		1	105	5.1	59-128	20	01/16/2012 1027
Toluene	50	56		1	112	1.4	61-129	20	01/16/2012 1027
Xylenes (total)	100	110		1	108	2.4	58-128	20	01/16/2012 1027
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		108	47-138						
1,2-Dichloroethane-d4		87	53-142						
Toluene-d8		96	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ75652-001

Matrix: Solid

Batch: 75652

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 01/13/2012 1647

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	01/16/2012 1246
Acenaphthylene	ND		1	330	13	ug/kg	01/16/2012 1246
Anthracene	ND		1	330	15	ug/kg	01/16/2012 1246
Benzo(a)anthracene	ND		1	330	11	ug/kg	01/16/2012 1246
Benzo(a)pyrene	ND		1	330	24	ug/kg	01/16/2012 1246
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	01/16/2012 1246
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	01/16/2012 1246
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	01/16/2012 1246
Chrysene	ND		1	330	10	ug/kg	01/16/2012 1246
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	01/16/2012 1246
Fluoranthene	ND		1	330	10	ug/kg	01/16/2012 1246
Fluorene	ND		1	330	13	ug/kg	01/16/2012 1246
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	01/16/2012 1246
Naphthalene	ND		1	330	14	ug/kg	01/16/2012 1246
Phenanthrene	ND		1	330	13	ug/kg	01/16/2012 1246
Pyrene	ND		1	330	14	ug/kg	01/16/2012 1246
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		71	33-102				
Nitrobenzene-d5		67	22-109				
Terphenyl-d14		68	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ75652-002

Matrix: Solid

Batch: 75652

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 01/13/2012 1647

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	2500		1	76	46-114	01/16/2012 1311
Acenaphthylene	3300	2900		1	88	44-122	01/16/2012 1311
Anthracene	3300	2600		1	77	50-119	01/16/2012 1311
Benzo(a)anthracene	3300	2600		1	77	47-121	01/16/2012 1311
Benzo(a)pyrene	3300	3000		1	90	55-134	01/16/2012 1311
Benzo(b)fluoranthene	3300	2800		1	85	28-139	01/16/2012 1311
Benzo(g,h,i)perylene	3300	2900		1	86	36-125	01/16/2012 1311
Benzo(k)fluoranthene	3300	2800		1	83	47-130	01/16/2012 1311
Chrysene	3300	2500		1	74	45-126	01/16/2012 1311
Dibenzo(a,h)anthracene	3300	2900		1	87	45-122	01/16/2012 1311
Fluoranthene	3300	2700		1	80	50-123	01/16/2012 1311
Fluorene	3300	2500		1	76	48-117	01/16/2012 1311
Indeno(1,2,3-c,d)pyrene	3300	2800		1	85	45-123	01/16/2012 1311
Naphthalene	3300	2400		1	71	36-110	01/16/2012 1311
Phenanthrene	3300	2500		1	76	49-117	01/16/2012 1311
Pyrene	3300	2600		1	79	47-119	01/16/2012 1311
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		76	33-102				
Nitrobenzene-d5		73	22-109				
Terphenyl-d14		74	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Shealy Environmental Services, Inc.
 106 Vantage Point Drive
 West Columbia, South Carolina 29172
 Telephone No. (803) 791-9700 Fax No. (803) 791-9111
 www.shealylab.com

Chain of Custody Record

Number 10737

Client: MTR		Report to Contact: CHERYL YUSHINSKI		Sampler (Printed Name): MARK FOKLIN		Quote No.
Address: 1600 Commerce Circle		Telephone No. / Fax No. / Email: 412-829-9650		Weybill No.		Page 1 of 1
City: TRAFFORD	State: PA	Zip Code: 15085	Preservative: 1. Urines, 4. HNO3 7. NaOH	Number of Containers		Number of Containers
Project Name: CONGAREE RIVER SEDIMENTS		2. NaOH/Zn 5. HCl		Bottle (See instructions on back)		Preservative
Project Number		3. H2SO4 6. Na Thio.		Lot No.		Lot No. NA 120
Sample ID / Description (Containers for each sample may be combined on one line)		Matrix		Remarks / Cooler ID		
Date		G = Grab C = Composite				
Time		GW DWWWF S				
Y-57		6		CONTACT CHERYL		
1/12/12 1110		✓		YUSHINSKI IF		
		Other (Sediment)		QUESTIONS ABOUT EXACT PARAMETERS		
		Analysis				
		BTEX -				
		B260 CozB				
		P270D				

Turn Around Time Required (Prior lab approval required for expedited TAT)	QC Requirements (Specify)	Possible Hazard Identification
<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush (Please Specify)	<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown	
1. Relinquished by Mark Foklin	1. Received by	Date
2. Relinquished by	2. Received by	Date
3. Relinquished by	3. Received by	Date
4. Relinquished by	4. Laboratory Received by <i>[Signature]</i>	Date 1-12-12
	LAB USE ONLY	Time 1130
	Received on Ice (Check) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Ice Pack <input type="checkbox"/> Receipt Temp. 37 °C	Temp. Blank <input type="checkbox"/> Y <input type="checkbox"/> N

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
 Document Number: F-AD-016
 Revision Number: 9

Page 1 of 1
 Replaces Date: 05/06/11
 Effective Date: 10/11/11

Sample Receipt Checklist (SRC)

Client: HTR Cooler Inspected by/date: tee 11/12/12 Lot #: NA/2017

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	1. Were custody seals present on the cooler?	
Yes <input type="checkbox"/>	No <input type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?	
Cooler ID/temperature upon receipt <u>3-7</u> °C <u>1</u> °C <u>1</u> °C <u>1</u> °C			
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____ . (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		5. Were proper custody procedures (relinquished/received) followed?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	5a Were samples relinquished by client to commercial courier?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		8. Were tests to be performed listed on the COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		12. Was adequate sample volume available?
Yes <input type="checkbox"/>	No <input type="checkbox"/>		13. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) _____.			
Sample(s) _____ were received with bubbles >6 mm in diameter.			
Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.			

Corrective Action taken, if necessary:

Was client notified: Yes No

Did client respond: Yes No

SESI employee: _____

Date of response: _____

Comments: _____

Report of Analysis

Management and Technical Resources, Inc.
1600 Commerce Circle
Trafford, PA 15085
Attention: Cheryl Yushenski

Project Name: Congaree River Sediments

Lot Number: NB01025
Date Completed: 02/15/2012



Nisreen Saikaly
Project Manager



This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

* NB01025 *

SHEALY ENVIRONMENTAL SERVICES, INC.

SC DHEC No: 32010

NELAC No: E87653

NC DENR No: 329

Case Narrative Management and Technical Resources, Inc. Lot Number: NB01025

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

SHEALY ENVIRONMENTAL SERVICES, INC.

Sample Summary Management and Technical Resources, Inc. Lot Number: NB01025

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	K-8	Solid	02/01/2012 1030	02/01/2012
002	L-7	Solid	02/01/2012 1240	02/01/2012
003	J-11.5	Solid	02/01/2012 1300	02/01/2012

(3 samples)

SHEALY ENVIRONMENTAL SERVICES, INC.

Executive Summary Management and Technical Resources, Inc. Lot Number: NB01025

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	K-8	Solid	Acenaphthene	8270D	3700		ug/kg	7
001	K-8	Solid	Acenaphthylene	8270D	890		ug/kg	7
001	K-8	Solid	Anthracene	8270D	1200		ug/kg	7
001	K-8	Solid	Benzo(a)anthracene	8270D	4300		ug/kg	7
001	K-8	Solid	Benzo(a)pyrene	8270D	4700		ug/kg	7
001	K-8	Solid	Benzo(b)fluoranthene	8270D	4200		ug/kg	7
001	K-8	Solid	Benzo(g,h,i)perylene	8270D	1900		ug/kg	7
001	K-8	Solid	Benzo(k)fluoranthene	8270D	1600		ug/kg	7
001	K-8	Solid	Chrysene	8270D	4000		ug/kg	7
001	K-8	Solid	Dibenzo(a,h)anthracene	8270D	440		ug/kg	7
001	K-8	Solid	Fluoranthene	8270D	8200		ug/kg	7
001	K-8	Solid	Fluorene	8270D	2400		ug/kg	7
001	K-8	Solid	Indeno(1,2,3-c,d)pyrene	8270D	1500		ug/kg	7
001	K-8	Solid	Naphthalene	8270D	150	J	ug/kg	7
001	K-8	Solid	Phenanthrene	8270D	9800		ug/kg	7
001	K-8	Solid	Pyrene	8270D	9100		ug/kg	7
002	L-7	Solid	Acenaphthene	8270D	47	J	ug/kg	9
002	L-7	Solid	Acenaphthylene	8270D	160	J	ug/kg	9
002	L-7	Solid	Anthracene	8270D	150	J	ug/kg	9
002	L-7	Solid	Benzo(a)anthracene	8270D	680		ug/kg	9
002	L-7	Solid	Benzo(a)pyrene	8270D	860		ug/kg	9
002	L-7	Solid	Benzo(b)fluoranthene	8270D	790		ug/kg	9
002	L-7	Solid	Benzo(g,h,i)perylene	8270D	500		ug/kg	9
002	L-7	Solid	Benzo(k)fluoranthene	8270D	350	J	ug/kg	9
002	L-7	Solid	Chrysene	8270D	700		ug/kg	9
002	L-7	Solid	Dibenzo(a,h)anthracene	8270D	100	J	ug/kg	9
002	L-7	Solid	Fluoranthene	8270D	950		ug/kg	9
002	L-7	Solid	Fluorene	8270D	61	J	ug/kg	9
002	L-7	Solid	Indeno(1,2,3-c,d)pyrene	8270D	370	J	ug/kg	9
002	L-7	Solid	Naphthalene	8270D	31	J	ug/kg	9
002	L-7	Solid	Phenanthrene	8270D	400	J	ug/kg	9
002	L-7	Solid	Pyrene	8270D	1400		ug/kg	9
003	J-11.5	Solid	Acenaphthene	8270D	44	J	ug/kg	11
003	J-11.5	Solid	Acenaphthylene	8270D	110	J	ug/kg	11
003	J-11.5	Solid	Anthracene	8270D	64	J	ug/kg	11
003	J-11.5	Solid	Benzo(a)anthracene	8270D	560		ug/kg	11
003	J-11.5	Solid	Benzo(a)pyrene	8270D	1000		ug/kg	11
003	J-11.5	Solid	Benzo(b)fluoranthene	8270D	970		ug/kg	11
003	J-11.5	Solid	Benzo(g,h,i)perylene	8270D	600		ug/kg	11
003	J-11.5	Solid	Benzo(k)fluoranthene	8270D	390	J	ug/kg	11
003	J-11.5	Solid	Chrysene	8270D	490	J	ug/kg	11
003	J-11.5	Solid	Dibenzo(a,h)anthracene	8270D	110	J	ug/kg	11
003	J-11.5	Solid	Fluoranthene	8270D	500	J	ug/kg	11
003	J-11.5	Solid	Fluorene	8270D	45	J	ug/kg	11
003	J-11.5	Solid	Indeno(1,2,3-c,d)pyrene	8270D	460	J	ug/kg	11

Executive Summary (Continued)

Lot Number: NB01025

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
003	J-11.5	Solid	Phenanthrene	8270D	190	J	ug/kg	11
003	J-11.5	Solid	Pyrene	8270D	650		ug/kg	11

(47 detections)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NB01025-001
Description: K-8	Matrix: Solid
Date Sampled: 02/01/2012 1030	% Solids: 79.2 02/02/2012 0035
Date Received: 02/01/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/07/2012 1524	DLB		77207	5.23

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		6.0	1.3	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		6.0	2.1	ug/kg	1
Toluene	108-88-3	8260B	ND		6.0	2.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		6.0	3.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	53-142
Bromofluorobenzene		81	47-138
Toluene-d8		93	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NB01025-001
Description: K-8	Matrix: Solid
Date Sampled: 02/01/2012 1030	% Solids: 79.2 02/02/2012 0035
Date Received: 02/01/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	02/03/2012 1904	TAF	02/02/2012 1318	76910
2	3550C	8270D	2	02/06/2012 1206	TAF	02/02/2012 1318	76910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	3700		410	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	890		410	16	ug/kg	1
Anthracene	120-12-7	8270D	1200		410	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	4300		410	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	4700		410	30	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	4200		410	28	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	1900		410	28	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	1600		410	34	ug/kg	1
Chrysene	218-01-9	8270D	4000		410	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	440		410	27	ug/kg	1
Fluoranthene	206-44-0	8270D	8200		410	13	ug/kg	1
Fluorene	86-73-7	8270D	2400		410	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	1500		410	37	ug/kg	1
Naphthalene	91-20-3	8270D	150	J	410	17	ug/kg	1
Phenanthrene	85-01-8	8270D	9800		410	17	ug/kg	1
Pyrene	129-00-0	8270D	9100		820	36	ug/kg	2

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
2-Fluorobiphenyl		61	33-102		56	33-102
Nitrobenzene-d5		42	22-109		37	22-109
Terphenyl-d14		66	41-120		55	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NB01025-002
Description: L-7	Matrix: Solid
Date Sampled: 02/01/2012 1240	% Solids: 80.0 02/02/2012 0035
Date Received: 02/01/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/07/2012 1548	DLB		77207	4.12

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		7.6	1.7	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		7.6	2.6	ug/kg	1
Toluene	108-88-3	8260B	ND		7.6	2.6	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		7.6	4.4	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	53-142
Bromofluorobenzene		82	47-138
Toluene-d8		93	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: NB01025-002

Description: L-7

Matrix: Solid

Date Sampled: 02/01/2012 1240

% Solids: 80.0 02/02/2012 0035

Date Received: 02/01/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	02/03/2012 1929	TAF	02/02/2012 1318	76910			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	47	J	410	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	160	J	410	16	ug/kg	1
Anthracene	120-12-7	8270D	150	J	410	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	680		410	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	860		410	30	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	790		410	28	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	500		410	28	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	350	J	410	34	ug/kg	1
Chrysene	218-01-9	8270D	700		410	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	100	J	410	27	ug/kg	1
Fluoranthene	206-44-0	8270D	950		410	13	ug/kg	1
Fluorene	86-73-7	8270D	61	J	410	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	370	J	410	37	ug/kg	1
Naphthalene	91-20-3	8270D	31	J	410	17	ug/kg	1
Phenanthrene	85-01-8	8270D	400	J	410	17	ug/kg	1
Pyrene	129-00-0	8270D	1400		410	18	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		65	33-102
Nitrobenzene-d5		49	22-109
Terphenyl-d14		66	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NB01025-003
Description: J-11.5	Matrix: Solid
Date Sampled: 02/01/2012 1300	% Solids: 62.6 02/02/2012 0035
Date Received: 02/01/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/07/2012 1612	DLB		77207	4.12

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		9.7	2.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		9.7	3.3	ug/kg	1
Toluene	108-88-3	8260B	ND		9.7	3.3	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		9.7	5.6	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	53-142
Bromofluorobenzene		93	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: NB01025-003

Description: J-11.5

Matrix: Solid

Date Sampled: 02/01/2012 1300

% Solids: 62.6 02/02/2012 0035

Date Received: 02/01/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	02/06/2012 1231	TAF	02/02/2012 1318	76910			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	44	J	520	16	ug/kg	1
Acenaphthylene	208-96-8	8270D	110	J	520	21	ug/kg	1
Anthracene	120-12-7	8270D	64	J	520	23	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	560		520	17	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	1000		520	38	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	970		520	35	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	600		520	35	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	390	J	520	43	ug/kg	1
Chrysene	218-01-9	8270D	490	J	520	16	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	110	J	520	35	ug/kg	1
Fluoranthene	206-44-0	8270D	500	J	520	16	ug/kg	1
Fluorene	86-73-7	8270D	45	J	520	20	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	460	J	520	47	ug/kg	1
Naphthalene	91-20-3	8270D	ND		520	22	ug/kg	1
Phenanthrene	85-01-8	8270D	190	J	520	21	ug/kg	1
Pyrene	129-00-0	8270D	650		520	23	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		48	33-102
Nitrobenzene-d5		36	22-109
Terphenyl-d14		52	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ77207-001

Matrix: Solid

Batch: 77207

Prep Method: 5035

Analytical Method: 8260B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	1.1	ug/kg	02/07/2012 1135
Ethylbenzene	ND		1	5.0	1.7	ug/kg	02/07/2012 1135
Toluene	ND		1	5.0	1.7	ug/kg	02/07/2012 1135
Xylenes (total)	ND		1	5.0	2.9	ug/kg	02/07/2012 1135
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		98	47-138				
1,2-Dichloroethane-d4		94	53-142				
Toluene-d8		98	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ77207-002

Matrix: Solid

Batch: 77207

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	44		1	89	69-123	02/07/2012 1001
Ethylbenzene	50	44		1	88	59-128	02/07/2012 1001
Toluene	50	43		1	86	61-129	02/07/2012 1001
Xylenes (total)	100	90		1	90	58-128	02/07/2012 1001
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		94	47-138				
1,2-Dichloroethane-d4		87	53-142				
Toluene-d8		102	68-124				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ77207-003

Matrix: Solid

Batch: 77207

Prep Method: 5035

Analytical Method: 8260B

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	49		1	99	10	69-123	20	02/07/2012 1025
Ethylbenzene	50	49		1	97	9.9	59-128	20	02/07/2012 1025
Toluene	50	48		1	95	10	61-129	20	02/07/2012 1025
Xylenes (total)	100	99		1	99	9.5	58-128	20	02/07/2012 1025
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		93	47-138						
1,2-Dichloroethane-d4		87	53-142						
Toluene-d8		102	68-124						

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MB

Sample ID: NQ76910-001

Matrix: Solid

Batch: 76910

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 02/02/2012 1318

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Acenaphthene	ND		1	330	10	ug/kg	02/03/2012 1814
Acenaphthylene	ND		1	330	13	ug/kg	02/03/2012 1814
Anthracene	ND		1	330	15	ug/kg	02/03/2012 1814
Benzo(a)anthracene	ND		1	330	11	ug/kg	02/03/2012 1814
Benzo(a)pyrene	ND		1	330	24	ug/kg	02/03/2012 1814
Benzo(b)fluoranthene	ND		1	330	22	ug/kg	02/03/2012 1814
Benzo(g,h,i)perylene	ND		1	330	23	ug/kg	02/03/2012 1814
Benzo(k)fluoranthene	ND		1	330	27	ug/kg	02/03/2012 1814
Chrysene	ND		1	330	10	ug/kg	02/03/2012 1814
Dibenzo(a,h)anthracene	ND		1	330	22	ug/kg	02/03/2012 1814
Fluoranthene	ND		1	330	10	ug/kg	02/03/2012 1814
Fluorene	ND		1	330	13	ug/kg	02/03/2012 1814
Indeno(1,2,3-c,d)pyrene	ND		1	330	30	ug/kg	02/03/2012 1814
Naphthalene	ND		1	330	14	ug/kg	02/03/2012 1814
Phenanthrene	ND		1	330	13	ug/kg	02/03/2012 1814
Pyrene	ND		1	330	14	ug/kg	02/03/2012 1814
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		70	33-102				
Nitrobenzene-d5		60	22-109				
Terphenyl-d14		76	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: NQ76910-002

Matrix: Solid

Batch: 76910

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 02/02/2012 1318

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	3300	2800		1	83	46-114	02/03/2012 1839
Acenaphthylene	3300	3200		1	95	44-122	02/03/2012 1839
Anthracene	3300	2800		1	85	50-119	02/03/2012 1839
Benzo(a)anthracene	3300	3000		1	89	47-121	02/03/2012 1839
Benzo(a)pyrene	3300	3200		1	95	55-134	02/03/2012 1839
Benzo(b)fluoranthene	3300	2900		1	88	28-139	02/03/2012 1839
Benzo(g,h,i)perylene	3300	2700		1	81	36-125	02/03/2012 1839
Benzo(k)fluoranthene	3300	3100		1	93	47-130	02/03/2012 1839
Chrysene	3300	2800		1	83	45-126	02/03/2012 1839
Dibenzo(a,h)anthracene	3300	2900		1	88	45-122	02/03/2012 1839
Fluoranthene	3300	2900		1	88	50-123	02/03/2012 1839
Fluorene	3300	2800		1	84	48-117	02/03/2012 1839
Indeno(1,2,3-c,d)pyrene	3300	2900		1	86	45-123	02/03/2012 1839
Naphthalene	3300	2400		1	71	36-110	02/03/2012 1839
Phenanthrene	3300	2800		1	84	49-117	02/03/2012 1839
Pyrene	3300	3000		1	89	47-119	02/03/2012 1839
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		79	33-102				
Nitrobenzene-d5		67	22-109				
Terphenyl-d14		78	41-120				

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MS

Sample ID: NB01025-002MS

Matrix: Solid

Batch: 76910

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 02/02/2012 1318

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	47	4000	3200		1	79	30-130	02/03/2012 1954
Acenaphthylene	160	4000	3600		1	85	30-130	02/03/2012 1954
Anthracene	150	4000	3200		1	75	30-130	02/03/2012 1954
Benzo(a)anthracene	680	4000	3700		1	75	30-130	02/03/2012 1954
Benzo(a)pyrene	860	4000	4100		1	81	30-130	02/03/2012 1954
Benzo(b)fluoranthene	790	4000	3900		1	78	30-130	02/03/2012 1954
Benzo(g,h,i)perylene	500	4000	3400		1	73	30-130	02/03/2012 1954
Benzo(k)fluoranthene	350	4000	3300		1	74	30-130	02/03/2012 1954
Chrysene	700	4000	3400		1	68	30-130	02/03/2012 1954
Dibenzo(a,h)anthracene	100	4000	3300		1	80	30-130	02/03/2012 1954
Fluoranthene	950	4000	3800		1	71	30-130	02/03/2012 1954
Fluorene	61	4000	3100		1	76	30-130	02/03/2012 1954
Indeno(1,2,3-c,d)pyrene	370	4000	3400		1	75	30-130	02/03/2012 1954
Naphthalene	31	4000	2700		1	65	30-130	02/03/2012 1954
Phenanthrene	400	4000	3300		1	72	30-130	02/03/2012 1954
Pyrene	1400	4000	4000		1	64	30-130	02/03/2012 1954
Surrogate	Q	% Rec	Acceptance Limit					
2-Fluorobiphenyl		71	33-102					
Nitrobenzene-d5		60	22-109					
Terphenyl-d14		69	41-120					

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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

Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: NB01025-002MD

Matrix: Solid

Batch: 76910

Prep Method: 3550C

Analytical Method: 8270D

Prep Date: 02/02/2012 1318

Parameter	Sample Amount (ug/kg)	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date	
Acenaphthene	47	4100	3000	1		72	6.5	30-130	40	02/03/2012 2019	
Acenaphthylene	160	4100	3400	1		78	5.4	30-130	40	02/03/2012 2019	
Anthracene	150	4100	3000	1		70	4.6	30-130	40	02/03/2012 2019	
Benzo(a)anthracene	680	4100	3900	1		77	3.9	30-130	40	02/03/2012 2019	
Benzo(a)pyrene	860	4100	4600	1		92	11	30-130	40	02/03/2012 2019	
Benzo(b)fluoranthene	790	4100	4200	1		84	7.1	30-130	40	02/03/2012 2019	
Benzo(g,h,i)perylene	500	4100	3600	1		75	4.4	30-130	40	02/03/2012 2019	
Benzo(k)fluoranthene	350	4100	3600	1		80	8.7	30-130	40	02/03/2012 2019	
Chrysene	700	4100	3600	1		71	4.6	30-130	40	02/03/2012 2019	
Dibenzo(a,h)anthracene	100	4100	3300	1		77	1.7	30-130	40	02/03/2012 2019	
Fluoranthene	950	4100	4000	1		75	6.1	30-130	40	02/03/2012 2019	
Fluorene	61	4100	2900	1		69	7.7	30-130	40	02/03/2012 2019	
Indeno(1,2,3-c,d)pyrene	370	4100	3500	1		76	2.7	30-130	40	02/03/2012 2019	
Naphthalene	31	4100	2300	1		55	15	30-130	40	02/03/2012 2019	
Phenanthrene	400	4100	3300	1		70	0.14	30-130	40	02/03/2012 2019	
Pyrene	1400	4100	4500	1		76	13	30-130	40	02/03/2012 2019	
Surrogate	Q	% Rec	Acceptance Limit								
2-Fluorobiphenyl		62	33-102								
Nitrobenzene-d5		48	22-109								
Terphenyl-d14		63	41-120								

PQL = Practical quantitation limit

P = The RPD between two GC columns exceeds 40%

N - Recovery is out of criteria

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

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



SHEALY Chain of Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.

106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number

Client MTR		Report to Contact CHEMEL YUSHINSKI		Telephone No. / Fax No. / E-mail 412-829-9650 mtr@shealy.com		Quote No.	
Address 1400 COMMERCE CIRCLE		Sampler's Signature <i>CHEMEL YUSHINSKI</i>		Waybill No.		Page 1 of 1	
City TRAFORD		Printed Name KAYLA JONES		Analysis (Attach list if more space is needed.)			
State PA		Project Name CONGARREE RIVER SEDIMENTS		Lot No. UB01025			
Zip Code 15085		P.O. No.		Remarks / Cooler I.D. CONTRACT CHEMEL			
Project No.		Matrix		No. of Containers by Preservative Type			
Sample ID / Description (Containers for each sample may be combined on one line.)		Original Composite		Liquid		Solid	
K-8		X		X		X	
L-7		X		X		X	
J-11.5		X		X		X	
Date		Time		Date		Time	
1030		2/1/12		1030		2/1/12	
1240		2/1/12		1240		2/1/12	
1300		2/1/12		1300		2/1/12	
Sample Disposal		Return to Client		Disposal by Lab		CC Requirements (Specify)	
Return to Client		Return to Client		Disposal by Lab		CC Requirements (Specify)	
Sample ID		Time		Date		Time	
K-8		1452		2/1/12		1452	
L-7		1440		2/1/12		1440	
J-11.5				2-1-12		1440	
Received by		Date		Received by		Date	
<i>Kayla Jones</i>		2/1/12		<i>[Signature]</i>		2-1-12	
Received by		Date		Received by		Date	
L-7		1440		2/1/12		1440	
J-11.5				2-1-12		1440	
LAB USE ONLY		Received on ice (Circle)		Yes		No	
LAB USE ONLY		Received on ice (Circle)		Yes		No	
Comments		Received Temp.		5-8		°C	
DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy		Document Number: FAD-012		Effective Date: 08/04/02			

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
Document Number: F-AD-016
Revision Number: 9

Page 1 of 1
Replaces Date: 05/06/11
Effective Date: 10/11/11

Sample Receipt Checklist (SRC)

Client: MTK Cooler Inspected by/date: W. A. J. / 12 Lot #: UB01025

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Airborne Exp <input type="checkbox"/> Other			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	1. Were custody seals present on the cooler?	
Yes <input type="checkbox"/>	No <input type="checkbox"/>	2. If custody seals were present, were they intact and unbroken?	
Cooler ID/temperature upon receipt <u>5-18</u> °C <u> </u> °C <u> </u> °C <u> </u> °C			
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles			
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: _____ (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	4. Is the commercial courier's packing slip attached to this form?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		5. Were proper custody procedures (relinquished/received) followed?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	5a Were samples relinquished by client to commercial courier?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		6. Were sample IDs listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		7. Was collection date & time listed?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		8. Were tests to be performed listed on the COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		9. Did all samples arrive in the proper containers for each test?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		10. Did all container label information (ID, date, time) agree with COC?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		12. Was adequate sample volume available?
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		14. Were any samples containers missing?
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		15. Were there any excess samples not listed on COC?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	16. Were bubbles present >"pea-size" (½" or 6mm in diameter) in any VOA vials?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	20. Were collection temperatures documented on the COC for NC samples?
Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)			
Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H ₂ SO ₄ , HNO ₃ , HCl, NaOH) with the SR # (number) _____			
Sample(s) _____ were received with bubbles >6 mm in diameter.			
Sample(s) _____ were received with TRC >0.2 mg/L for NH3/TKN/cyanide/BNA/pest/PCB/herb.			

Corrective Action taken, if necessary:

Was client notified: Yes No

Did client respond: Yes No

SESI employee: _____

Date of response: _____

Comments: _____

Memo

To: Rusty Contrael
From: Cheryl Yushinski
Date: March 11, 2011
Re: Evaluation of Analytical Data for Soil Samples Collected in February 2011
SCE&G Congaree River, Columbia, South Carolina

Sample Identification

I-17 J-19 K-19 L-19 O-17

Overview

Five soil samples were collected from February 22 through February 23, 2011.

The samples collected during the February 2011 sampling event were submitted to Shealy Environmental Services, Inc. (Shealy) located in West Columbia, South Carolina, for laboratory analyses. The laboratory analyses included BTEX (benzene, toluene, ethylbenzene and total xylenes) via EPA Method 8260B, PAHs (polynuclear aromatic hydrocarbons) by EPA Method 8270C. The analytical results were reported in one sample delivery group (SDG) – MB23028. A Level II data package was provided for the SDG.

Summary

Quality control (QC) measures associated with the analytical data were reviewed following the U.S. EPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) to determine the accuracy and precision of the data reported. These QC measures included sample preservation, holding times, laboratory blanks, surrogate recoveries, and laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results. Data usability is presented below.

Data Usability Results

The laboratory provided results with any confirmed detections that fell between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) being reported and qualified as estimated, "J". Any laboratory-qualified results with concentrations below the undiluted PQL value were reported as non-detects. Any

parameters with elevated detection limits without detections above the MDL were reported to the MDL or the undiluted PQL value (whichever was greater) and qualified as estimated, "UJ".

Recommendations for Data Usability

The reviewed QC results were reflective of typical minor QC exceedances and did not indicate that any significant problems existed with data precision and accuracy, as reported. All BTEX and PAH data should be considered usable for intended data uses including those data qualified as estimated, as these issues were generally very minor in nature.

Information Regarding Report Content

1. Glossary of Data Qualifier Codes
2. Attachment A - Shealy Data Summary Reports. This includes qualified results as originally reported by the laboratory with applicable qualifier codes as annotated by MTR.

GLOSSARY OF DATA QUALIFIER CODES

The following definitions provide a brief explanation of the national qualifiers assigned to results in the data review process.

CODES RELATING TO IDENTIFICATION

(Confidence concerning presence or absence of compounds.)

U = Indicates that the constituent was not detected at the reported detection limit.

(NO CODE) = Confirmed identification

UR = Indicates that the constituent was not detected above the reporting limit. However, the result is unusable due to the holding time being grossly exceeded.

R = Unusable Result. The sample results are considered unusable due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N = The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

CODES RELATED TO QUANTITATION

(Can be used for positive results and sample quantitation limits.)

J = Indicates an estimated value. The constituent was positively identified. However, the result was less than the quantitation limit but greater than zero; or based on the data evaluation, the associated result is an approximate concentration of the constituent in the sample.

UJ = Indicates that the constituent was not detected above the reporting limit. However, based on the data evaluation, the reported result is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the concentration of the constituent in the sample.

2

ATTACHMENT A

SHEALY DATA SUMMARY REPORT

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-001
Description: J-19	Matrix: Solid
Date Sampled: 02/22/2011 1300	% Solids: 79.1 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/24/2011 1728	DLB		53650	6.49
2	5035	8260B	50	03/01/2011 0644	LBS		53878	5.77

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	37		4.9	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	2200		270	93	ug/kg	2
Toluene	108-88-3	8260B	8.1		4.9	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	190		4.9	2.8	ug/kg	1

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	53-142		64	53-142
Bromofluorobenzene		109	47-138		66	47-138
Toluene-d8		105	68-124	N	64	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-001
Description: J-19	Matrix: Solid
Date Sampled: 02/22/2011 1300	% Solids: 79.1 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	2	03/01/2011 1955	JGH	02/28/2011 2022	53787
2	3550C	8270D	20	03/06/2011 0909	JGH	02/28/2011 2022	53787

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	58000		8300	250	ug/kg	2
Acenaphthylene	208-96-8	8270D	4500		830	33	ug/kg	1
Anthracene	120-12-7	8270D	41000		8300	370	ug/kg	2
Benzo(a)anthracene	56-55-3	8270D	29000		8300	270	ug/kg	2
Benzo(a)pyrene	50-32-8	8270D	34000		8300	600	ug/kg	2
Benzo(b)fluoranthene	205-99-2	8270D	18000		830	56	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	9500		830	56	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND	4/15 UJ	830	68	ug/kg	1
Chrysene	218-01-9	8270D	34000	CCY	8300	260	ug/kg	2
Dibenzo(a,h)anthracene	53-70-3	8270D	2400	3/10/11	830	55	ug/kg	1
Fluoranthene	206-44-0	8270D	51000		8300	260	ug/kg	2
Fluorene	86-73-7	8270D	35000		8300	320	ug/kg	2
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	7200		830	75	ug/kg	1
Naphthalene	91-20-3	8270D	82000		8300	350	ug/kg	2
Phenanthrene	85-01-8	8270D	150000		8300	340	ug/kg	2
Pyrene	129-00-0	8270D	92000		8300	360	ug/kg	2

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
2-Fluorobiphenyl		79	33-102		81	33-102
Nitrobenzene-d5		61	22-109		66	22-109
Terphenyl-d14		72	41-120		87	41-120

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-002
Description: K-19	Matrix: Solid
Date Sampled: 02/22/2011 1330	% Solids: 91.6 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/23/2011 2034	DLB		53530	5.22

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.2	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.2	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.2	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.2	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	53-142
Bromofluorobenzene		113	47-138
Toluene-d8		104	68-124

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MB23028-002

Description: K-19

Matrix: Solid

Date Sampled: 02/22/2011 1330

% Solids: 91.6 02/23/2011 2014

Date Received: 02/23/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	03/06/2011 0927	JGH	02/28/2011 2022	53787

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	890		340	10	ug/kg	1
Acenaphthylene	208-96-8	8270D	410		340	13	ug/kg	1
Anthracene	120-12-7	8270D	1800		340	15	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	1900		340	11	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	1900		340	25	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	1400		340	23	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	650		340	23	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	540		340	28	ug/kg	1
Chrysene	218-01-9	8270D	2100		340	10	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	420		340	22	ug/kg	1
Fluoranthene	206-44-0	8270D	3600		340	11	ug/kg	1
Fluorene	86-73-7	8270D	810		340	13	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	500		340	30	ug/kg	1
Naphthalene	91-20-3	8270D	ND		340	14	ug/kg	1
Phenanthrene	85-01-8	8270D	4800		340	14	ug/kg	1
Pyrene	129-00-0	8270D	5800		340	15	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		90	33-102
Nitrobenzene-d5		86	22-109
Terphenyl-d14		95	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-003
Description: L-19	Matrix: Solid
Date Sampled: 02/22/2011 1345	% Solids: 85.2 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/23/2011 2056	DLB		53530	5.70

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.1	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.1	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.1	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.1	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	53-142
Bromofluorobenzene		114	47-138
Toluene-d8		104	68-124

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank

J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-003
Description: L-19	Matrix: Solid
Date Sampled: 02/22/2011 1345	% Solids: 85.2 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	03/06/2011 0946	JGH	02/28/2011 2022	53787

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	210	J	370 U	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	96	J	370 U	15	ug/kg	1
Anthracene	120-12-7	8270D	310	J	370 U	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	270	J	370 U	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	320	J	370 U	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	190	J	370 U	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	120	J	370 U	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	130	J	370 U	31	ug/kg	1
Chrysene	218-01-9	8270D	280	J	370 U	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	350	J	370 U	25	ug/kg	1
Fluoranthene	206-44-0	8270D	450		370	12	ug/kg	1
Fluorene	86-73-7	8270D	170	J	370 U	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	81	J	370 U	34	ug/kg	1
Naphthalene	91-20-3	8270D	170	J	370 U	16	ug/kg	1
Phenanthrene	85-01-8	8270D	940		370	15	ug/kg	1
Pyrene	129-00-0	8270D	750		370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		86	33-102
Nitrobenzene-d5		84	22-109
Terphenyl-d14		90	41-120

CL4
3/10/11

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-004
Description: I-17	Matrix: Solid
Date Sampled: 02/23/2011 1000	% Solids: 59.9 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/24/2011 1750	DLB		53650	4.98

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	4.7	J	8.4	1.8	ug/kg	1
Ethylbenzene	100-41-4	8260B	5.5	J	8.4	2.8	ug/kg	1
Toluene	108-88-3	8260B	ND		8.4	2.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	58		8.4	4.9	ug/kg	1

see 3/14/11

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		94	53-142
Bromofluorobenzene		85	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-004
Description: I-17	Matrix: Solid
Date Sampled: 02/23/2011 1000	% Solids: 59.9 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	03/01/2011 2013	JGH	02/28/2011 2022	53787
2	3550C	8270D	20	03/06/2011 1005	JGH	02/28/2011 2022	53787

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	59000		11000	330	ug/kg	2
Acenaphthylene	208-96-8	8270D	4700		530	21	ug/kg	1
Anthracene	120-12-7	8270D	65000		11000	470	ug/kg	2
Benzo(a)anthracene	56-55-3	8270D	28000		11000	350	ug/kg	2
Benzo(a)pyrene	50-32-8	8270D	27000		11000	780	ug/kg	2
Benzo(b)fluoranthene	205-99-2	8270D	17000		11000	720	ug/kg	2
Benzo(g,h,i)perylene	191-24-2	8270D	7400		530	36	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	6600		530	44	ug/kg	1
Chrysene	218-01-9	8270D	26000		11000	330	ug/kg	2
Dibenzo(a,h)anthracene	53-70-3	8270D	1800		530	35	ug/kg	1
Fluoranthene	206-44-0	8270D	76000		11000	340	ug/kg	2
Fluorene	86-73-7	8270D	37000		11000	410	ug/kg	2
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	6800		530	48	ug/kg	1
Naphthalene	91-20-3	8270D	790		530	23	ug/kg	1
Phenanthrene	85-01-8	8270D	170000		11000	430	ug/kg	2
Pyrene	129-00-0	8270D	97000		11000	460	ug/kg	2

Surrogate	Run 1		Acceptance Limits	Run 2		Acceptance Limits
	Q	% Recovery		Q	% Recovery	
2-Fluorobiphenyl		73	33-102		75	33-102
Nitrobenzene-d5		67	22-109		62	22-109
Terphenyl-d14		58	41-120		73	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MB23028-005
Description: O-17	Matrix: Solid
Date Sampled: 02/23/2011 1015	% Solids: 87.9 02/23/2011 2014
Date Received: 02/23/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/23/2011 2118	DLB		53530	5.18

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.5	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.5	1.9	ug/kg	1
Toluene	108-88-3	8260B	ND		5.5	1.9	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.5	3.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	53-142
Bromofluorobenzene		116	47-138
Toluene-d8		106	68-124

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: **Management and Technical Resources, Inc.**

Laboratory ID: **MB23028-005**

Description: **O-17**

Matrix: **Solid**

Date Sampled: **02/23/2011 1015**

% Solids: **87.9 02/23/2011 2014**

Date Received: **02/23/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	03/01/2011 2032	JGH	02/28/2011 2022	53787

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	16	J	370	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		370	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		370	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		370	30	ug/kg	1
Chrysene	218-01-9	8270D	ND		370	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		370	24	ug/kg	1
Fluoranthene	206-44-0	8270D	18	J	370	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		370	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		370	16	ug/kg	1
Phenanthrene	85-01-8	8270D	19	J	370	15	ug/kg	1
Pyrene	129-00-0	8270D	27	J	370	16	ug/kg	1

(at 3/1/11)

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		69	33-102
Nitrobenzene-d5		66	22-109
Terphenyl-d14		65	41-120

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 H = Out of holding time

Memo

To: Rusty Contrael
From: Cheryl Yushinski
Date: August 17, 2011
Re: Evaluation of Analytical Data for Soil Samples Collected in July 2011
SCE&G Congaree River, Columbia, South Carolina

Sample Identification

H-24	I30	J14	L24	N36
I17	J8	K4	L30	N36.5
I20	J11	K20	M20	P36

Overview

Ten sediment and five soil samples were collected from July 19 through July 28, 2011 at the Congaree River Site.

The samples collected during the July 2011 sampling events were submitted to Shealy Environmental Services, Inc. (Shealy) located in West Columbia, South Carolina, for laboratory analyses. The laboratory analyses included BTEX (benzene, toluene, ethylbenzene and total xylenes) via EPA Method 8260B, PAHs (polynuclear aromatic hydrocarbons) by EPA Method 8270D. The analytical results were reported in three sample delivery groups (SDGs) – MG20083, MG21009 and MG28025. Level II data packages were provided for the SDG.

The laboratory created matrix spike/matrix spike duplicate (MS/MSD) samples from PAH sample L30 in SDG MG20083.

Summary

Quality control (QC) measures associated with the analytical data were reviewed following the U.S. EPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) to determine the accuracy and precision of the data reported. These QC measures included sample preservation, holding times, laboratory blanks, surrogate recoveries, laboratory control sample/laboratory control sample duplicate (LCS/LCSD) and MS/MSD results. Data usability is presented below.

Data Usability Results

The laboratory provided results with any confirmed detections that fell between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) being reported and qualified as estimated, "J". Any laboratory-qualified results with concentrations below the undiluted PQL value were reported as non-detects. Any parameters with elevated detection limits without detections above the MDL were reported to the MDL or the undiluted PQL value (whichever was greater) and qualified as estimated, "UJ".

Notes

It was noted that BTEX QC samples (method blank, LCS and LCSD) were provided in the SDG MG20083 from 8/04/11 even though the last BTEX sample was run on 7/26/2011. The majority of the BTEX samples were run on 7/22/2011 in SDG MG20083 and QC samples were provided from 7/22/2011.

In SDG MG21009, one BTEX relative percent difference (RPD) between the LCS and LCSD had a recovery above the control limits. Action was not needed since qualification is not based on LCS/LCSD results alone.

It was noted that two coolers arrived at the laboratory with temperatures outside the recommended temperature range of 4° C +/- 2° C. Action was not necessary since the samples were analyzed in a timely manner.

Recommendations for Data Usability

The reviewed QC results were reflective of typical minor QC exceedances and did not indicate that any significant problems existed with data precision and accuracy, as reported. All BTEX and PAH data should be considered usable for intended data uses including those data qualified as estimated, as these issues were generally very minor in nature.

Information Regarding Report Content

1. Glossary of Data Qualifier Codes
2. Attachment A - Shealy Data Summary Reports. This includes qualified results as originally reported by the laboratory with applicable qualifier codes as annotated by MTR.
3. Attachment B – Supporting Documentation

GLOSSARY OF DATA QUALIFIER CODES

The following definitions provide a brief explanation of the national qualifiers assigned to results in the data review process.

CODES RELATING TO IDENTIFICATION

(Confidence concerning presence or absence of compounds.)

U = Indicates that the constituent was not detected at the reported detection limit.

(NO CODE) = Confirmed identification

UR = Indicates that the constituent was not detected above the reporting limit. However, the result is unusable due to the holding time being grossly exceeded.

R = Unusable Result. The sample results are considered unusable due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N = The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

CODES RELATED TO QUANTITATION

(Can be used for positive results and sample quantitation limits.)

J = Indicates an estimated value. The constituent was positively identified. However, the result was less than the quantitation limit but greater than zero; or based on the data evaluation, the associated result is an approximate concentration of the constituent in the sample.

UJ = Indicates that the constituent was not detected above the reporting limit. However, based on the data evaluation, the reported result is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the concentration of the constituent in the sample.

2

ATTACHMENT A

SHEALY DATA SUMMARY REPORT

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-001
Description: N36	Matrix: Solid
Date Sampled: 07/19/2011 1430	% Solids: 83.1 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2030	JJG		64322	6.09

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.9	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.9	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		4.9	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.9	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	53-142
Bromofluorobenzene		102	47-138
Toluene-d8		110	68-124

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-001
Description: N36	Matrix: Solid
Date Sampled: 07/19/2011 1430	% Solids: 83.1 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	5	07/25/2011 2042	WD	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	3100		2000	60	ug/kg	1
Acenaphthylene	208-96-8	8270D	940	J	2000	78	ug/kg	1
Anthracene	120-12-7	8270D	6200		2000	87	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	7700		2000	65	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	8200		2000	140	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	7900		2000	130	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	3200		2000	130	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND <i>400 ug</i>		2000	160	ug/kg	1
Chrysene	218-01-9	8270D	8600		2000	62	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND <i>400 ug</i>		2000	130	ug/kg	1
Fluoranthene	206-44-0	8270D	13000		2000	62	ug/kg	1
Fluorene	86-73-7	8270D	3700		2000	76	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	2500		2000	180	ug/kg	1
Naphthalene	91-20-3	8270D	260 <i>400 ug</i>	J	2000	83	ug/kg	1
Phenanthrene	85-01-8	8270D	19000 <i>600</i>		2000	80	ug/kg	1
Pyrene	129-00-0	8270D	23000 <i>81/100</i>		2000	85	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		71	33-102
Nitrobenzene-d5		61	22-109
Terphenyl-d14		76	41-120

The results below the PQL were compared to the undiluted PQL of 400 ug/kg and the MDL, and reported to the larger of the two values.

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		N = Recovery is out of criteria
		H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-002
Description: N36.5	Matrix: Solid
Date Sampled: 07/19/2011 1430	% Solids: 78.3 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	50	07/26/2011 1418	SAS		64469	5.95

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	67	J	270	59	ug/kg	2
Ethylbenzene	100-41-4	8260B	4700		270	91	ug/kg	2
Toluene	108-88-3	8260B	190	J	270	91	ug/kg	2
Xylenes (total)	1330-20-7	8260B	1700		270	160	ug/kg	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	53-142
Bromofluorobenzene		77	47-138
Toluene-d8		90	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-002
Description: N36.5	Matrix: Solid
Date Sampled: 07/19/2011 1430	% Solids: 78.3 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	100	07/29/2011 1155	WD	07/22/2011 1845	64265
2	3550C	8270D	200	08/02/2011 2123	JGH	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	660000		41000	1300	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND/600000		41000	1600	ug/kg	1
Anthracene	120-12-7	8270D	460000		41000	1800	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	370000		41000	1400	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	390000		41000	3000	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	320000		41000	2800	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	150000		41000	2800	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND 340000		41000	3400	ug/kg	1
Chrysene	218-01-9	8270D	360000		41000	1300	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	33000	J	41000	2700	ug/kg	1
Fluoranthene	206-44-0	8270D	590000		41000	1300	ug/kg	1
Fluorene	86-73-7	8270D	450000		41000	1600	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	97000		41000	3700	ug/kg	1
Naphthalene	91-20-3	8270D	690000		41000	1700	ug/kg	1
Phenanthrene	85-01-8	8270D	1800000		33000	3400	ug/kg	2
Pyrene	129-00-0	8270D	1000000		41000	1800	ug/kg	1

Surrogate	Q	Run 1		Q	Run 2	
		% Recovery	Acceptance Limits		% Recovery	Acceptance Limits
2-Fluorobiphenyl	N	0.00	33-102	N	0.00	33-102
Nitrobenzene-d5	N	0.00	22-109	N	0.00	22-109
Terphenyl-d14	N	0.00	41-120		101	41-120

The results below the PQL were compared to the undiluted PQL of 410 ug/kg and the MDL, and reported to the larger of the two values.

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-003
Description: P36	Matrix: Solid
Date Sampled: 07/19/2011 1450	% Solids: 87.2 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2114	JJG		64322	6.60

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.3	0.96	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.3	1.5	ug/kg	1
Toluene	108-88-3	8260B	ND		4.3	1.5	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.3	2.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		84	53-142
Bromofluorobenzene		104	47-138
Toluene-d8		113	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Shealy Environmental Services, Inc.

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Page: 11 of 20
Level 1 Report v2.1

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-003
Description: P36	Matrix: Solid
Date Sampled: 07/19/2011 1450	% Solids: 87.2 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/02/2011 2143	JGH	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND 44	J	380	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	22	J	380	15	ug/kg	1
Anthracene	120-12-7	8270D	24	J	380	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	74	J	380	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	56	J	380	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	47	J	380	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	30	J	380	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		380	31	ug/kg	1
Chrysene	218-01-9	8270D	46	J	380	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		380	25	ug/kg	1
Fluoranthene	206-44-0	8270D	65	J	380	12	ug/kg	1
Fluorene	86-73-7	8270D	18	J	380	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		380	34	ug/kg	1
Naphthalene	91-20-3	8270D	230	J	380	16	ug/kg	1
Phenanthrene	85-01-8	8270D	77	J	380	15	ug/kg	1
Pyrene	129-00-0	8270D	110	J	380	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		81	33-102
Nitrobenzene-d5		69	22-109
Terphenyl-d14		91	41-120

The results were reported to the undiluted PQL of 380 ug/kg.

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-004
Description: L30	Matrix: Solid
Date Sampled: 07/20/2011 0945	% Solids: 86.3 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2136	JJG		64322	5.85

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	53-142
Bromofluorobenzene		108	47-138
Toluene-d8		116	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-004
Description: L30	Matrix: Solid
Date Sampled: 07/20/2011 0945	% Solids: 86.3 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/02/2011 2204	JGH	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND 77	J	360	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	14	J	360	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		360	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	53	J	360	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	36	J	360	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	34	J	360	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		360	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		360	30	ug/kg	1
Chrysene	218-01-9	8270D	32	J	360	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		360	24	ug/kg	1
Fluoranthene	206-44-0	8270D	40	J	360	11	ug/kg	1
Fluorene	86-73-7	8270D	23	J	360	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		360	33	ug/kg	1
Naphthalene	91-20-3	8270D	480		360	15	ug/kg	1
Phenanthrene	85-01-8	8270D	42	J	360	15	ug/kg	1
Pyrene	129-00-0	8270D	61	J	360	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		81	33-102
Nitrobenzene-d5		70	22-109
Terphenyl-d14		95	41-120

The results below the PQL were compared to the undiluted PQL of 360 ug/kg and the MDL, and reported to the larger of the two values.

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-005
Description: I30	Matrix: Solid
Date Sampled: 07/20/2011 1020	% Solids: 69.2 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2157	JJG		64322	5.85

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		6.2	1.4	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		6.2	2.1	ug/kg	1
Toluene	108-88-3	8260B	ND		6.2	2.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		6.2	3.6	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	53-142
Bromofluorobenzene		103	47-138
Toluene-d8		112	68-124

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-005
Description: I30	Matrix: Solid
Date Sampled: 07/20/2011 1020	% Solids: 69.2 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	07/25/2011 2246	WD	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND 420	J	470	14	ug/kg	1
Acenaphthylene	208-96-8	8270D	51	J	470	19	ug/kg	1
Anthracene	120-12-7	8270D	120	J	470	21	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	470		470	16	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	590		470	35	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	850		470	32	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND 390	J	470	32	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		470	39	ug/kg	1
Chrysene	218-01-9	8270D	640		470	15	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		470	31	ug/kg	1
Fluoranthene	206-44-0	8270D	900		470	15	ug/kg	1
Fluorene	86-73-7	8270D	ND 120	J	470	18	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	310	J	470	43	ug/kg	1
Naphthalene	91-20-3	8270D	57	J	470	20	ug/kg	1
Phenanthrene	85-01-8	8270D	710		470	19	ug/kg	1
Pyrene	129-00-0	8270D	1100		470	21	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		66	33-102
Nitrobenzene-d5		65	22-109
Terphenyl-d14		72	41-120

all changes Cor 8/10/11

The results below the PQL were reported to the PQL.

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-006
Description: H24	Matrix: Solid
Date Sampled: 07/20/2011 1350	% Solids: 77.1 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2219	JJG		64322	6.43

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	2.9	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		81	53-142
Bromofluorobenzene		98	47-138
Toluene-d8		99	68-124

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria
 H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-006
Description: H24	Matrix: Solid
Date Sampled: 07/20/2011 1350	% Solids: 77.1 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	07/25/2011 2306	WD	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND 220	J	410	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	110	J	410	16	ug/kg	1
Anthracene	120-12-7	8270D	220	J	410	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	570		410	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	710		410	30	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	920		410	28	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND 350	J	410	28	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		410	34	ug/kg	1
Chrysene	218-01-9	8270D	720		410	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		410	27	ug/kg	1
Fluoranthene	206-44-0	8270D	1000		410	13	ug/kg	1
Fluorene	86-73-7	8270D	ND 150	J	410	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	290	J	410	37	ug/kg	1
Naphthalene	91-20-3	8270D	25	J	410	17	ug/kg	1
Phenanthrene	85-01-8	8270D	650		410	17	ug/kg	1
Pyrene	129-00-0	8270D	1400		410	18	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		65	33-102
Nitrobenzene-d5		59	22-109
Terphenyl-d14		74	41-120

*@ B changes
0.17 8/1/11*

The results below the PQL were reported to the PQL.

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"	N = Recovery is out of criteria	H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-007
Description: L24	Matrix: Solid
Date Sampled: 07/20/2011 1420	% Solids: 75.8 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/22/2011 2241	JJG		64322	5.41

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	9.4		6.1	1.3	ug/kg	1
Ethylbenzene	100-41-4	8260B	62		6.1	2.1	ug/kg	1
Toluene	108-88-3	8260B	9.0		6.1	2.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	26		6.1	3.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	53-142
Bromofluorobenzene		93	47-138
Toluene-d8		107	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG20083-007
Description: L24	Matrix: Solid
Date Sampled: 07/20/2011 1420	% Solids: 75.8 07/20/2011 2151
Date Received: 07/20/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	07/25/2011 2327	WD	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND 310	J	430	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	290	J	430	17	ug/kg	1
Anthracene	120-12-7	8270D	430		430	19	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	1100		430	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	1300		430	31	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	1300		430	29	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	610		430	29	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		430	35	ug/kg	1
Chrysene	218-01-9	8270D	1300		430	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		430	28	ug/kg	1
Fluoranthene	206-44-0	8270D	1600		430	13	ug/kg	1
Fluorene	86-73-7	8270D	290	J	430	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	460		430	39	ug/kg	1
Naphthalene	91-20-3	8270D	120	J	430	18	ug/kg	1
Phenanthrene	85-01-8	8270D	1700		430	17	ug/kg	1
Pyrene	129-00-0	8270D	3000		430	19	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		58	33-102
Nitrobenzene-d5		50	22-109
Terphenyl-d14		71	41-120

The results below the PQL were reported to the PQL.

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG21009-001
Description: M-20	Matrix: Solid
Date Sampled: 07/21/2011 0820	% Solids: 80.7 07/21/2011 2053
Date Received: 07/21/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	1	07/26/2011 1607	SAS		64470	6.23

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	1.1	ug/kg	2
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/kg	2
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/kg	2
Xylenes (total)	1330-20-7	8260B	ND		5.0	2.9	ug/kg	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		92	53-142
Bromofluorobenzene		95	47-138
Toluene-d8		109	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: **Management and Technical Resources, Inc.**

Laboratory ID: **MG21009-001**

Description: **M-20**

Matrix: **Solid**

Date Sampled: **07/21/2011 0820**

% Solids: **80.7 07/21/2011 2053**

Date Received: **07/21/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	07/26/2011 0007	WD	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		390	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		390	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		390	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		390	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		390	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	<i>ND</i> 36	J	390	26	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		390	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	<i>ND</i>		390	32	ug/kg	1
Chrysene	218-01-9	8270D	<i>ND</i>		390	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	<i>ND</i>		390	26	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		390	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		390	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		390	35	ug/kg	1
Naphthalene	91-20-3	8270D	<i>ND</i> 24	J	390	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		390	16	ug/kg	1
Pyrene	129-00-0	8270D	ND		390	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		61	33-102
Nitrobenzene-d5		60	22-109
Terphenyl-d14		68	41-120

The results below the PQL were reported to the PQL.

PQL = Practical quantitation limit
 ND = Not detected at or above the MDL
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
 J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
 P = The RPD between two GC columns exceeds 40%
 N = Recovery is out of criteria
 H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG21009-002
Description: K-20	Matrix: Solid
Date Sampled: 07/21/2011 0810	% Solids: 79.7 07/21/2011 2053
Date Received: 07/21/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/25/2011 1759	BM		64394	6.07

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.2	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.2	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.2	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.2	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	53-142
Bromofluorobenzene		102	47-138
Toluene-d8		104	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG21009-002
Description: K-20	Matrix: Solid
Date Sampled: 07/21/2011 0810	% Solids: 79.7 07/21/2011 2053
Date Received: 07/21/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/03/2011 0641	JGH	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND 85	J	400	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	170	J	400	16	ug/kg	1
Anthracene	120-12-7	8270D	220	J	400	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	830		400	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	920		400	29	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	740		400	27	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND 360	J	400	27	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND 370	J	400	33	ug/kg	1
Chrysene	218-01-9	8270D	770		400	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND 85	J	400	27	ug/kg	1
Fluoranthene	206-44-0	8270D	1200		400	13	ug/kg	1
Fluorene	86-73-7	8270D	ND 87	J	400	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	290	J	400	36	ug/kg	1
Naphthalene	91-20-3	8270D	37	J	400	17	ug/kg	1
Phenanthrene	85-01-8	8270D	490		400	16	ug/kg	1
Pyrene	129-00-0	8270D	1700		400	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		41	33-102
Nitrobenzene-d5		35	22-109
Terphenyl-d14		45	41-120

all results below PQL were reported to the PQL

The results below the PQL were reported to the PQL.

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"		N = Recovery is out of criteria
		H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG21009-003
Description: I-20	Matrix: Solid
Date Sampled: 07/21/2011 0750	% Solids: 84.5 07/21/2011 2053
Date Received: 07/21/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	07/25/2011 1821	BM		64394	6.40

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		4.6	1.0	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		4.6	1.6	ug/kg	1
Toluene	108-88-3	8260B	ND		4.6	1.6	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		4.6	2.7	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	53-142
Bromofluorobenzene		99	47-138
Toluene-d8		111	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: **Management and Technical Resources, Inc.**

Laboratory ID: **MG21009-003**

Description: **I-20**

Matrix: **Solid**

Date Sampled: **07/21/2011 0750**

% Solids: **84.5 07/21/2011 2053**

Date Received: **07/21/2011**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	07/26/2011 0048	WD	07/22/2011 1845	64265

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		380	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		380	15	ug/kg	1
Anthracene	120-12-7	8270D	ND 83	J	380	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	390		380	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND 360	J	380	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	630		380	26	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND 270	J	380	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		380	32	ug/kg	1
Chrysene	218-01-9	8270D	420		380	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		380	25	ug/kg	1
Fluoranthene	206-44-0	8270D	770		380	12	ug/kg	1
Fluorene	86-73-7	8270D	ND 28	J	380	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	220	J	380	35	ug/kg	1
Naphthalene	91-20-3	8270D	42	J	380	16	ug/kg	1
Phenanthrene	85-01-8	8270D	490		380	16	ug/kg	1
Pyrene	129-00-0	8270D	770		380	17	ug/kg	1

*all data
CLY 8/1/11*

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		66	33-102
Nitrobenzene-d5		64	22-109
Terphenyl-d14		66	41-120

The results below the PQL were reported to the PQL.

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-001
Description: J8 (20-23)	Matrix: Solid
Date Sampled: 07/27/2011 1245	% Solids: 84.0 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/01/2011 1957	SAS		64800	5.83

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.1	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.1	1.7	ug/kg	1
Toluene	108-88-3	8260B	ND		5.1	1.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.1	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	53-142
Bromofluorobenzene		93	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-001
Description: J8 (20-23)	Matrix: Solid
Date Sampled: 07/27/2011 1245	% Solids: 84.0 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/03/2011 0420	JGH	08/01/2011 2010	64808

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		370	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		370	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		370	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		370	30	ug/kg	1
Chrysene	218-01-9	8270D	ND		370	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		370	25	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		370	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		370	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		370	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		370	15	ug/kg	1
Pyrene	129-00-0	8270D	ND		370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		37	33-102
Nitrobenzene-d5		34	22-109
Terphenyl-d14		49	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-002
Description: J11 (17-21)	Matrix: Solid
Date Sampled: 07/27/2011 1545	% Solids: 64.8 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	1	08/05/2011 0738	DLB		65109	6.09

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		6.3	1.4	ug/kg	2
Ethylbenzene	100-41-4	8260B	ND		6.3	2.2	ug/kg	2
Toluene	108-88-3	8260B	ND		6.3	2.2	ug/kg	2
Xylenes (total)	1330-20-7	8260B	ND		6.3	3.7	ug/kg	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		85	53-142
Bromofluorobenzene		86	47-138
Toluene-d8		96	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-002
Description: J11 (17-21)	Matrix: Solid
Date Sampled: 07/27/2011 1545	% Solids: 64.8 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/03/2011 0440	JGH	08/01/2011 2010	64808

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		510	16	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		510	20	ug/kg	1
Anthracene	120-12-7	8270D	ND		510	23	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		510	17	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		510	37	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		510	34	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		510	35	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		510	42	ug/kg	1
Chrysene	218-01-9	8270D	ND		510	16	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		510	34	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		510	16	ug/kg	1
Fluorene	86-73-7	8270D	ND		510	20	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		510	46	ug/kg	1
Naphthalene	91-20-3	8270D	ND		510	21	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		510	21	ug/kg	1
Pyrene	129-00-0	8270D	ND		510	22	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		39	33-102
Nitrobenzene-d5		36	22-109
Terphenyl-d14		47	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-003
Description: J14 (17.5-22)	Matrix: Solid
Date Sampled: 07/27/2011 1700	% Solids: 69.4 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
2	5035	8260B	1	08/05/2011 0759	DLB		65109	6.35

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.7	1.2	ug/kg	2
Ethylbenzene	100-41-4	8260B	ND		5.7	1.9	ug/kg	2
Toluene	108-88-3	8260B	ND		5.7	1.9	ug/kg	2
Xylenes (total)	1330-20-7	8260B	ND		5.7	3.3	ug/kg	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	53-142
Bromofluorobenzene		80	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-003
Description: J14 (17.5-22)	Matrix: Solid
Date Sampled: 07/27/2011 1700	% Solids: 69.4 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/03/2011 0500	JGH	08/01/2011 2010	64808

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		460	14	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		460	18	ug/kg	1
Anthracene	120-12-7	8270D	ND		460	20	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		460	15	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		460	33	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		460	31	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		460	31	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		460	38	ug/kg	1
Chrysene	218-01-9	8270D	ND		460	14	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		460	30	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		460	14	ug/kg	1
Fluorene	86-73-7	8270D	ND		460	18	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		460	41	ug/kg	1
Naphthalene	91-20-3	8270D	ND		460	19	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		460	19	ug/kg	1
Pyrene	129-00-0	8270D	ND		460	20	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		37	33-102
Nitrobenzene-d5		33	22-109
Terphenyl-d14		45	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-004
Description: K4 (12-14)	Matrix: Solid
Date Sampled: 07/28/2011 1020	% Solids: 86.3 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/05/2011 0820	DLB		65109	4.63

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		6.3	1.4	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		6.3	2.1	ug/kg	1
Toluene	108-88-3	8260B	ND		6.3	2.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		6.3	3.6	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	53-142
Bromofluorobenzene		94	47-138
Toluene-d8		98	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-004
Description: K4 (12-14)	Matrix: Solid
Date Sampled: 07/28/2011 1020	% Solids: 86.3 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/03/2011 0521	JGH	08/01/2011 2010	64808

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		380	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND 33	J	380	15	ug/kg	1
Anthracene	120-12-7	8270D	26	J	380	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	62	J	380	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	44	J	380	28	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	39	J	380	26	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		380	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		380	31	ug/kg	1
Chrysene	218-01-9	8270D	ND 45	J	380	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		380	25	ug/kg	1
Fluoranthene	206-44-0	8270D	ND 110	J	380	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		380	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		380	34	ug/kg	1
Naphthalene	91-20-3	8270D	ND		380	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND 78	J	380	15	ug/kg	1
Pyrene	129-00-0	8270D	ND 150	J	380	17	ug/kg	1

*all edits
PL 8/1/11*

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		39	33-102
Nitrobenzene-d5		35	22-109
Terphenyl-d14		48	41-120

The results below the PQL were reported to the PQL.

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"	N = Recovery is out of criteria	H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-005
Description: I17 (22-26)	Matrix: Solid
Date Sampled: 07/28/2011 1230	% Solids: 73.4 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/05/2011 0841	DLB		65109	5.94

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.7	1.3	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.7	2.0	ug/kg	1
Toluene	108-88-3	8260B	ND		5.7	2.0	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.7	3.3	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	53-142
Bromofluorobenzene		85	47-138
Toluene-d8		98	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MG28025-005
Description: I17 (22-26)	Matrix: Solid
Date Sampled: 07/28/2011 1230	% Solids: 73.4 07/28/2011 2222
Date Received: 07/28/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/03/2011 0541	JGH	08/01/2011 2010	64808

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		440	14	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		440	18	ug/kg	1
Anthracene	120-12-7	8270D	ND		440	20	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		440	15	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		440	32	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		440	30	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		440	30	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		440	37	ug/kg	1
Chrysene	218-01-9	8270D	ND		440	14	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		440	29	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		440	14	ug/kg	1
Fluorene	86-73-7	8270D	ND		440	17	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		440	40	ug/kg	1
Naphthalene	91-20-3	8270D	ND		440	19	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		440	18	ug/kg	1
Pyrene	129-00-0	8270D	ND		440	19	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		40	33-102
Nitrobenzene-d5		36	22-109
Terphenyl-d14		46	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40%
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" N = Recovery is out of criteria H = Out of holding time

Memo

To: Rusty Contrael
From: Cheryl Yushinski
Date: August 23, 2011
Re: Evaluation of Analytical Data for Sediment Samples Collected in August 2011
SCE&G Congaree River, Columbia, South Carolina

Sample Identification

CR-1 CR-4 CR-7 CR-9

Overview

Four sediment samples were collected on August 10, 2011 at the Congaree River Site.

The samples collected during the August 2011 sampling event were submitted to Shealy Environmental Services, Inc. (Shealy) located in West Columbia, South Carolina, for laboratory analyses. The laboratory analyses included BTEX (benzene, toluene, ethylbenzene and total xylenes) via EPA Method 8260B, PAHs (polynuclear aromatic hydrocarbons) by EPA Method 8270D. The analytical results were reported in one sample delivery group (SDG) – MH10046. A Level II data package was provided for the SDG.

The laboratory created matrix spike/matrix spike duplicate (MS/MSD) samples from PAH sample CR-1.

Summary

Quality control (QC) measures associated with the analytical data were reviewed following the U.S. EPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) to determine the accuracy and precision of the data reported. These QC measures included sample preservation, holding times, laboratory blanks, surrogate recoveries, laboratory control sample/laboratory control sample duplicate (LCS/LCSD) and MS/MSD results. Data usability is presented below.

Data Usability Results

The laboratory provided results with any confirmed detections that fell between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) being reported and qualified as estimated, "J". Any laboratory-qualified results with concentrations below the undiluted PQL value were reported as non-detects.

Recommendations for Data Usability

All BTEX and PAH data should be considered usable for intended data uses.

Information Regarding Report Content

1. Glossary of Data Qualifier Codes
2. Attachment A - Shealy Data Summary Reports. This includes qualified results as originally reported by the laboratory with applicable qualifier codes as annotated by MTR.

GLOSSARY OF DATA QUALIFIER CODES

The following definitions provide a brief explanation of the national qualifiers assigned to results in the data review process.

CODES RELATING TO IDENTIFICATION

(Confidence concerning presence or absence of compounds.)

U = Indicates that the constituent was not detected at the reported detection limit.

(NO CODE) = Confirmed identification

UR = Indicates that the constituent was not detected above the reporting limit. However, the result is unusable due to the holding time being grossly exceeded.

R = Unusable Result. The sample results are considered unusable due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N = The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

CODES RELATED TO QUANTITATION

(Can be used for positive results and sample quantitation limits.)

J = Indicates an estimated value. The constituent was positively identified. However, the result was less than the quantitation limit but greater than zero; or based on the data evaluation, the associated result is an approximate concentration of the constituent in the sample.

UJ = Indicates that the constituent was not detected above the reporting limit. However, based on the data evaluation, the reported result is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the concentration of the constituent in the sample.

2

ATTACHMENT A

SHEALY DATA SUMMARY REPORT

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-001
Description: CR-4	Matrix: Solid
Date Sampled: 08/10/2011 0845	% Solids: 81.6 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/11/2011 1326	SAS		65534	3.42

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		9.0	2.0	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		9.0	3.0	ug/kg	1
Toluene	108-88-3	8260B	ND		9.0	3.0	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		9.0	5.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		116	53-142
Bromofluorobenzene		102	47-138
Toluene-d8		97	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-001
Description: CR-4	Matrix: Solid
Date Sampled: 08/10/2011 0845	% Solids: 81.6 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/17/2011 2011	JWS	08/16/2011 1757	65820

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		400	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		400	16	ug/kg	1
Anthracene	120-12-7	8270D	ND		400	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		400	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		400	29	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		400	27	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		400	27	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		400	33	ug/kg	1
Chrysene	218-01-9	8270D	ND		400	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		400	27	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		400	13	ug/kg	1
Fluorene	86-73-7	8270D	ND		400	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		400	36	ug/kg	1
Naphthalene	91-20-3	8270D	ND		400	17	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		400	16	ug/kg	1
Pyrene	129-00-0	8270D	ND		400	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		57	33-102
Nitrobenzene-d5		60	22-109
Terphenyl-d14		70	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-002
Description: CR-7	Matrix: Solid
Date Sampled: 08/10/2011 0930	% Solids: 80.4 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/11/2011 1348	SAS		65534	3.96

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		7.9	1.7	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		7.9	2.7	ug/kg	1
Toluene	108-88-3	8260B	ND		7.9	2.7	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		7.9	4.6	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		119	53-142
Bromofluorobenzene		101	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: MH10046-002

Description: CR-7

Matrix: Solid

Date Sampled: 08/10/2011 0930

% Solids: 80.4 08/10/2011 2314

Date Received: 08/10/2011

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/17/2011 2030	JWS	08/16/2011 1757	65820

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		400	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		400	16	ug/kg	1
Anthracene	120-12-7	8270D	ND		400	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND 50	J	400	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		400	29	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND 43	J	400	27	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		400	27	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		400	33	ug/kg	1
Chrysene	218-01-9	8270D	ND 45	J	400	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		400	26	ug/kg	1
Fluoranthene	206-44-0	8270D	ND 51	J	400	13	ug/kg	1
Fluorene	86-73-7	8270D	ND		400	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		400	36	ug/kg	1
Naphthalene	91-20-3	8270D	ND		400	17	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		400	16	ug/kg	1
Pyrene	129-00-0	8270D	ND 89	J	400	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		69	33-102
Nitrobenzene-d5		69	22-109
Terphenyl-d14		77	41-120

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8/23/11

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-003
Description: CR-9	Matrix: Solid
Date Sampled: 08/10/2011 0950	% Solids: 88.3 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/11/2011 1410	SAS		65534	3.00

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		9.4	2.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		9.4	3.2	ug/kg	1
Toluene	108-88-3	8260B	ND		9.4	3.2	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		9.4	5.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		124	53-142
Bromofluorobenzene		103	47-138
Toluene-d8		100	68-124

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank

J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-003
Description: CR-9	Matrix: Solid
Date Sampled: 08/10/2011 0950	% Solids: 88.3 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/17/2011 2049	JWS	08/16/2011 1757	65820

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		370	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		370	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		370	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		370	30	ug/kg	1
Chrysene	218-01-9	8270D	ND		370	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		370	24	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		370	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		370	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		370	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		370	15	ug/kg	1
Pyrene	129-00-0	8270D	ND		370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		57	33-102
Nitrobenzene-d5		61	22-109
Terphenyl-d14		68	41-120

PQL = Practical quantitation limit

ND = Not detected at or above the MDL

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank

J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

H = Out of holding time

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-004
Description: CR-1	Matrix: Solid
Date Sampled: 08/10/2011 0750	% Solids: 78.2 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	08/11/2011 1432	SAS		65534	3.87

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		8.3	1.8	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		8.3	2.8	ug/kg	1
Toluene	108-88-3	8260B	ND		8.3	2.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		8.3	4.8	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		129	53-142
Bromofluorobenzene		104	47-138
Toluene-d8		100	68-124

PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the MDL	J = Estimated result < PQL and ≥ MDL	P = The RPD between two GC columns exceeds 40%
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"	N = Recovery is out of criteria	H = Out of holding time

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: MH10046-004
Description: CR-1	Matrix: Solid
Date Sampled: 08/10/2011 0750	% Solids: 78.2 08/10/2011 2314
Date Received: 08/10/2011	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	08/17/2011 2108	JWS	08/16/2011 1757	65820

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		400	12	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		400	16	ug/kg	1
Anthracene	120-12-7	8270D	<i>ND 25</i>	<i>J</i>	400	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	<i>ND 230</i>	<i>J</i>	400	13	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	<i>ND 260</i>	<i>J</i>	400	29	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	410		400	27	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	<i>ND 190</i>	<i>J</i>	400	27	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		400	33	ug/kg	1
Chrysene	218-01-9	8270D	<i>ND 330</i>	<i>J</i>	400	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		400	27	ug/kg	1
Fluoranthene	206-44-0	8270D	640		400	13	ug/kg	1
Fluorene	86-73-7	8270D	ND		400	15	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	<i>ND 160</i>	<i>J</i>	400	36	ug/kg	1
Naphthalene	91-20-3	8270D	ND		400	17	ug/kg	1
Phenanthrene	85-01-8	8270D	<i>ND 190</i>	<i>J</i>	400	16	ug/kg	1
Pyrene	129-00-0	8270D	480		400	17	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		57	33-102
Nitrobenzene-d5		59	22-109
Terphenyl-d14		67	41-120

*601
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PQL = Practical quantitation limit	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range
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Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"	N = Recovery is out of criteria	H = Out of holding time

Memo

To: Rusty Contrael

From: Cheryl Yushinski

Date: January 27, 2012

Re: Evaluation of Analytical Data for Sediment Samples Collected in January 27, 2012
SCE&G Congaree River, Columbia, South Carolina

Sample Identification

AK-80

AM-71.5

AQ-71.5

Y-57

Overview

Four sediment samples were collected on January 10 and January 12, 2012 at the Congaree River Site.

The samples collected during the January 2012 sampling event were submitted to Shealy Environmental Services, Inc. (Shealy) located in West Columbia, South Carolina, for laboratory analyses. The laboratory analyses included BTEX (benzene, toluene, ethylbenzene and total xylenes) via EPA Method 8260B, PAHs (polynuclear aromatic hydrocarbons) by EPA Method 8270D. The analytical results were reported in two sample delivery groups (SDG) – NA11018 and NA12017. Level II data packages were provided for the SDGs.

Summary

Quality control (QC) measures associated with the analytical data were reviewed following the U.S. EPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) to determine the accuracy and precision of the data reported. These QC measures included sample preservation, holding times, laboratory blanks, surrogate recoveries and laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results. Data usability is presented below.

Data Usability Results

The laboratory provided results with any confirmed detections that fell between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) being reported and qualified as estimated, "J". Any laboratory-qualified results with concentrations below the undiluted PQL value were reported as non-detects.

Recommendations for Data Usability

All BTEX and PAH data should be considered usable for intended data uses.

Information Regarding Report Content

1. Glossary of Data Qualifier Codes
2. Attachment A - Shealy Data Summary Reports. This includes qualified results as originally reported by the laboratory with applicable qualifier codes as annotated by MTR.

GLOSSARY OF DATA QUALIFIER CODES

The following definitions provide a brief explanation of the national qualifiers assigned to results in the data review process.

CODES RELATING TO IDENTIFICATION

(Confidence concerning presence or absence of compounds.)

U = Indicates that the constituent was not detected at the reported detection limit.

(NO CODE) = Confirmed identification

UR = Indicates that the constituent was not detected above the reporting limit. However, the result is unusable due to the holding time being grossly exceeded.

R = Unusable Result. The sample results are considered unusable due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N = The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

CODES RELATED TO QUANTITATION

(Can be used for positive results and sample quantitation limits.)

J = Indicates an estimated value. The constituent was positively identified. However, the result was less than the quantitation limit but greater than zero; or based on the data evaluation, the associated result is an approximate concentration of the constituent in the sample.

UJ = Indicates that the constituent was not detected above the reporting limit. However, based on the data evaluation, the reported result is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the concentration of the constituent in the sample.

2

ATTACHMENT A

SHEALY DATA SUMMARY REPORT

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA11018-001
Description: AK-80	Matrix: Solid
Date Sampled: 01/10/2012 1530	% Solids: 87.9 01/11/2012 2323
Date Received: 01/11/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/16/2012 1319	BM		75735	5.09

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.6	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.6	1.9	ug/kg	1
Toluene	108-88-3	8260B	ND		5.6	1.9	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.6	3.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		85	53-142
Bromofluorobenzene		113	47-138
Toluene-d8		92	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA11018-001
Description: AK-80	Matrix: Solid
Date Sampled: 01/10/2012 1530	% Solids: 87.9 01/11/2012 2323
Date Received: 01/11/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/16/2012 1949	JCG	01/13/2012 1647	75652

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		360	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		360	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		360	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	ND		360	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		360	26	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		360	24	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		360	24	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		360	29	ug/kg	1
Chrysene	218-01-9	8270D	ND		360	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		360	24	ug/kg	1
Fluoranthene	206-44-0	8270D	ND		360	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		360	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		360	32	ug/kg	1
Naphthalene	91-20-3	8270D	ND		360	15	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		360	15	ug/kg	1
Pyrene	129-00-0	8270D	ND		360	15	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		94	33-102
Nitrobenzene-d5		82	22-109
Terphenyl-d14		88	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA11018-002
Description: AM-71.5	Matrix: Solid
Date Sampled: 01/10/2012 1700	% Solids: 87.7 01/11/2012 2323
Date Received: 01/11/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/16/2012 1343	BM		75735	5.26

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.4	1.2	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.4	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.4	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.4	3.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	53-142
Bromofluorobenzene		113	47-138
Toluene-d8		92	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA11018-002
Description: AM-71.5	Matrix: Solid
Date Sampled: 01/10/2012 1700	% Solids: 87.7 01/11/2012 2323
Date Received: 01/11/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch				
1	3550C	8270D	1	01/16/2012 2014	JCG	01/13/2012 1647	75652				

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		370	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		370	15	ug/kg	1
Anthracene	120-12-7	8270D	ND		370	17	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	<i>ND 27-J</i>		370	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		370	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		370	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		370	26	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		370	31	ug/kg	1
Chrysene	218-01-9	8270D	ND		370	12	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		370	25	ug/kg	1
Fluoranthene	206-44-0	8270D	<i>ND 13-J</i>		370	12	ug/kg	1
Fluorene	86-73-7	8270D	ND		370	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		370	34	ug/kg	1
Naphthalene	91-20-3	8270D	ND		370	16	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		370	15	ug/kg	1
Pyrene	129-00-0	8270D	<i>ND 20-J</i>		370	16	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		91	33-102
Nitrobenzene-d5		83	22-109
Terphenyl-d14		85	41-120

*air changes
CLY 1/27/12*

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA11018-003
Description: AQ-71.5	Matrix: Solid
Date Sampled: 01/10/2012 1710	% Solids: 90.6 01/11/2012 2323
Date Received: 01/11/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/16/2012 1407	BM		75735	5.36

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.1	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.1	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.1	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.1	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		90	53-142
Bromofluorobenzene		111	47-138
Toluene-d8		93	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA11018-003
Description: AQ-71.5	Matrix: Solid
Date Sampled: 01/10/2012 1710	% Solids: 90.6 01/11/2012 2323
Date Received: 01/11/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3550C	8270D	1	01/16/2012 2038	JCG	01/13/2012 1647	75652			

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		350	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		350	14	ug/kg	1
Anthracene	120-12-7	8270D	ND		350	15	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	<i>ND</i>	<i>25-J</i>	350	11	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	ND		350	25	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		350	23	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		350	24	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		350	29	ug/kg	1
Chrysene	218-01-9	8270D	ND		350	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		350	23	ug/kg	1
Fluoranthene	206-44-0	8270D	<i>ND</i>	<i>22-J</i>	350	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		350	13	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		350	31	ug/kg	1
Naphthalene	91-20-3	8270D	ND		350	15	ug/kg	1
Phenanthrene	85-01-8	8270D	ND		350	14	ug/kg	1
Pyrene	129-00-0	8270D	<i>ND</i>	<i>46-J</i>	350	15	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		87	33-102
Nitrobenzene-d5		78	22-109
Terphenyl-d14		83	41-120

*all OK 1/27/12
chrysis*

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NA12017-001
Description: Y-57	Matrix: Solid
Date Sampled: 01/12/2012 1110	% Solids: 84.1 01/12/2012 2202
Date Received: 01/12/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	01/16/2012 1541	BM		75735	5.72

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.2	1.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		5.2	1.8	ug/kg	1
Toluene	108-88-3	8260B	ND		5.2	1.8	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		5.2	3.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	53-142
Bromofluorobenzene		114	47-138
Toluene-d8		98	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: NA12017-001

Description: Y-57

Matrix: Solid

Date Sampled: 01/12/2012 1110

% Solids: 84.1 01/12/2012 2202

Date Received: 01/12/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	01/16/2012 2218	JCG	01/13/2012 1647	75652

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND		360	11	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND		360	14	ug/kg	1
Anthracene	120-12-7	8270D	ND	J	360	16	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	260	J	360	12	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	280	J	360	27	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	210	J	360	25	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	130	J	360	25	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	99	J	360	30	ug/kg	1
Chrysene	218-01-9	8270D	280	J	360	11	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		360	24	ug/kg	1
Fluoranthene	206-44-0	8270D	360		360	11	ug/kg	1
Fluorene	86-73-7	8270D	ND		360	14	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND	J	360	33	ug/kg	1
Naphthalene	91-20-3	8270D	ND		360	15	ug/kg	1
Phenanthrene	85-01-8	8270D	ND	J	360	15	ug/kg	1
Pyrene	129-00-0	8270D	620		360	16	ug/kg	1

*all changes
C.Y. 1/27/12*

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		92	33-102
Nitrobenzene-d5		84	22-109
Terphenyl-d14		90	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

Memo

To: Rusty Contrael

From: Cheryl Yushinski

Date: February 15, 2012

Re: Evaluation of Analytical Data for Sediment Samples Collected in February 2012
SCE&G Congaree River, Columbia, South Carolina

Sample Identification

J-11.5

K-8

L-7

Overview

Three sediment samples were collected on February 1, 2012 at the Congaree River Site.

The samples collected during the February 2012 sampling event were submitted to Shealy Environmental Services, Inc. (Shealy) located in West Columbia, South Carolina, for laboratory analyses. The laboratory analyses included BTEX (benzene, toluene, ethylbenzene and total xylenes) via EPA Method 8260B, PAHs (polynuclear aromatic hydrocarbons) by EPA Method 8270D. The analytical results were reported in one sample delivery group (SDG) – NB01025. A Level II data package was provided for the SDG.

The laboratory created matrix spike/matrix spike duplicate (MS/MSD) samples from PAH sample L-7.

Summary

Quality control (QC) measures associated with the analytical data were reviewed following the U.S. EPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (June 2008) to determine the accuracy and precision of the data reported. These QC measures included sample preservation, holding times, laboratory blanks, surrogate recoveries, laboratory control sample/laboratory control sample duplicate (LCS/LCSD) and MS/MSD results. Data usability is presented below.

Data Usability Results

The laboratory provided results with any confirmed detections that fell between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) being reported and qualified as estimated, "J". Any laboratory-qualified results with concentrations below the undiluted PQL value were reported as non-detects.

Recommendations for Data Usability

All BTEX and PAH data should be considered usable for intended data uses.

Information Regarding Report Content

1. Glossary of Data Qualifier Codes
2. Attachment A - Shealy Data Summary Reports. This includes qualified results as originally reported by the laboratory with applicable qualifier codes as annotated by MTR.

GLOSSARY OF DATA QUALIFIER CODES

The following definitions provide a brief explanation of the national qualifiers assigned to results in the data review process.

CODES RELATING TO IDENTIFICATION

(Confidence concerning presence or absence of compounds.)

U = Indicates that the constituent was not detected at the reported detection limit.

(NO CODE) = Confirmed identification

UR = Indicates that the constituent was not detected above the reporting limit. However, the result is unusable due to the holding time being grossly exceeded.

R = Unusable Result. The sample results are considered unusable due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N = The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

CODES RELATED TO QUANTITATION

(Can be used for positive results and sample quantitation limits.)

J = Indicates an estimated value. The constituent was positively identified. However, the result was less than the quantitation limit but greater than zero; or based on the data evaluation, the associated result is an approximate concentration of the constituent in the sample.

UJ = Indicates that the constituent was not detected above the reporting limit. However, based on the data evaluation, the reported result is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the concentration of the constituent in the sample.

2

ATTACHMENT A

SHEALY DATA SUMMARY REPORT

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NB01025-001
Description: K-8	Matrix: Solid
Date Sampled: 02/01/2012 1030	% Solids: 79.2 02/02/2012 0035
Date Received: 02/01/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/07/2012 1524	DLB		77207	5.23

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		6.0	1.3	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		6.0	2.1	ug/kg	1
Toluene	108-88-3	8260B	ND		6.0	2.1	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		6.0	3.5	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		87	53-142
Bromofluorobenzene		81	47-138
Toluene-d8		93	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NB01025-001
Description: K-8	Matrix: Solid
Date Sampled: 02/01/2012 1030	% Solids: 79.2 02/02/2012 0035
Date Received: 02/01/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	02/03/2012 1904	TAF	02/02/2012 1318	76910
2	3550C	8270D	2	02/06/2012 1206	TAF	02/02/2012 1318	76910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	3700		410	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	890		410	16	ug/kg	1
Anthracene	120-12-7	8270D	1200		410	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	4300		410	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	4700		410	30	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	4200		410	28	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	1900		410	28	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	1600		410	34	ug/kg	1
Chrysene	218-01-9	8270D	4000		410	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	440		410	27	ug/kg	1
Fluoranthene	206-44-0	8270D	8200		410	13	ug/kg	1
Fluorene	86-73-7	8270D	2400		410	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	1500		410	37	ug/kg	1
Naphthalene	91-20-3	8270D	450	J	410	17	ug/kg	1
Phenanthrene	85-01-8	8270D	9800	CLW	410	17	ug/kg	1
Pyrene	129-00-0	8270D	9100	2/15/12	820	36	ug/kg	2

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
2-Fluorobiphenyl		61	33-102		56	33-102
Nitrobenzene-d5		42	22-109		37	22-109
Terphenyl-d14		66	41-120		55	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NB01025-002
Description: L-7	Matrix: Solid
Date Sampled: 02/01/2012 1240	% Solids: 80.0 02/02/2012 0035
Date Received: 02/01/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/07/2012 1548	DLB		77207	4.12

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		7.6	1.7	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		7.6	2.6	ug/kg	1
Toluene	108-88-3	8260B	ND		7.6	2.6	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		7.6	4.4	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		89	53-142
Bromofluorobenzene		82	47-138
Toluene-d8		93	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: NB01025-002

Description: L-7

Matrix: Solid

Date Sampled: 02/01/2012 1240

% Solids: 80.0 02/02/2012 0035

Date Received: 02/01/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	02/03/2012 1929	TAF	02/02/2012 1318	76910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND 47	J	410	13	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND 160	J	410	16	ug/kg	1
Anthracene	120-12-7	8270D	ND 150	J	410	18	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	680		410	14	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	860		410	30	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	790		410	28	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	500		410	28	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	ND 350	J	410	34	ug/kg	1
Chrysene	218-01-9	8270D	700		410	13	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND 100	J	410	27	ug/kg	1
Fluoranthene	206-44-0	8270D	950		410	13	ug/kg	1
Fluorene	86-73-7	8270D	ND 61	J	410	16	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND 370	J	410	37	ug/kg	1
Naphthalene	91-20-3	8270D	ND 31	J	410	17	ug/kg	1
Phenanthrene	85-01-8	8270D	ND 400	J	410	17	ug/kg	1
Pyrene	129-00-0	8270D	1400		410	18	ug/kg	1

*all changes
CW 2/15/12*

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		65	33-102
Nitrobenzene-d5		49	22-109
Terphenyl-d14		66	41-120

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

ND = Not detected at or above the MDL

J = Estimated result < PQL and ≥ MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

* = Reportable result (only when report all runs)

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Page: 9 of 19
Level 1 Report v2.1

Volatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.	Laboratory ID: NB01025-003
Description: J-11.5	Matrix: Solid
Date Sampled: 02/01/2012 1300	% Solids: 62.6 02/02/2012 0035
Date Received: 02/01/2012	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Sample Wt.(g)
1	5035	8260B	1	02/07/2012 1612	DLB		77207	4.12

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		9.7	2.1	ug/kg	1
Ethylbenzene	100-41-4	8260B	ND		9.7	3.3	ug/kg	1
Toluene	108-88-3	8260B	ND		9.7	3.3	ug/kg	1
Xylenes (total)	1330-20-7	8260B	ND		9.7	5.6	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	53-142
Bromofluorobenzene		93	47-138
Toluene-d8		95	68-124

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)

Semivolatile Organic Compounds by GC/MS

Client: Management and Technical Resources, Inc.

Laboratory ID: NB01025-003

Description: J-11.5

Matrix: Solid

Date Sampled: 02/01/2012 1300

% Solids: 62.6 02/02/2012 0035

Date Received: 02/01/2012

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3550C	8270D	1	02/06/2012 1231	TAF	02/02/2012 1318	76910

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Acenaphthene	83-32-9	8270D	ND 44	J	520	16	ug/kg	1
Acenaphthylene	208-96-8	8270D	ND 110	J	520	21	ug/kg	1
Anthracene	120-12-7	8270D	ND 64	J	520	23	ug/kg	1
Benzo(a)anthracene	56-55-3	8270D	560		520	17	ug/kg	1
Benzo(a)pyrene	50-32-8	8270D	1000		520	38	ug/kg	1
Benzo(b)fluoranthene	205-99-2	8270D	970		520	35	ug/kg	1
Benzo(g,h,i)perylene	191-24-2	8270D	600		520	35	ug/kg	1
Benzo(k)fluoranthene	207-08-9	8270D	390	J	520	43	ug/kg	1
Chrysene	218-01-9	8270D	490	J	520	16	ug/kg	1
Dibenzo(a,h)anthracene	53-70-3	8270D	110	J	520	35	ug/kg	1
Fluoranthene	206-44-0	8270D	500	J	520	16	ug/kg	1
Fluorene	86-73-7	8270D	45	J	520	20	ug/kg	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	460	J	520	47	ug/kg	1
Naphthalene	91-20-3	8270D	ND		520	22	ug/kg	1
Phenanthrene	85-01-8	8270D	190	J	520	21	ug/kg	1
Pyrene	129-00-0	8270D	650		520	23	ug/kg	1

All changes
2/4/12/12

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		48	33-102
Nitrobenzene-d5		36	22-109
Terphenyl-d14		52	41-120

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time
 ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" * = Reportable result (only when report all runs)