

LIMITED PRELIMINARY SITE ASSESSMENT

**Parcel 206
Irene Shuford Property
35 Griffin Mine Road
Burnsville, NC 28714**

State Project No. R-2519A
WBS Element No. 35609.1.1
EI Project No. ENMO60029.00

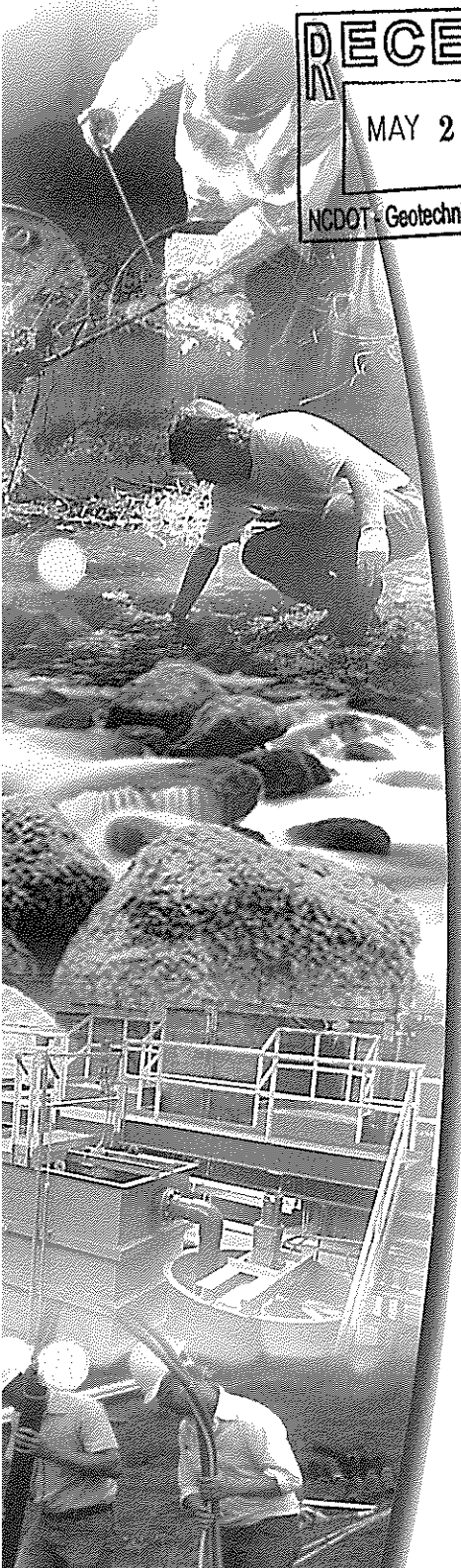
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May 2006



LIMITED PRELIMINARY SITE ASSESSMENT (PSA)

Conducted on

Parcel 206
Irene Shuford Property
35 Griffin Mine Road
Burnsville, NC 28714
State Project No. R-2519A
WBS Element No. 35609.1.1
EI Project No. ENMO060029.00


For

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State of North Carolina
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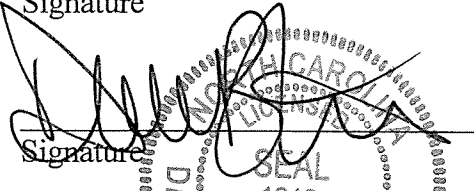
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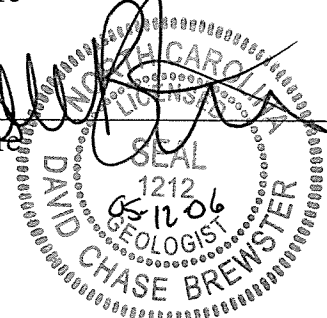
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1.0 INTRODUCTION

Environmental Investigations, Inc. (EI) conducted a *Limited Preliminary Site Assessment* (PSA) within the existing and/or proposed North Carolina Department of Transportation (NCDOT) *right-of-way* (ROW) adjacent to a parcel (identified by the NCDOT as Parcel 206) located at 35 Griffin Mine Road, Burnsville, North Carolina 28714. A residence is currently located on the parcel. The report presented herein documents the findings of the PSA that was conducted within the described ROW. For purposes of this report, the terms subject site and/or site include the existing NCDOT ROW and the proposed ROW, and/or the abutting property/parcel.

1.1 Report Organization

Field activities were conducted by Mr. Robert Michael Shaut, an Environmental Geologist with EI, on February 22, 2005, March 29, 2006 and April 20, 2006, respectively. The report presented herein summarizes the scope of work conducted, discusses sampling procedures, and presents our findings, conclusions and recommendations. Four (4) tables that present a summary of soil analytical results, including samples collected for both presence/absence and/or background concentrations are presented as **Tables 1** through **3**, and a table entitled "Summary of Groundwater Analytical Results", is presented in **Table 4**. A "Site Location Map", a "Site Map" and "Extent of Residual Petroleum Impact (Vadose Zone) Map" are presented in **Figures 1, 2, and 3**, respectively.

A compilation of "Site Photographs" are presented in **Appendix A**, the "Standard Field Operating Procedures (SOP)" are presented in **Appendix B**, "Soil Boring Logs" are included in **Appendix C** and the "Analytical Laboratory Report" is presented in **Appendix D**.

1.2 Background

Mr. Eugene Tarascio, GeoEnvironmental Project Manager with the NCDOT Geotechnical Engineering Unit submitted to EI a "*Request for Technical and Cost Proposal*" (RFP), dated February 7, 2006. The RFP solicited a technical and cost proposal to perform Limited PSAs on a total of six (6) Parcels located within a NCDOT Highway Project, identified as WBS Element #35609.1.1, State Project #R-2519A, located in Burnsville, NC. The RFP outlined site information on each of the six (6) parcels and NCDOT Figures (Plan Sheets) and applicable site photographs were attached to the RFP. Mr. Gregory A. Smith, LG, PE, GeoEnvironmental Supervisor with the NCDOT, Geotechnical Engineering Unit, GeoEnvironmental Section authorized EI to perform the PSAs, as documented in a "Notice to Proceed" dated February 16, 2006 (verbal notice to proceed February 10, 2006).

1.3 Objectives

The objective of performing the PSA was to determine if current property conditions have impacted the subsurface of the existing and/or proposed ROW. The study (PSA) on the referenced parcel (**Parcel 206 – Irene Shuford Property**) included herein was performed with a reasonable effort to investigate and quantify potentially impacted surficial and subsurface soils. However, findings documented in the report do not constitute a guarantee that all potential sources of environmental contamination have been assessed and subsequently analyzed.

This report is provided for the sole use of the NCDOT on the project for which it was prepared. All materials and information used for this project were obtained by EI, Inc. Use of this report by any third parties other than the NCDOT will be at such party's sole risk. EI Inc. disclaims liability for any use of or reliance on this report by third parties.

2.0 SCOPE OF WORK & ENVIRONMENTAL SERVICES

2.1 Requested Scope of Work

Documented in the RFP, dated February 7, 2006, the NCDOT requested the following scope of work:

- Determine if contaminated soils are present related to soil waste observed on the subject property;
- delineate and estimate the quantity of impacted materials/soils and indicate the approximate area of soil contamination on a site map for the site;
- if groundwater is encountered and the project manager suspects the possibility of groundwater contamination, obtain a sample for analysis by converting one (1) of the borings to a temporary monitoring well;
- for each groundwater sample collected, also obtain a 24-hour groundwater depth; and
- prepare a report including field activities, findings, and recommendations for the site and submit in quadruplet to this office.

2.2 Scope of Services

To accomplish the scope-of-services, a field reconnaissance was performed to identify general site conditions, and hand augers and Direct Push Technology (DPT) were utilized to collect soil samples on the subject parcel.

To perform the requested Limited PSA, EI personnel visited the site on two (2) occasions to supervise, oversee and/or perform site reconnaissance activities and collect appropriate samples to complete the project objectives. To complete the study on the subject parcel, EI performed the following scope of services:

- The advancement of 18 soil test borings utilizing either a hand auger and/or DPT methods to depths ranging from 0.31 meters to 3.658 meters (1'-12') below the land surface (bls) in the vicinity of the solid waste materials.
- The advancement of three (3) soil test borings located adjacent to the site within the NCDOT ROW for purposes of analyzing for background metal concentrations.
- Collection and submittal of 21 soil samples for laboratory analytical testing.
- Installation of one (1) temporary monitoring well (piezometer).
- Collection and submittal of one (1) groundwater sample for laboratory analyses.
- Photo documentation of pertinent site features.
- Preparation of this *Limited PSA Report*, presenting our findings and conclusions along with our recommendations.

3.0 SITE CHARACTERIZATION

3.1 Site Location

A residence known as the Irene Shuford property is currently located at 35 Griffin Mine Road, in Burnsville, North Carolina 28714 (**Figure 1**). The subject property is currently located immediately adjacent to the NCDOT ROW (**Photograph 1**) as identified in NCDOT's R-2519A Plan Sheets 27 and 28. Copies of digital site photographs are presented in **Appendix A**.

3.2 Physical Setting

The subject site parcel currently consists of a residence. The parcel consists of a one-story house an unpaved driveway, with grass and/or shrubbery. See **Figure 1** for the location of the residence.

3.2.1 Solid Waste

Site reconnaissance activities indicated the presence of solid waste spread throughout the parcel. Some of the waste had conglomerated into several (four) predominant areas of compilation, while scattered debris was noted across most of the parcel. The piles displaying a mass of waste (large piles) were noted along the western portion of the parcel, while three (3) large piles were also noted in the northern portion of the parcel.

The types of materials observed within the solid waste consisted of the following:

<u>Type of Waste</u>	<u>Est. Quantity</u>	<u>Type of Waste</u>	<u>Est. Quantity</u>
Rusted Abandoned Vehicles	3	Air Conditioner Units	10 to 50
Rubber Tires	10 to 50	Water Heater	few
Weed Eater	30 to 50	Riding Lawn Mower	5 to 10
Batter Charger	15 to 25	Tools (Various Types)	Numerous
Metal Hand Truck	Few	4" by 4" Wooden Posts	Numerous
Lawn Mower	Few	Boat (Electric) Engine	1
Lawn Mower Engine or Parts	5 to 25	Hydraulic Oil	1/5-gal buc.
Bags of Mulch	Several	Ladder	Several
Tool Box	5 to 10	Rope	Several
Heater Unit	2 to 5	Refrigerator	Couple
Clothes	N/A	Oil Container	1-Qt.
Gas Cans (metal)	10 to 25	Gas Cans (Plastic)	10 to 25
Dog Fence (Steel)	N/A	Car Batteries	7 to 15
Power Tools	Several	Gas Grill	1
Coolers (Plastic)	Several	Empty Buckets	Several
100-g Plastic Container	1	Lumber Pile	(12'x6'x4')
Plastic Container (w unk. liquid)	1	Firewood Pile	(15'x10'x1.5')

<u>Type of Waste</u>	<u>Est. Quantity</u>	<u>Type of Waste</u>	<u>Est. Quantity</u>
Steel Auto Parts	Several	House Siding	N/A
Jack	Few	Outdoor Umbrella	1
Electric Fan	Few	Chainsaw	8 to 20
PVC Piping	Several	Toys	Several
Sm. Propane Tank	Several	Metal Fence Posts	30 to 50
Well Water Tank	1	Auto Hood	1
Weed Control Containers	Several	Grass Seed Spreader	Few
Wheel Barrow	1	Oxygen Tank	1
Air Compressor	few	Rubber Hoses (Water)	Several
Steel Debris	N/A	Steel Hollow Pipe	16'x 12" Dia
Tiller	1	Wheels	Few
Steel Hollow Pipe	12' x 2'Dia.	Metal Chairs	Several
Shotgun Shells	N/A	Metal Toaster	1
Radios	Several	Christmas Tree Lts.	Several
Auto. Muffler	Few	Loud Speaker	1
A/G Heating Oil Tank (250-g)	1	Trash Cans (Plastic)	Several
5-gallon Drum filled with wood ash	1	Landscape Tools	Several

Notes:

1. **Bold Text** denotes materials of *potential* environmental contaminant concern.
2. Quantities are estimates. Due to the large volume of waste materials stacked up, some of the waste materials may have not been observed and noted accordingly.
3. The waste materials are located in an uncontrolled environment. Waste materials could be removed and added at any time.
4. Photos of portions of the waste materials may be referenced in **Appendix A**.

3.3 Site Topography

Site observations and review of the Burnsville, NC United States Geological Survey (USGS) Topographic Quadrangle Map (July 1, 1984) revealed that the subject site is located at an elevation of approximately 817 meters (2680 feet) above mean sea level (msl) (**Figure 1**). Topographically, the site slopes gently to the southwest. Surface water runoff appears to flow directly southwest in the direction of Little Crabtree Creek located approximately 91 meters (300 feet) south of the site.

3.4 Land Use & Surrounding Properties

The subject property is located in the city limits of Burnsville, NC. Land use in the immediate vicinity of the site is characterized by rural and residential properties. The site is bounded to the south by NC Highway 19E, on the north by State Secondary Route 1322 and residential property to the east and to the west is undeveloped (**Photographs 3 -7**).

4.0 SUBSURFACE INVESTIAGTION

4.1 Subsurface Soils Investigation

Troxler Geologic Services, based in Raleigh, North Carolina, was selected and subcontracted to provide Direct Push Technology (DPT) services. On February 21, 2006, EI directed and supervised the advancement of ten (10) hand auger and one (1) DPT soil test borings (GP-1 and HA-1 through HA-10), in the vicinity of the solid waste materials.

In general, the borings were advanced in order to evaluate the absence/presence of potential subsurface soil (vadose zone) impact and/or subsurface groundwater impact associated with potential releases associated with the solid waste materials. The hand auger borings were surficial in nature and the DPT advanced boring was advanced to a depth of approximately 3.66 meters (12.0 feet) bls.

As previously mentioned, based on the field indications of potential impact (i.e. location of the solid waste materials), a total of ten (10) hand auger soil test borings were advanced within the interior of the solid waste materials. On March 22, 2006, EI re-mobilized to the site to advance a total of eight (8) additional borings to further delineate the impact and one (1) boring to evaluate background metal concentrations.

Based on the initial sampling and analysis an elevated concentration of arsenic was shown to be present beneath the pile of solid waste/debris. EI remobilized to the site on April 20, 2006 to collect additional delineation and background samples to better define the presence of arsenic in site soils. Three (3) additional background samples and seven (7) additional delineation samples were collected.

4.2 Soil Test Boring Methodology

A complete descriptive explanation of EI's *Standard Field Operating Procedures* that discusses specific sampling methodology is presented in **Appendix B**.

4.3 Soil Sample Collection Procedures

Based on the results of three (3) phases of sampling activities, a total of 25 soil samples (21 delineation samples and four background samples) were collected for laboratory analysis. Soil samples retained for laboratory analysis were transferred to a representative of Paradigm Analytical Laboratory, for laboratory analytical testing. Dates and times of sample shipment may be referenced in the analytical Chain-of Custodies (COC) presented in **Appendix D**.

4.4 Backfill Activities

At the completion of the exploratory subsurface advancement activities, the test borings were backfilled to surface grade. A complete descriptive explanation of EI's *Standard Field Operating Procedures* that discusses backfill procedures is presented in **Appendix B**.

4.5 Subsurface Soil Lithology

During boring advancement activities, soil samples were classified in the field by an EI geologist utilizing the Unified Soil Classification System (USCS). Subsurface soils encountered in the area of study were fairly consistent. The on-site geology consists of grass with surficial topsoil from the surface to approximately 0.31 meters (1.0 foot) below grade. Layers of soil consisting of light brown to tan silty CLAY to clayey Silt were encountered to the investigated depth of approximately 3.66 meters (12.0 feet) below the land surface (bls).

Detailed descriptions are presented in Soil Boring Logs included in **Appendix C**. The boring logs include an interpretation of subsurface conditions based on field samples.

4.6 Groundwater Investigation

4.6.1 Temporary Monitoring Well Installation

During the field study (February 21, 2006), soil test boring "GP-1" was converted into a Type I (temporary) 2.54 cm (1.0 inch) diameter groundwater monitoring well (piezometer). The location of the groundwater monitoring well is depicted in **Figure 2**. The well location was selected in the field by the EI Field Geologist (Robert Shaut) based on the location of the solid waste debris (the suspected impact in this area). The boring was advanced to the approximate depth of 3.66 meters (approximately 12.0 feet) bls.

4.6.2 Monitoring Well Sampling

On the date of installation, EI personnel collected a groundwater sample from the referenced temporary monitoring well ("GP-1") for purposes of analytical testing. On February 23, 2006, the samples were transferred to representatives of Paradigm Analytical Laboratories for analytical laboratory testing. Groundwater sampling procedures are discussed in more detail in the *Standard Operating Procedures* presented in **Appendix C**. The groundwater table was measured in the temporary monitoring well ("GP-2") on February 24, 2006. Groundwater was measured at approximately 3.14 meters (10.30 feet) below the top of casing (TOC). The TOC was at the ground surface level.

5.0 LABORATORY TESTING AND RESULTS

5.1 Subsurface Soil Analytical Methods

Several types of analytical methods were used to evaluate for the possible presence of various types of contaminants that potentially could have occurred at the site. The various types of these methods are presented below:

First Sampling Event (Surficial Samples) – 2/21/06

A total of 6 soil samples (“PAR 206 GP1”, “PAR 206 HA1”, “PAR 206 HA1A”, “PAR 206 HA2”, “PAR 206 HA3”, and “PAR 206 HA4”) were submitted for total petroleum hydrocarbons (TPH) analyses by Method 8015B with preparation methods for the analysis of Diesel Range Organics (DRO) by GC-FID, Gasoline Range Organics (GRO) by GC-FID, and for Oil and Grease (Method 9071), Volatile Organics by Method 8260, and the 13 priority pollutant metals.

Second Sampling Event (Surficial Samples) – 3/22/06

A total of 9 soil samples (“HA-5”, “GP1-4.5”, “HA6-1”, “HA7-1”, “HA8-1”, “HA9-1”, “HA10-1”, “HA4-4”, and “HA11-1”) were submitted for total petroleum hydrocarbons (TPH) analyses by Method 8015B with preparation methods for the analysis of Diesel Range Organics (DRO) by GC-FID and Gasoline Range Organics (GRO) by GC-FID, and for Pesticides (Method 8081), while one (1) soil sample (HA11-1) was also analyzed for the 8 RCRA metals.

Third Sampling Event (To Depth Samples) – 4/20/06

Six (6) samples (“S-1”, “S-2”, “S-3”, “BK-1”, “BK-2”, and “BK-3”), were collected on April 20, 2006 and analyzed for the metal of concern (arsenic).

Fourth Sampling Event (Background Samples – Offsite location) – 4/20/06

Seven (7) soil samples (“GP-12-7”, “GP-13-7”, “GP14-7”, “GP-15-7”, “GP-16-7”, “GP17-6”, and “GP18-7”) were analyzed for the 8 RCRA metals.

5.2 Soil Laboratory Analyses Results

First Sampling Event (Surficial Samples) – 2/21/06

Laboratory analysis of the soil samples collected showed that one (“PAR 206 HA4”) of the six (6) samples showed concentrations (109.0 mg/kg) of DRO at concentrations above laboratory detection limits. The remaining samples did not show concentrations of DRO above the method laboratory detection limits. Concentrations of the sample reported concentrations of DRO above the North Carolina Department of Environment and Natural Resources (NCDENR) action limits of 40.0 mg/kg (Volume 1 - aboveground release). None of the six (6) samples showed any concentrations of GRO above the laboratory detection limits.

Volatile organic compounds were detected at low levels in four (4) of six samples analyzed for VOC content. Since the contaminant of concern consisted of petroleum constituents, for comparison purposes, the analytical results were compared to the MSCC soil clean up standards (as Volume I Guidance does not utilize risk-based clean up goals). Several samples showed the presence of low concentrations (trace levels) of acetone, methyl ethyl ketone (MEK) and methylene chloride. These detections are not considered to be significant at these concentrations. One (1) sample (“PAR 206 HA3”) showed the presence of trace contaminants consistent with gasoline.

Laboratory analysis showed the presence of several metals to be present in soils. Analysis showed that of the metals detected; only arsenic was reported to be present at concentrations above the Region 9 Preliminary Remedial Goals (PRGs) in samples collected from beneath the solid waste materials. Arsenic concentrations ranged between 1.4 mg/kg to 4.95 mg/kg. In comparison, four (4) background samples collected did not show detectable levels of arsenic.

The specific results of the analytical testing of the soil samples are tabulated and presented in **Table 1**.

Second Sampling Event (Surficial Samples) – 3/22/06

Laboratory analysis of the soil samples collected did not show concentrations of GRO at concentrations above the laboratory detection limits. With the exception of two (2) samples (“HA10-1” and “HA11-1”), the remaining samples did not show concentrations of DRO above the method laboratory detection limits. Of the two (2) samples that did report concentrations of DRO, the levels did not exceed the NCDENR Volume I action limits of 40.0 mg/kg). None of the nine (9) samples showed concentrations of pesticides above the laboratory detection limits.

A background sample (“HA11-1”) did not show concentrations of arsenic above the method laboratory detection limits.

The specific results of the analytical testing of the soil samples are tabulated and presented in **Table 1**.

Third Sampling Event (To Depth Samples) – 4/20/06

Presence or Absence

Laboratory analysis showed the presence of arsenic at levels that exceeded the PRGs in two (2) of three (3) samples analyzed. The samples were collected at a depth of 0.30 meters (1.0 feet) bls.

Background Samples

None of the three (3) samples showed any concentrations of arsenic above the method detection limits.

The specific results of the analytical testing of the soil samples are tabulated and presented in **Table 2**.

Fourth Sampling Event (Background Samples – Offsite location) – 4/20/06

Background Samples

Two (2) of the seven (7) samples collected showed concentrations of the metal arsenic above the method detection limit. One (1) of these two (2) samples (“GP18-4”) exceeded the PRGs. The average concentration for all of the samples was calculated at 0.47 mg/kg. The specific results of the analytical testing of the soil samples are tabulated and presented in **Table 3**.

The complete laboratory results and Chain-of-Custody Records are presented in **Appendix D**.

5.3 Groundwater Laboratory Analytical Methods

Groundwater sample “GP-1” collected from the referenced temporary well was submitted for VOCs analysis for aromatic and halogenated volatiles by GC/PID-ELCD for EPA Method 6230D, for semivolatile organic compounds by GC/MS for EPA Method 625 and the top ten peaks identified, for extractable petroleum hydrocarbons by GC/FID by Method MADEP EPH, and for volatile petroleum hydrocarbons by GC-PID/FID by MADEP VPH.

5.4 Groundwater Laboratory Analyses Results

Review of the groundwater analytical data did not show concentrations of VOC analytes, or SVOC analytes above the method laboratory detection limits. **None** of the detected analytes (both VOC and SVOC) **were reported above** the North Carolina Groundwater Standards (15A NCAC 2L .0202). Constituents of concern were not reported above the method detection limits. A summary of the analytical results is tabulated in **Table 4**.

6.0 SUMMARY OF FINDINGS

EI has reviewed information gathered during the Limited PSA study including the site reconnaissance activities, review of NCDOT plan sheets, review of the site investigation including soil collection activities, and review of a laboratory analysis report. Compiled below is a summarized list of the significant findings.

- Signs of a heating oil UST was not observed on the subject parcel.
- Groundwater was encountered beneath the site at a location immediately adjacent to the subject area of soil waste (southwestern portion of parcel) at a depth of 3.14 meters (10.30 feet) bls.
- Analysis of the soil samples collected from beneath the solid waste (piles of debris) (surficial sampling) did not show the presence of significant elevated levels of residual petroleum hydrocarbon impact. However, three (3) of 14 samples showed reported concentrations of DRO above the Volume I NCDENR action limits of 40.0 mg/kg. None of the 14 samples showed concentrations of GRO that exceeded the Volume I Guidance reporting limits of 10 mg/kg (GRO). In addition, none of the samples tested showed concentrations of oil and grease that exceeded the Volume I Guidance reporting limits of 250 mg/kg for Oil & Grease.
- Organic analysis did not show residual petroleum hydrocarbon impacts above the most stringent of the (Volume II) MSCC Soil-to-Groundwater cleanup standards
- In the areas of the solid waste, the metal arsenic was detected in eight (8) of nine (9) soil samples [at surficial and to depth (0.30 meters (1.0 feet) bls] in the range of 3 to 5 mg/kg, which is above the PRGs level of 0.39 mg/kg.
- Arsenic is a naturally occurring metal, and the presence of arsenic in the soil may be considered to be naturally occurring; however, three (3) soil samples collected onsite, and six (6) of seven (7) samples collected offsite (NCDOT - Parcel 115) did not show concentrations of arsenic above the PRGs.
- Analysis of a groundwater sample collected from a temporary monitoring well installed at the site within the *proposed* NCDOT ROW did not show concentrations of all tested constituents (aliphatics, aromatics, VOCs and/or SVOCs) above the current North Carolina Groundwater Standards (15A NCAC 2L .0202).

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the analytical results, it appears that residual petroleum hydrocarbons in diesel range have impacted surficial soils at the parcel. **It appears that these residual hydrocarbons** may be attributed to a spillage of petroleum based compounds from materials within the solid waste debris (See potential inventory list in Section 3.2.1), although the source is unknown. Based on the current data, the vadose zone in two (2) localized areas located within two (2) subject waste piles has been slightly impacted by petroleum hydrocarbon residuals. Based on the location and nature of the impact, it is likely that impacted soils are present directly beneath the waste material. Furthermore, EI projects that the release/spill has not migrated significantly from beneath the waste area. In addition, based on the groundwater analyses data, it appears that impacts associated with the waste pile have not migrated vertically to the shallow aquifer to any significant extent. Based on the detection of DRO soil concentrations above Volume I reportable levels, the property owner should be notified of this finding. It also should be noted that the detection of DRO discovered during this investigation normally should be reported to the regulatory agency (NCDENR); however, the impacts detected are considered to be minor. Based on the analytical data, **EI estimates a total of approximately 32 cubic meters (42 cubic yards) of petroleum impact.**

The groundwater analysis did not show the presence of constituents of concern and therefore, EI does not project that the aquifer (groundwater) beneath the site has been significantly impacted. *Note: Only one (1) temporary well was installed at the parcel, thus a full scan of the property has not been performed. Metals were not included as part of the analytical testing, as temporary wells typically produce turbid samples which would bias the results.*

Arsenic was detected in surficial soils and to depth [0.30 meters (1.0') bls] at concentrations which would typically be an indicator of a release. **Since a large majority of the background samples did not show the presence of arsenic, it appears that a possible release of arsenic (not naturally occurring) may have occurred.** Due to the limited nature of the study and the presence of the solid waste itself, an estimated volume of arsenic within the soils cannot be determined at this time. However, the area of arsenic impact appears to mirror the area covered by the solid waste (approximately 300 cubic meters or 400 cubic yards).

Considering the limited nature of this study, the source of arsenic could not be ascertained. The relatively low concentrations of arsenic, and its distribution beneath areas of solid wastes suggest a potential source of arsenic would include the use of arsenic-based herbicide, although a release from the solid waste also cannot be ruled out. It should also be noted that the presence of naturally occurring arsenic at elevated concentrations cannot be completely ruled out either, as the background data set is small.

Based on the presence of solid waste observed on the parcel, EI estimates that a volume of approximately **300 cubic meters (400 cubic yards) of solid waste is present on the parcel**. At the request of the NCDOT the solid waste materials were not significantly disturbed as part of this study.

An inventory conducted during this study of the waste materials shows the type of solid waste has been categorized; however, since the waste is located within an uncontrolled environment, EI recommends an additional waste characterization should be performed just prior to any potential removal activities. Based on the presence of both residual petroleum hydrocarbons and the metal arsenic, EI further recommends confirmation sampling, subsequent to any waste and/or petroleum impact removal activities. Of further note, EI personnel observed two (2) containers (See Section 3.2.1) with unknown liquids. Prior to any potential removal activities, EI recommends waste characterization of these liquids. Waste characterization of unknown liquids was beyond the scope of work for this type of investigative efforts.

At this time, no other recommendations are warranted.

Note: This report does not constitute a guarantee that all potential sources of environmental contamination have been assessed and subsequently analyzed.

TABLES

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS (Surficial Samples)
Parcel 206
Irene Shuford Property
35 Griffin Mine
Road, Burnsville, NC 28714
State Project No. R-2519A
WBS Element No. 35609.1.1

Sample Identification				PAR 206 GP1	PAR 206 HA1	PAR 206 HA1A	PAR 206 HA2	PAR 206 HA3	PAR 206 HA4
Sample Depth Meters (Feet)				Surficial	Surficial	Surficial	Surficial	Surficial	Surficial
Sample Date				2/21/2006					
Laboratory Analysis	Cleanup Standards (MSCC)			Laboratory Results (mg/kg)					
	Residential MSCC (mg/kg)	Industrial Commercial MSCC (mg/kg)	Soil-to-GW MSCC (mg/kg)						
Volatile Organic Compounds Method 8260B/5035									
Benzene	22	200	0.0056	BQL	BQL	BQL	BQL	BQL	BQL
Toluene	3200	82000	7	BQL	BQL	BQL	BQL	0.0505	BQL
Ethylbenzene	1560	40000	0.24	BQL	BQL	BQL	BQL	0.0258	BQL
Total Xylenes	32000	200000	5	BQL	BQL	BQL	BQL	0.205	BQL
2-Butanone (MEK)	9385	245280	0.7	0.0115	0.0138	0.0343	BQL	BQL	BQL
Acetone	1564	40880	3	0.0259	0.0612	BQL	BQL	BQL	BQL
Isopropylbenzene (Cumene)	1564	40880	2	BQL	BQL	BQL	BQL	BQL	BQL
n-Propylbenzene	156	4088	2	BQL	BQL	BQL	BQL	0.00722	BQL
1,2,4-Trimethylbenzene	782	20440	8	BQL	BQL	BQL	BQL	0.0508	BQL
1,3,5-Trimethylbenzene	782	20440	7	BQL	BQL	BQL	BQL	0.0156	BQL
sec-Butylbenzene	156	4088	3	BQL	BQL	BQL	BQL	0.0311	BQL
n-Butylbenzene	156	4088	4	BQL	BQL	BQL	BQL	BQL	BQL
Naphthalene	63	1635	0.58	BQL	BQL	BQL	BQL	0.015	BQL
Isopropylether (IPE)	156	4088	0.37	BQL	BQL	BQL	BQL	BQL	BQL
tert-Butyl Ether (MTBE)	156	4088	0.92	BQL	BQL	BQL	BQL	BQL	BQL
Methylene chloride	85	763	0.02	0.0163	0.00985	0.00782	BQL	BQL	BQL
p-Isopropyltoluene	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL
All Remaining Analytes	NA	NA	NA	BQL	BQL	BQL	BQL	BQL	BQL
Laboratory Analysis (Total Petroleum Hydrocarbons by GC/FID 8015)		NCDENR ¹ (Volume I) Reportable Concentration (mg/kg)		Laboratory Results (mg/kg)					
Gasoline Range Organics		10 GRO/40 DRO		BQL	BQL	BQL	BQL	BQL	BQL
Diesel Range Organics				13.8	BQL	BQL	BQL	BQL	109
Laboratory Analysis (Oil & Grease)		NCDENR ¹ (Volume I) Reportable Concentration (mg/kg)		Laboratory Results (mg/kg)					
Oil & Grease		250		38.5	40.7	40.3	40	42.3	39.7
Laboratory Analysis (10 Priority Pollutant Metals)		Region 9 Preliminary Remediation Goals (PRGs) Residential		Laboratory Results (mg/kg)					
Antimony	31			BQL	BQL	BQL	BQL	BQL	BQL
Arsenic	0.39			3.72	3.89	4.95	3.51	4.54	3.84
Beryllium	150			1.41	1.83	1.09	1.8	2.57	1.41
Cadmium	37			0.756	0.884	0.216	2.22	0.609	1.68
Chromium	210			53.8	58.4	52.4	53.3	92.8	53.4
Copper	3100			45.1	57.5	59.3	29.8	48.9	61.6
Lead	400			53.6	32	22.7	24.6	12.2	44.3
Mercury	23			0.0291	0.0829	0.0206	0.123	0.0469	0.102
Nickel	1600			23.2	20.9	23.1	22.6	36.2	23.2
Selenium	390			BQL	1.57	BQL	BQL	BQL	0.945
Silver	390			BQL	BQL	BQL	BQL	BQL	BQL
Thallium	5.2			BQL	BQL	BQL	BQL	BQL	BQL
Thiophene	23,000			77	158	75.2	150	160	171

NOTE:
mg/kg denotes parts per million
(1) Environmental Protection Agency's (EPA) Region 9, 10/04 Preliminary Remediation Goals (PRGs) for industrial soils
Bold & Italic Font = In Excess of PRGs for industrial soils
Underline denotes in excess of Background Concentrations
NE = Not Established
N/A = Not applicable
NS= No Standard

TABLE 1 (Continued)
SUMMARY OF SOIL ANALYTICAL RESULTS (Surficial Samples)
Parcel 206
Irene Shuford Property
35 Griffin Mine
Road, Burnsville, NC 28714
State Project No. R-2519A
WBS Element No. 35609.1.1

Sample Identification	HA5-1	GP1-4.5	HA6-1	HA7-1	HA8-1	HA9-1	HA10-1	HA4-4	HA11-1	
Sample Depth Meters (Feet)	Surficial	1.219m - 1.524m (4.0'-5.0')	Surficial	Surficial	Surficial	Surficial	Surficial	Surficial	Surficial	
Purpose	Presence or Absence								Background	
Sample Date	3/22/2006									
Laboratory Analysis (Total Petroleum Hydrocarbons by GC/FID 8015)	NCDENR ¹ (Volume I) Reportable Concentration (mg/kg)	Laboratory Results (mg/kg)								
Gasoline Range Organics	10 GRO/40 DRO	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Diesel Range Organics		BQL	BQL	BQL	BQL	BQL	BQL	38.0	BQL	12.9
Laboratory Analysis (Pesticides)	NA	Laboratory Results (mg/kg)								
Pesticides	NA	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Laboratory Analysis (10 Priority Pollutant Metals)	Region 9 Preliminary Remediation Goals (PRGs) Residential	Laboratory Results (mg/kg)								
Arsenic	0.39								BQL	
Barium	150								151	
Cadmium	37								BQL	
Chromium	210								41	
Lead	400								190	
Mercury	23								BQL	
Selenium	390								2.77	
Silver	390								BQL	

NOTE:

mg/kg denotes parts per million

(1) Environmental Protection Agency's (EPA) Region 9, 10/04 Preliminary Remediation Goals (PRGs) for industrial soils

Bold & Italics Font = In Excess of PRGs for industrial soils

Underline denotes in excess of Background Concentrations

NE = Not Established

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS (To Depth Samples)
Parcel 206
Irene Shuford Property
35 Griffin Mine
Road, Burnsville, NC 28714
State Project No. R-2519A
WBS Element No. 35609.1.1

Sample Identification		S-1	S-2	S-3	BK-1	BK-2	BK-3
Sample Depth Meters (Feet)		0.15m - 0.30m (0.5'-1.0')					
Purpose		Presence or Absence			Background		
Sample Date		4/20/2006					
Laboratory Analysis (Metals)	Region 9 Preliminary Remediation Goals (PRGs) Residential	Laboratory Results (mg/kg)					
Arsenic	0.39	<i>2.64</i>	BQL	<i>3.56</i>	BQL	BQL	BQL

NOTE:

mg/kg denotes parts per million

(1) Environmental Protection Agency's (EPA) Region 9, 10/04 Preliminary Remediation Goals (PRGs) for industrial soils

Bold & Italics Font = In Excess of PRGs for industrial soils

Underline denotes in excess of Background Concentrations

NE = Not Established

N/A = Not applicable

NS= No Standard

TABLE 3
 SUMMARY OF SOIL ANALYTICAL RESULTS (Background Samples)
 Parcel 115 (Adjacent to Parcel 123)
 Glen Raven Mills Property
 US Hwy 19E
 Burnsville, NC 28714
 State Project No. R-2519A
 WBS Element No. 35609.1.1

Sample Identification			GP12-7	GP13-7	GP14-6	GP15-7	GP16-7	GP17-6	GP18-4
Sample Depth Meters (Feet)			(0.5' - 1.0')						
Sample Date			4/20/2006						
Laboratory Analysis (6010B)	(1) USEPA Preliminary Removal Goals (PRGs) - Industrial Soil (mg/kg)	2 Times The Mean Concentrations (mg/kg)							
Arsenic	1.6	0.94	BQL	1.4	BQL	BQL	BQL	BQL	1.92

NOTE:

mg/kg denotes parts per million
 (1) Environmental Protection Agency's (EPA) Region 9, 10/04 Preliminary Remediation Goals (PRGs) for industrial soils
Bold & Italics Font = In Excess of PRGs for industrial soils
 NE = Not Established
 N/A = Not applicable
 NS= No Standard

TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Parcel 206 - Irene Shufurd
Property
35 Griffin Mine Road
Burnsville, NC 28714
State Project: R-25190A
WBS Element: 35609.1.1

Sample Identification		GP-1
Groundwater Depth (Feet below top of casing)		10.30
Sample Date		2/24/2006
Volatiles GC 6230D	2L Groundwater Standards (ug/L)	Laboratory Results (ug/L)
Benzene	1	BQL
Diisopropyl ether (DIPE)	NS	BQL
Ethylbenzene	29	BQL
Methyl-tert butyl ether (MTBE)	200	BQL
Total Xylenes	530	BQL
MTBE	200	BQL
Toluene	1000	BQL
Remaining Analytes	NA	BQL
MADEP VPH	2L GW Standards (ug/L)	Laboratory Results (ug/L)
C5-C8 Aliphatics	420	NA
C9-C12 Aliphatics	4200	NA
C9-C10 Aliphatics	210	NA
MADEP EPH	2L GW Standards (ug/L)	Laboratory Results (ug/L)
C9-C18 Aliphatics	4200	NA
C19-C36 Aliphatics	42000	NA
C11-C22 Aromatics	210	NA
Semivolatiles - GCMS Method 625		Laboratory Results (ug/L)
Fluorene	280	BQL
Acenaphthene	80	BQL
Bis (2-ethylhexyl) Phthalate	NS	BQL
Di-n-Butylphthalate	700	BQL
Diethylphthalate	5000	BQL
Dimethylphthalate	NS	BQL
Naphthalene	21	BQL
Phenanthrene	210	BQL
Pyrene	210	BQL
All Remaining Analytes	N/A	BQL

Legend:

Italics / Bold Font = In Excess of NCAC 2L Class GA Standards

BQL = Below Quantitation Limit

NA = Not Applicable

NS = No Standard

FIGURES

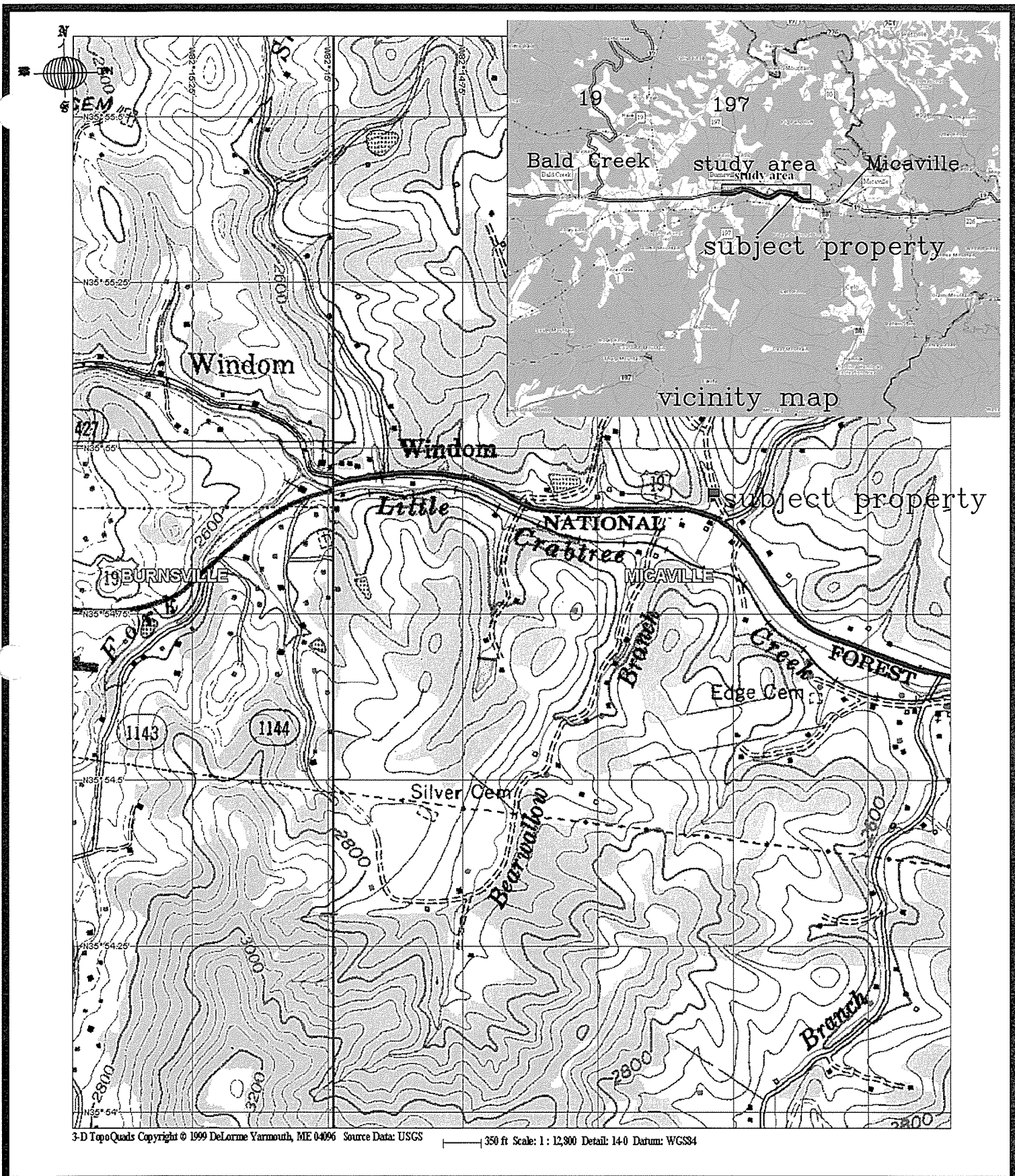
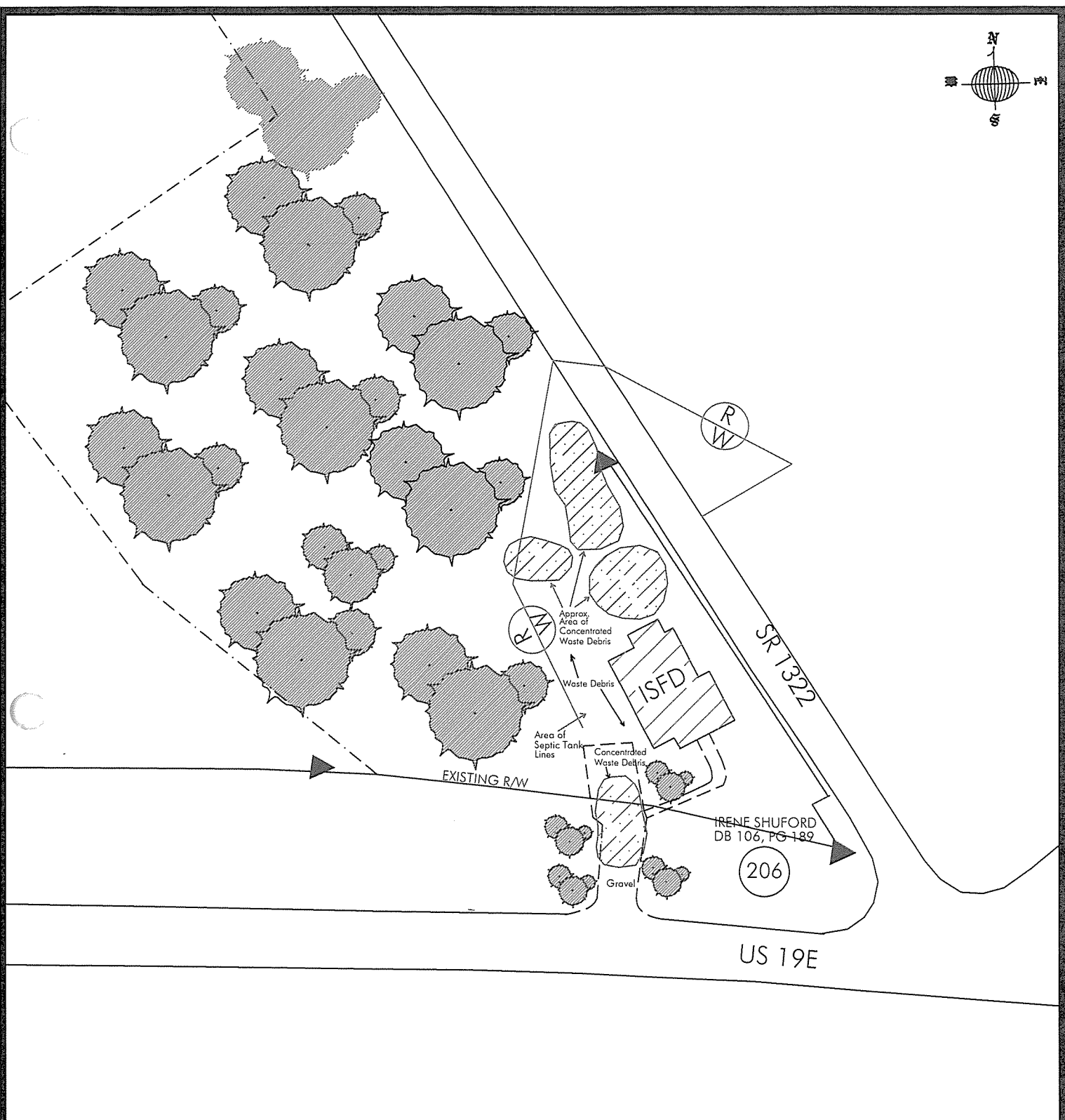
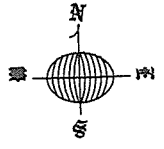





FIGURE NO:	1
DWN BY:	USGS/RMS
DATE:	2006
PROJ. NO.	ENM0060029
SCALE:	as shown

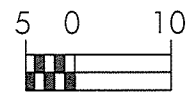
SITE LOCATION MAP
 PARCEL 206
 Irene Shuford Property
 35 Griffin Mine Road
 Burnsville, North Carolina





LEGEND:

-  Property Line
-  Proposed Right-of-Way
-  Existing Right-of-Way

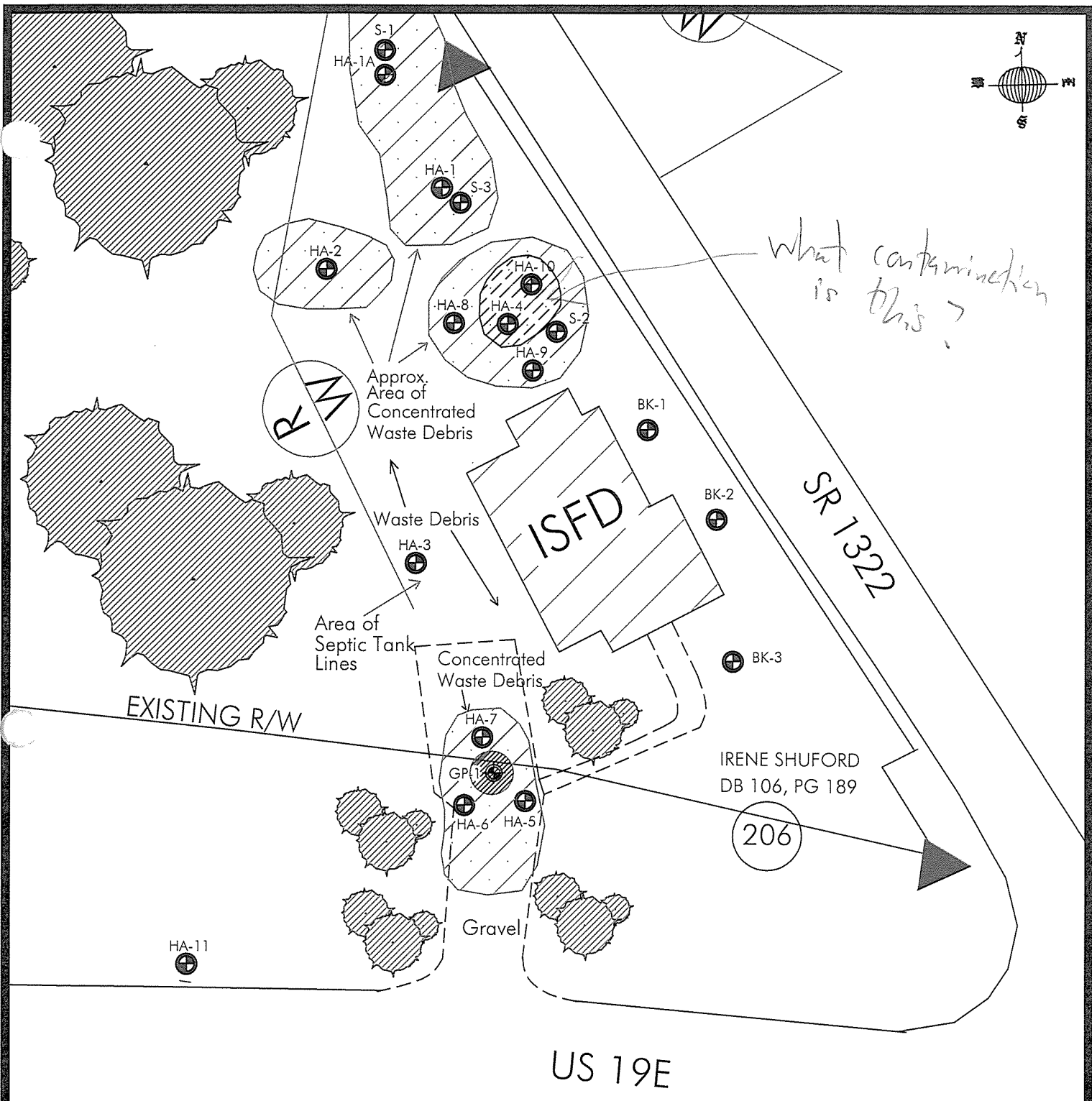
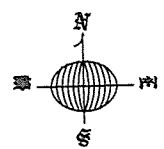


Scale in Meters

OWN NO.	FIGURE 2
JOB NO.:	ENM0060029.00
DRAWN BY:	RMS
CHECKED BY:	DCB
DATE:	2/21/06
SCALE:	1cm = 80m

SITE MAP
PARCEL 206
 Irene Shuford Property
 35 Griffin Mine Road
 Burnsville, NC 28714
 State Project: R-2519A





LEGEND:

- Property Line
- Proposed Right-of-Way
- Existing Right-of-Way
- Hand Auger Soil Test Boring
- Temporary Monitoring Well
- Estimated Extent of Residual Petroleum Impact
TPH Concentrations Diesel (Vadose zone)

5 0 10



Scale in Meters

DWN NO.	FIGURE 3
JOB NO.:	ENM0060029.00
DRAWN BY:	RMS
CHECKED BY:	DCB
DATE:	2/21/06
SCALE:	1cm = 40m

**EXTENT OF RESIDUAL PETROLEUM
IMPACT (VADOSE ZONE) MAP
PARCEL 206**

Irene Shufurd Property
35 Griffin Mine Road
Burnsville, NC 28714
State Project: R-2519A



ENVIRONMENTAL INVESTIGATIONS, INC.

APPENDIX A
SITE PHOTOGRAPHS



Photograph 1: Looking north at the subject property.



Photograph 2: Another view of subject property looking north. Note some of waste debris to the left of photo.



Photograph 3: View looking south of subject property. Note waste debris in center of photo.



Photograph 4: Same view but closer.



Photograph 5: Looking southwest. Note trash and waste debris.



Photograph 6: Looking west. Note waste debris. Debris shown is located to the northwestern portion of SP.



Photograph 7: Looking west. Debris shown is located to the western portion of SP.



Photograph 8: Debris shown is located to the northwestern portion of SP.



Photograph 9: Looking west. Note boring location. Debris shown is located to the northeastern portion of SP.



Photograph 10: Looking south. Note waste debris. Debris shown is located to the north portion of SP.



Photograph 11: Looking east. Note boring location.



Photograph 12: Looking west. Note boring location.



Photograph 13: Large container with unknown contents.



Photograph 14: Can of hydraulic oil.



Photograph 15: Drum with unknown liquid contents.



Photograph 16: Oil container.



Photograph 17: Automobile batteries.



Photograph 18: Various debris, note oxygen tank, battery chargers, etc.

APPENDIX B

STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURES
Subsurface Assessment Methodology And Sampling Protocol

Parcel 206
Irene Shuford Property
35 Griffin Mine Road
Burnsville, NC 28714

WBS Element # 35609.1.1
State Project # R-2519A
EI Project No. ENMO060029.00

Prepared For:

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May 2006

STANDARD OPERATING PROCEDURES

(Subsurface Assessment Methodology And Sampling Protocol)

INTRODUCTION

Environmental Investigations, Inc. (EI) has prepared this STANDARD OPERATING PROCEDURES - Subsurface Assessment Methodology and Sampling Protocol Plan (SPP) for a residential property owned by Irene Shuford property located at 35 Griffin Mine Road, Burnsville, Yancey County, North Carolina.

The document presented herein describes the methodology and protocol that was utilized during the *Limited Preliminary Site Assessment* conducted at the above referenced project "site".

SAMPLING DESIGN

Prior to conducting a subsurface assessment, a sampling strategy was developed by EI based on the objectives of the investigation. After designing our soil sampling strategy, the appropriate equipment and techniques were selected to conduct the investigation. Our sampling strategy was based upon the premise of accomplishing the following performance objectives:

- collect soil samples that are representative of conditions as they exist at the study site;
- selecting the appropriate sampling device(s);
- taking measures to avoid introducing contamination as a result of poor sampling and/or poor handling techniques;
- reducing the potential of cross contamination between samples;
- defining sampling site selections and collection procedures for the appropriate individual media;
- defining the quality control assurance procedures;
- analytical requirements and limitations; and
- Data interpretation and assessment.

The sampling plan for this study was developed using the non-probabilistic (directed sampling designs) in nature. The location and frequency was based on this approach, to allow for the flexibility of the field coordinator (Geologist) to determine the number of samples collected for analysis. This approach allowed for the study objectives, properties of the matrix, resource constraints and access to sampling points to be adequately performed. Provision for access, use of sampling equipment, was also pre-determined.

The following section of the SPP discusses the sampling equipment available and collection methods which have been utilized to be technically appropriate.

SITE ORIENTATION

Prior to conducting any soil sampling procedures, the EI Project Geologist/Manager reviewed and presented the Site and Safety Health Plan to all participants involved with the project which was developed based on the EI Safety and Health program. All monitoring, protective equipment (latex gloves, Tyvek® suits, etc.), potential hazards associated with the site and general health and safety standards were discussed.

Site Survey

Prior to conducting specific sampling activities, EI personnel will conduct a limited site survey of the target and surrounding areas. Information discovered during the survey will be utilized to better perform the sampling activities and will provide more insight into establishment of the conclusions of this study. The site survey will consist of the following:

- General site layout (UST system layouts, overhead canopies, dispensers, etc.);
- Site access;
- Soil types and depths;
- Surface water drainage pathways;
- Existing site conditions;
- Visible staining of surface soil;
- Vegetation stress, and
- Possible offsite or non-site related sources.

FIELD INVESTIGATIVE PROCEDURES

Sampling Objectives

The general objective of sampling for this project was to collect a sample representative of subsurface and/or groundwater to reduce the potential bias caused by the sampling equipment used to obtain the sample.

The chosen sample locations were evaluated as discrete samples. A discrete sample is defined as "a discrete aliquot representative of a specific location at a given point in time."

Areas of Environmental Concern

The objectives of choosing the proper sampling methods to collect appropriate samples that are representative of the conditions as they exist at the site were as follows:

- Selecting the appropriate sampling device.
- Taking measures to avoid introducing contamination as a result of poor sampling and/or handling techniques.
- Reducing the potential of cross contamination between samples.

The areas of environmental concern consisted of an existing heating oil UST.

SOIL SAMPLING ACTIVITIES

Manual techniques and equipment, such as hand augers, are usually used for surface or shallow, subsurface soil sampling. Power operated equipment is usually associated with collecting deep samples, but this equipment can also be used for collecting shallow samples when the auger hole begins to collapse, or when the soil is so tight that manual auguring is not practical. Based on the request of the property owner, EI mainly used hand augers and to a lesser extent we utilized Direct Push Technology (DPT). The following section discusses the DPT methods employed during the site study.

Soil Sampling Collection Methods

Soil samples were collected utilizing Direct Push Technology (DPT) methods.

Direct Push Technology Methodology

DPT refers to tools and sensors that are inserted into the subsurface without the use of drilling to remove soil and make a path for the tool. To perform the DPT activities, the contractor utilized a GeoProbe® 6600 machine. The GeoProbe® 6600 is a hydraulically-powered probing machine designed, which uses static force and a percussion hammer to advance small diameter sampling tools into the subsurface to collect soil cores, groundwater samples, and or soil gas samples. A GeoProbe relies on a relatively small amount of static (vehicle) weight combined with percussion as the energy for advancement of a tool string.

The advantages of utilizing DPT drilling methods are described as follows:

- avoids the use of drilling fluids and lubricants during drilling;
- the equipment is highly mobile;
- disturbance of geochemical conditions during installation is minimized; and
- The drilling process does not produce drill cuttings.

DPT Soil Sample Collection Methods

Soil samples utilizing DPT methods were collected from the advanced DPT soil borings continuously in 4.0-foot increments using acetate liners contained in a nickel plated macro sampling tubes. Each soil-filled liner was split for field screening and soil sample collection purposes. Soil samples were collected from the liners with disposable vinyl gloves and utilized for soil vapor screening testing and/or laboratory retention. This sampling method allows for continuous soil sampling from the ground surface to the desired depth. Soil samples selected for analyses are referenced in the text section.

Soil Sample Collection Protocol

The following soil sampling collection procedures were utilized during this study:

- Ensured that all equipment, samplers and tools that will come in contact with the sample media was thoroughly decontaminated.
- Informed driller of sample interval (s) for borehole and oversaw the sampling process.
- Prepared and labeled all sample containers. Samples collected for the analytes of volatiles (if applicable) were sampled first.
- Labeled the containers including the location, depth, analyte, date and time of sampling.
- Delegated the driller to prepare the sample liner by cutting the liner in half.
- Placed liners on a clean sheet of plastic.
- Cut the soil core with a clean decontaminated knife to allow of visual soil classification.
- Sniffed the soil core with a PID/FID and recorded instrument readings volatile organics (VOCs) in a logbook (discussed further below).
- Logged the soil core in a logbook, including borehole identification (ID), sample number, date, time and any pertinent data.

- Logged soil classification including: recording percent recovery, color, description of major constituent, soil texture/structure, grading/sorting/plasticity, relative density or hardness consistency, clay, sand, silt, gravel content, grain size, moisture content, odor, staining and the Unified Soil Classification System (USCS) identifier and symbol;
- Physically collected the selected soil samples and placed these samples into laboratory prepared containers.
- Ensured the soil sample did not contain twigs, stones, and other debris from the soil.
- Packed soil samples for shipment, prepared chain-of-custody records and shipping documentation

Soil Vapor Screening

An important tool in performing this study is performing the soil vapor screening or sniffing activities. Field screening is generally performed for a variety of reasons. The technique conducted during this study was used to screen soil samples for measurable levels of volatile organics. The results obtained from this procedure are not quantitative; however the results from several soil samples are relative and allowed the Field Geologist/Project Manager to select samples that are the most contaminated with the contaminated media. Generally, the presence of little or no organic vapor is possibly indicative of non-contaminated soils. Soil samples collected for purposes of soil headspace screening were tested by the following procedures:

- the field instrument was calibrated, prior to use;
- soil samples were collected directly from the DPT soil liners and placed into sealable plastic bags;
- soil samples within the bags were allowed to equilibrate for approximately five minutes;
- the headspace of each bagged sample was screened with the instrument probe for the presence of volatile organic compound (VOCs) with a Mini-RAE Photo-ionization Detector (PID);
- recording the instrument readings (VOCs) in a field logbook; and
- Verified that the FID/PID was reading background levels prior to exposing the probe into another sample.

Collection of Grab Soil Samples

Soil samples may provide two (2) types of soil contamination representation including grab and composite. Samples may be generally collected in random locations from a grid pattern or selected areas believed to be contaminated as evidenced by field indicators (staining, odors and/or measurable volatile organic readings).

For this study, grab samples selected from areas showing field indicators or confirmation soil samples chosen to confirm the absence of volatile organic readings were chosen. The technical definition for a grab sample is as follows: A grab sample is a discrete aliquot representative of a specific location at a given point in time. The sample is collected at one time and at one particular sampling point and depth. Refer to the text or Chain-of-Custody in this study for soil sample selection, date, time and depths of each sample chosen for laboratory analyses.

Sample Handling Procedures

The sample handling procedures were conducted as follows:

- 1) Disposable surgical latex gloves were used to avoid cross contamination of samples. Gloves were discarded in a designated "waste bag after each sample was collected.
- 2) Each confirmation sample upon collection was immediately stored in a cooler containing ice. During the sample collection process, care was taken to insure the samples were not collected in direct sunlight. In addition, during the collection process, no parts of the body without gloves touched any part of the sample.
- 3) Once placed into the cooler, each sample was protected with bubble wrap® and foam was inserted in the base, sides and top of the cooler.

Soil Boring Abandonment Procedures

Due to the fact that holes in the subsurface may act as a conduit for contamination migration, proper sealing of holes is essential for ensuring that a site assessment does not contribute to the spread of contaminants. The objective of hole-sealing is to prevent preferential migration of contaminants through the bore hole. To seal the boreholes advanced during this study, the contractor utilized a method known as surface pouring. Surface pouring entails sealing the boreholes with dry products (e.g., bentonite granules, chips and/or pellets). Once the DPT drive rods have been withdrawn, dry products are physically poured into the bottom of the

borehole and filled vertically up the column to at least two (2) feet from the base of the borehole. Once the dry products have seated into the borehole, the product is hydrated to expand the clay material. After the hydration process has been performed, the remaining portions of the boreholes are backfilled with the soil cores. Due to the nature of DPT, no soil cuttings were generated during soil boring exploration assessment work.

LABORATORY ANALYTICAL METHODS

Soil Analytical Methods

Based upon the site conditions, EI selected to analyze soil samples for the following analyses: total petroleum hydrocarbons (TPH) analyses by Method 8015B with preparation methods for the analysis of Diesel Range Organics (DRO) by GC-FID and Gasoline Range Organics (GRO) by GC-FID; volatile organics by SW-846 Method 8260 (5035 Prep); EPA Method 8080 (Pesticides), Oil and Grease (9071); and total metals for the 10 Priority Pollutants.

SAMPLE PACKAGING AND SHIPPING

This section discusses the sample packaging and shipping protocol that shall be used to transport collected samples to the laboratories for analytical testing. Samples collected, prepared, preserved and stored must then be readied for packaging and shipping. It is important that the presented protocol be followed to ensure that the samples reach their destination in sound condition. In addition, the samples must be under strict COC from the time they are sampled until the analysis is complete.

Samples collected for this project were classified as environmental materials samples and were not considered hazardous. In addition, the samples collected for this study were not classified as "dangerous goods".

Environmental samples collected for this field study were packed prior to shipment using the following procedures:

1. Secure drain plug on cooler with tape.
2. Place cushioned layer on bottom of cooler (vermiculite or "bubble-wrap" plastic).
3. Line cooler with large heavy duty plastic bag.
4. Place all sample containers in large plastic bag within the cooler. Be sure the lids on all bottles are tight (will not leak).
5. Cushion containers to prevent breakage.

STANDARD OPERATING PROCEDURES
Subsurface Assessment Methodology And Sampling Protocol
Parcel 206 – Irene Shuford Property
65 Still House Lane, Burnsville, NC 28714
NCDOT R-2519A – Preliminary Site Assessment (March 2006)

- 6 Put ice that has been "double bagged" in heavy duty polyethylene bags and placed on top of and/or between the samples within the large plastic bag. Fill all remaining space between the containers with cushion materials.
- 7 Securely fasten the top of the large plastic bag with tape or tie.
8. Place the Chain-of-Custody Record into a plastic bag, and tape the bag to the inner side of the cooler lid.
9. Close the cooler and securely tape (preferably with fiber tape) the top of the cooler shut. Custody seals should be affixed to the top and sides of the cooler within the securing tape so that the cooler cannot be opened without breaking the seal.
10. Shipping containers (ice cooler) must be marked "THIS END UP", and arrow labels which indicate the proper upward position of the container should be affixed to the container. A label containing the name and address of the shipper should be placed on the containers exterior. Labels used in the shipment of hazardous materials (e.g., Cargo Only Air Craft, Flammable Solids, etc.) are not permitted to be on the outside of containers used to transport environmental samples.

Shipping Note:

"When samples are to be shipped by common carrier or sent through the United States mail, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR 172). The person offering such material for transportation is responsible or ensuring such compliance. For the preservation requirements of 40 CFR, Part 136, Table II, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: Hydrochloric Acid (HCL) in water solutions at concentrations of 0.04% by weight or less (pH about 1.96 or greater); Nitric acid (HN03) in water solutions at concentrations of 0.-15% by weight or less (pH about 1. 62 or greater); Sulfuric acid (H2SO4) in water solutions at concentrations of 0.35% by weight or less (pH about 1. 15 or greater); and Sodium Hydroxide (Na OH) in water solutions at concentrations of 0.08% by weight or less (pH about 12.30 or less). This footnote is wholly reproduced from 40 CFR 136.3, which is definitive".

Sample Transportation

The cooler(s) containing the collected soil samples was shipped overnight via Federal Express, with COC documentation, to Prism Laboratories, Inc. in Charlotte, NC. The following protocol was used for sample handling and transportation:

- 1) The lids on all bottles were tightened to reduce the potential for leakage.
- 2) The sample identification label on each individual laboratory container was covered with a clear piece of plastic tape. Each container was then placed within an appropriately sized polyethylene bag and sealed.
- 3) The containers were placed into a bubble-wrap® lined rectangular ice chest (cooler).
- 4) Ice was placed on top and surrounding bubble-wrap® sample containers. Some of the remaining spaces between the containers were filled with bubble-wrap® and/or ice.
- 5) The cooler drain plug was secured with clear tape.
- 6) The COC's was double plastic bagged and was taped to the inner side of the cooler lid.
- 7) The cooler was closed and securely taped.
- 8) A label with adhesive tape containing the name and address of the shipper and the address of the laboratory was placed on top of the cooler.

DECONTAMINATION PROCEDURES

Decontamination is the process of washing, rinsing and removing contaminants from exposed surfaces of equipment. Decontamination helps prevent the spread of contamination off-site, and avoids cross-contamination to other samples. The decontamination procedures were performed as follows:

- 1) Disposable surgical latex gloves were used in lieu of decontamination procedures to collect soil samples.

The soil samples retained for laboratory analyses were placed in the appropriate clean laboratory prepared containers, labeled and subsequently delivered with chain-of-custody documentation (COC) for analysis. Dates and times of sampling may be referenced on the COC's. Specific laboratory analysis methods are referenced in the text of this Study.

QUALITY ASSURANCE PROTOCOL

Field and Laboratory Control Samples

The purpose of this section is to describe the standard control sampling program that supported the data quality objectives for this site. These control samples will included field control Quality Assurance (QA) samples used to assess sources of error. To minimize or consider the impact these errors have on the resulting data, a combination of unique field QA/QC protocols and control samples were developed to meet the QA overall objectives.

Field Control Samples

The elements of the sampling and field QA/QC strategy included the following:

- (1) El developed a well thought out sampling strategy for the site. The plan adequately and sufficiently outlined the different types of environmental media and protocol to sample the media.
- (2) Sampling methodologies to obtain true representative samples.
- (3) Used decontamination procedures in order to reduce cross-contamination potential between sampling points.
- (4) Used the proper sample containers, and preservation requirements.
- (5) Used the proper storage, and shipping of samples protocol.

Techniques to verify the inclusion of the QA/QC program included scheduled field control samples consisting of field blanks (trip and temperature). The field control samples were handled similarly as the environmental samples.

Quality Control Samples

A trip and temperature blank were collected during this study.

Laboratory QA/QC Procedures

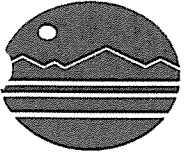
Laboratory QA/QC procedures are implemented in order to prevent, detect, and correct potential errors during the analytical process. The reliability and credibility of analytical laboratories are corroborated by the development and performance of their respective QA/QC programs. For this project, the NCDOT contracted laboratory provided and performed their program as they see fit. Standard practices used by the selected laboratory included the following quality control sample information in their generated reports:

- (a) laboratory method blanks;
- (b) temperature blanks.

INVESTIGATION DERIVED WASTE MANAGEMENT PROTOCOL

The investigation derived waste (IDW) generated during the sampling activities were placed on site. These wastes include any derivative investigative soils leftover from the sampling and backfilling protocol, decontamination water (cleaning of field equipment), bailers, bailer haul-line and PPE equipment, if applicable. The management of IDW for this project complies with applicable or relevant and appropriate requirements (ARAs). The site specific ARAs were followed in consensus with the EPA Standard Operating Procedures (SOP) and Quality Assurance Manual, Region 4 and the *Guidelines For Assessment And Corrective Action*, drafted by the North Carolina Underground Storage Tank Section, effective July 1, 2001.

APPENDIX C
SOIL BORING LOGS



EI

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-544-7500

SOIL BORING LOG

Boring No. GP-1
Date Drilled: 02/22/05

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>GeoProbe 6600</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>DPT</u>

Total Boring Depth: 3.66m Weather Conditions: Cool Surface Elevation: _____
 Boring Diameter: 4.0" Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		16:00	x			Tan to light brown clayey SILT (ML), dry.	NA
2.00	0.61			100%	(ML)		NA
4.00	1.22						NA
6.00	1.83			100%			NA
8.00	2.44						0.0
10.00	3.05			100%			0.0
12.00	3.66						0.0
<p>Boring terminated at 3.66m (12.0') bls. x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention. Boring converted into a 2.54cm (1") temporary monitoring well.</p>							



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SOIL BORING LOG

Boring No. HA-1
Date Drilled: 02/22/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth:	<u>.61m</u>	Weather Conditions:	<u>Cold</u>	Surface Elevation:	<u> </u>
Boring Diameter:	<u>10.16cm</u>	Boring Location:	<u> </u>		

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1700	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. HA-1A
Date Drilled: 02/23/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth:	<u>.61m</u>	Weather Conditions:	<u>Cold</u>	Surface Elevation:	<u> </u>
Boring Diameter:	<u>10.16cm</u>	Boring Location:	<u> </u>		

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		950	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. HA-2
Date Drilled: 02/23/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth:	<u>.61m</u>	Weather Conditions:	<u>Cold</u>	Surface Elevation:	<u> </u>
Boring Diameter:	<u>10.16cm</u>	Boring Location:	<u> </u>		

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1020	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. HA-3
Date Drilled: 02/23/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .61m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1100	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention.	



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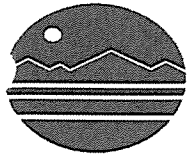
SOIL BORING LOG

Boring No. HA-4
Date Drilled: 02/23/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .61m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1105	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 - 1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. HA-5
Date Drilled: 03/22/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .61m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1105	x	100%		Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 - 1') bls interval collected for laboratory retention.	



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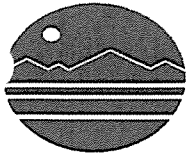
SOIL BORING LOG

Boring No. HA-6
Date Drilled: 03/22/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .61m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1105	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. HA-7
Date Drilled: 03/22/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .61m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1105	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. HA-8
Date Drilled: 03/22/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .61m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1105	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. HA-9
Date Drilled: 03/22/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .61m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1130	x	100%		Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 - 1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. HA-10
Date Drilled: 03/22/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth:	<u>.61m</u>	Weather Conditions:	<u>Cold</u>	Surface Elevation:	<u> </u>
Boring Diameter:	<u>10.16cm</u>	Boring Location:	<u> </u>		

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		1140	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention.	



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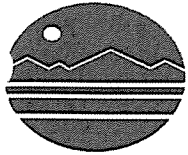
SOIL BORING LOG

Boring No. HA-11
Date Drilled: 03/22/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .61m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
			x	100%		Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .66m (4.0') bls. . x denotes soil sample at 0.1m - .66m (0 -1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. HA-4
Date Drilled: 03/22/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>Troxler Geologic Services</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: 1.22m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: _____

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
2.00	0.61			100%	(CL)	Reddish brown to light brown silty CLAY (CL)	NA
4.00	1.22	11:45	x				NA
						Boring terminated at 1.219m (4.0') bls. x denotes soil sample at .9144m - 1.219m (3'-4') bls interval collected for laboratory retention.	



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SOIL BORING LOG

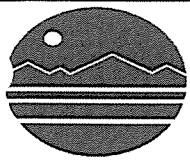
Boring No. S-1
Date Drilled: 04/20/06

Client: NCDOT
Project Name: Parcel #206
Project/Site Location: 35 Griffin Mine Road, Burnsville, NC
Project Number: ENMO060029.00

Logged By: RMS
Drilling Company: SEI
Drill Device: Hand Auger
Drill Method: Hand Auger

Total Boring Depth: .30m Weather Conditions: Cold Surface Elevation: _____
Boring Diameter: 10.16cm Boring Location: Solid Waste Pile

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		NA	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .30m (1.0') bls. x denotes soil sample at 0.15m - .66m (0.5 - 1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. S-2
Date Drilled: 04/20/06

Client: NCDOT
Project Name: Parcel #206
Project/Site Location: 35 Griffin Mine Road, Burnsville, NC
Project Number: ENMO060029.00

Logged By: RMS
Drilling Company: SEI
Drill Device: Hand Auger
Drill Method: Hand Auger

Total Boring Depth: .30m Weather Conditions: Cold Surface Elevation: _____
Boring Diameter: 10.16cm Boring Location: Solid Waste Pile

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
2.00	0.61	NA	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
						Boring terminated at .30m (1.0') bls. x denotes soil sample at 0.15m - .66m (0.5 -1') bls interval collected for laboratory retention.	



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SOIL BORING LOG

Boring No. S-3
Date Drilled: 04/20/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>SEI</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .30m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: Solid Waste Pile

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
2.00	0.61	NA	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
						Boring terminated at .30m (1.0') bls. x denotes soil sample at 0.15m - .66m (0.5 - 1') bls interval collected for laboratory retention.	



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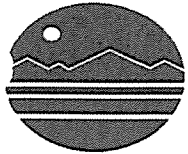
SOIL BORING LOG

Boring No. BK-1
Date Drilled: 04/20/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>SEI</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth: .30m Weather Conditions: Cold Surface Elevation: _____
 Boring Diameter: 10.16cm Boring Location: Solid Waste Pile

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
2.00	0.61	NA	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
						Boring terminated at .30m (1.0') bls. x denotes soil sample at 0.15m - .66m (0.5 -1') bls interval collected for laboratory retention.	



EI

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-657-7500

SOIL BORING LOG

Boring No. BK-2
Date Drilled: 04/20/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>SEI</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth:	<u>.30m</u>	Weather Conditions:	<u>Cold</u>	Surface Elevation:	<u></u>
Boring Diameter:	<u>10.16cm</u>	Boring Location:	<u>Solid Waste Pile</u>		

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
		NA	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
2.00	0.61					Boring terminated at .30m (1.0') bls. x denotes soil sample at 0.15m - .66m (0.5 -1') bls interval collected for laboratory retention.	



E.I.

ENVIRONMENTAL INVESTIGATIONS, INC.

2101 Gateway Centre Boulevard, Suite 200
Morrisville, North Carolina
919-657-7500

SOIL BORING LOG

Boring No. BK-3
Date Drilled: 04/20/06

Client:	<u>NCDOT</u>	Logged By:	<u>RMS</u>
Project Name:	<u>Parcel #206</u>	Drilling Company:	<u>SEI</u>
Project/Site Location:	<u>35 Griffin Mine Road, Burnsville, NC</u>	Drill Device:	<u>Hand Auger</u>
Project Number:	<u>ENMO060029.00</u>	Drill Method:	<u>Hand Auger</u>

Total Boring Depth:	<u>.30m</u>	Weather Conditions:	<u>Cold</u>	Surface Elevation:	<u> </u>
Boring Diameter:	<u>10.16cm</u>	Boring Location:	<u>Solid Waste Pile</u>		

Depth (Feet)	Depth (meters)	Time	Sample Analyzed	Recovery	Soil Profile	Lithological Description	Sample PID (ppm)
2.00	0.61	NA	x	100%	CL	Reddish brown to tan to light brown silty CLAY (CL), low plasticity, very micaceous, dry.	NA
						Boring terminated at .30m (1.0') bls. x denotes soil sample at 0.15m - .66m (0.5 -1') bls interval collected for laboratory retention.	

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: PAR 206 GP1 Analyzed By: MJC
 Client Project ID: NCDOT-Yancey Date Collected: 2/22/06 16:00
 Lab Sample ID: G106-565-1 Date Received: 2/24/06
 Lab Project ID: G106-565 Matrix: Soil
 Report Basis: Dry Weight Solids 78.08

Mr. Bob Shaut
 Environmental Investigations
 2101 Gateway Centre Boulevard
 Suite 200
 Morrisville NC 27560
 Report Number: G106-565
 Client Project: NCDOT-Yancey

Dear Mr. Shaut:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
 Paradigm Analytical Laboratories, Inc.


 Laboratory Director
 3/10/2006
 Date
 J. Patrick Weaver

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BOL 13.8	7.75	5035	1	02/25/06
Diesel Range Organics		7.51	3541	1	02/27/06

PARADIGM ANALYTICAL LABORATORIES, INC.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: PAR 206 HA1A
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-3
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 2/23/06 9:50
Date Received: 2/24/06
Matrix: Soil
Solids 78.88

Client Sample ID: PAR 206 HA3
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-5
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 2/23/06 11:00
Date Received: 2/24/06
Matrix: Soil
Solids 70.87

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed	Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	8.32	5035	1	02/25/06	Gasoline Range Organics	BQL	8.14	5035	1	02/27/06
Diesel Range Organics	BQL	7.87	3541	1	02/27/06	Diesel Range Organics	BQL	8.10	3541	1	02/28/06

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum Hydrocarbons
by GC/FID 8015**

Client Sample ID: PAR 127 GP1-8
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-7
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 2/23/06 14:00
Date Received: 2/24/06
Matrix: Soil
Solids 78.88

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BOL 6.89	6.89	5035	1	02/27/06
Diesel Range Organics	BOL 7.86	7.86	3541	1	02/28/06

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Total Petroleum Hydrocarbons
by GC/FID 8015**

Client Sample ID: PAR 163 GP2-10
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-9
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 2/22/06 9:22
Date Received: 2/24/06
Matrix: Soil
Solids 77.19

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BOL 8.04	7.22	5035	1	02/27/06
Diesel Range Organics	8.04	7.16	3541	1	02/28/06

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: PAR 163 GP4-10
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-11
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 2/22/06 10:45
Date Received: 2/24/06
Matrix: Soil
Solids 77.80

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.54	5035	1	02/27/06
Diesel Range Organics	20.6	7.26	3541	1	02/28/06

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: PAR 199A GP1-10
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-13
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 2/22/06 12:30
Date Received: 2/24/06
Matrix: Soil
Solids 86.37

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.31	5035	1	02/27/06
Diesel Range Organics	BQL	6.75	3541	1	02/28/06

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: PAR 199A GP3-10
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: G106-565-15
 Lab Project ID: G106-565
 Report Basis: Dry Weight

Analyzed By: MJC
 Date Collected: 2/22/06 13:00
 Date Received: 2/24/06
 Matrix: Soil
 Solids 91.13

Client Sample ID: PAR 89 HAG-8
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: G106-565-17
 Lab Project ID: G106-565
 Report Basis: Dry Weight

Analyzed By: MJC
 Date Collected: 2/20/06 12:45
 Date Received: 2/24/06
 Matrix: Soil
 Solids 77.20

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.53	5035	1	02/27/06
Diesel Range Organics	BQL	6.74	3541	1	03/02/06

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	8.69	5035	1	02/24/06
Diesel Range Organics	BQL	8.05	3541	1	03/02/06

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: PAR 89 HA10-9
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: G106-565-19
 Lab Project ID: G106-565
 Report Basis: Dry Weight

Analyzed By: MJC
 Date Collected: 2/21/2006 12:44
 Date Received: 2/24/2006
 Matrix: Soil
 Solids 61.86

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.09	5035	1	02/24/06
Diesel Range Organics	BQL	9.89	3545	1	03/02/06

Comments:

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: PAR 221 GP2-8
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: G106-565-21
 Lab Project ID: G106-565
 Report Basis: Dry Weight

Analyzed By: MJC
 Date Collected: 2/21/06 15:28
 Date Received: 2/24/06
 Matrix: Soil
 Solids 69.37

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	8.50	5035	1	02/25/06
Diesel Range Organics	BQL	8.96	3541	1	03/02/06

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons by GC/FID 8015

Client Sample ID: PAR 221 GP4-10
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-23
Lab Project ID: G106-565
Report Basis: Dry Weight

Analized By: MJC
Date Collected: 2/21/06 16:36
Date Received: 2/24/06
Matrix: Soil
Solids 76.29

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.12	5035	1	02/25/06
Diesel Range Organics	BQL	8.10	3541	1	03/02/06

Analyte	Result mg/kg	RL mg/kg	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.00	5035	1	02/24/06
Surrogate Spike Results					
BFB		Spike Added 50		Spike Result 49.5	Percent Recovery 99

Comments:

Flags:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Total Petroleum Hydrocarbons by GC/FID 8015

Client Sample ID: Method Blank
Client Project ID:
Lab Sample ID: VBLK4022406A
Lab Project ID:
Report Basis: Dry Weight

Analized By: MJC
Date Collected:
Date Received:
Matrix: Soil
Solids 100.00

Analyte	Result mg/kg	RL mg/kg	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.00	5035	1	02/24/06
Surrogate Spike Results					
BFB		Spike Added 50		Spike Result 49.5	Percent Recovery 99

Comments:

Flags:

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: Method Blank
 Client Project ID:
 Lab Sample ID: VBLK4022705A
 Lab Project ID:
 Report Basis: Dry Weight

Analyzed By: MJC
 Date Collected:
 Date Received:
 Matrix: Soil
 Solids 100.00

Analyte	Result mg/kg	RL mg/kg	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.00	5035	1	02/27/06
Surrogate Spike Results					
BFB		Spike Added 50		Spike Result 46.6	Percent Recovery 93.2

Comments:

Flags:

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: PAR 206 GP1
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: G106-565-1A
 Lab Project ID: G106-565
 Report Basis: Dry Weight

Analyzed By: JTF
 Date Collected: 02-22-2006 16:00
 Date Received: 2/24/2006
 Matrix: Soil
 %Solids: 78.1

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	7.08	5.60	1	2/27/2006	
2-Hexanone	BQL	7.08	3.09	1	2/27/2006	
Iodomethane	BQL	7.08	6.59	1	2/27/2006	
Isopropylbenzene	BQL	7.08	4.56	1	2/27/2006	
4-Isopropyltoluene	BQL	7.08	4.82	1	2/27/2006	
Methylene chloride	16.3	28.3	4.05	1	2/27/2006	J
4-Methyl-2-pentanone	BQL	7.08	3.27	1	2/27/2006	
Methyl-tert-butyl ether (MTBE)	BQL	7.08	3.60	1	2/27/2006	
Naphthalene	BQL	7.08	2.85	1	2/27/2006	
n-Propyl benzene	BQL	7.08	4.55	1	2/27/2006	
Styrene	BQL	7.08	5.07	1	2/27/2006	
1,1,1,2-Tetrachloroethane	BQL	7.08	3.85	1	2/27/2006	
1,1,2,2-Tetrachloroethane	BQL	7.08	3.49	1	2/27/2006	
Tetrachloroethene	BQL	7.08	4.46	1	2/27/2006	
Toluene	BQL	7.08	4.19	1	2/27/2006	
1,2,3-Trichlorobenzene	BQL	7.08	3.10	1	2/27/2006	
1,2,4-Trichlorobenzene	BQL	7.08	3.17	1	2/27/2006	
Trichloroethene	BQL	7.08	4.42	1	2/27/2006	
1,1,1-Trichloroethane	BQL	7.08	4.89	1	2/27/2006	
1,1,2-Trichloroethane	BQL	7.08	3.66	1	2/27/2006	
Trichlorofluoromethane	BQL	7.08	5.85	1	2/27/2006	
1,2,3-Trichloropropane	BQL	7.08	3.75	1	2/27/2006	
1,2,4-Trimethylbenzene	BQL	7.08	3.97	1	2/27/2006	
1,3,5-Trimethylbenzene	BQL	7.08	4.22	1	2/27/2006	
Vinyl chloride	BQL	7.08	4.68	1	2/27/2006	
m-p-Xylene	BQL	14.2	8.03	1	2/27/2006	
o-Xylene	BQL	7.08	3.97	1	2/27/2006	

Spike Added	Spike Result	Percent Recovered
50	49.1	98
50	59.9	120
50	51.4	103

Comments:

Flags:

Reviewed By: JTF

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: PAR 206 HA1
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-2A
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 02-22-2006 17:00
Date Received: 2/24/2006
Matrix: Soil
%Solids: 75.8

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	7.20	5.69	1	2/27/2006	
2-Hexanone	BQL	7.20	3.14	1	2/27/2006	
Iodomethane	BQL	7.20	6.69	1	2/27/2006	
Isopropylbenzene	BQL	7.20	4.64	1	2/27/2006	
4-Isopropyltoluene	BQL	7.20	4.89	1	2/27/2006	
Methylene chloride	BQL	28.8	4.12	1	2/27/2006	
4-Methyl-2-pentanone	BQL	7.20	3.33	1	2/27/2006	
Methyl-tert-butyl ether (MTBE)	BQL	7.20	3.66	1	2/27/2006	
Naphthalene	BQL	7.20	2.89	1	2/27/2006	
n-Propyl benzene	BQL	7.20	4.62	1	2/27/2006	
Styrene	BQL	7.20	5.15	1	2/27/2006	
1,1,1,2-Tetrachloroethane	BQL	7.20	3.92	1	2/27/2006	
1,1,2,2-Tetrachloroethane	BQL	7.20	3.54	1	2/27/2006	
Tetrachloroethene	BQL	7.20	4.53	1	2/27/2006	
Toluene	BQL	7.20	4.26	1	2/27/2006	
1,2,3-Trichlorobenzene	BQL	7.20	3.15	1	2/27/2006	
1,2,4-Trichlorobenzene	BQL	7.20	3.22	1	2/27/2006	
Trichloroethene	BQL	7.20	4.49	1	2/27/2006	
1,1,1-Trichloroethane	BQL	7.20	4.97	1	2/27/2006	
1,1,2-Trichloroethane	BQL	7.20	3.71	1	2/27/2006	
Trichlorofluoromethane	BQL	7.20	5.95	1	2/27/2006	
1,2,3-Trichloropropane	BQL	7.20	3.82	1	2/27/2006	
1,2,4-Trimethylbenzene	BQL	7.20	4.03	1	2/27/2006	
1,3,5-Trimethylbenzene	BQL	7.20	4.29	1	2/27/2006	
Vinyl chloride	BQL	7.20	4.75	1	2/27/2006	
m-p-Xylene	BQL	14.4	8.16	1	2/27/2006	
o-Xylene	BQL	7.20	4.03	1	2/27/2006	

Spike Added	Spike Result	Percent Recovered
50	50	100
50	61.4	123
50	52.3	105

Comments:

Flags:

Reviewed By: JTF

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: PAR 206 HA1A
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-3A
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 02-23-2006 09:50
Date Received: 2/24/2006
Matrix: Soil
%Solids: 76.9

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	7.54	5.96	1	2/27/2006	
2-Hexanone	BQL	7.54	3.29	1	2/27/2006	
Iodomethane	BQL	7.54	7.02	1	2/27/2006	
Isopropylbenzene	BQL	7.54	4.86	1	2/27/2006	
4-Isopropyltoluene	BQL	7.54	5.13	1	2/27/2006	
Methylene chloride	BQL	30.2	4.32	1	2/27/2006	
4-Methyl-2-pentanone	BQL	7.54	3.49	1	2/27/2006	
Methyl-tert-butyl ether (MTBE)	BQL	7.54	3.83	1	2/27/2006	
Naphthalene	BQL	7.54	3.03	1	2/27/2006	
n-Propyl benzene	BQL	7.54	4.84	1	2/27/2006	
Styrene	BQL	7.54	5.40	1	2/27/2006	
1,1,1,2-Tetrachloroethane	BQL	7.54	4.10	1	2/27/2006	
1,1,2,2-Tetrachloroethane	BQL	7.54	3.71	1	2/27/2006	
Tetrachloroethene	BQL	7.54	4.75	1	2/27/2006	
Toluene	BQL	7.54	4.47	1	2/27/2006	
1,2,3-Trichlorobenzene	BQL	7.54	3.30	1	2/27/2006	
1,2,4-Trichlorobenzene	BQL	7.54	3.38	1	2/27/2006	
Trichloroethene	BQL	7.54	4.71	1	2/27/2006	
1,1,1-Trichloroethane	BQL	7.54	5.21	1	2/27/2006	
1,1,2-Trichloroethane	BQL	7.54	3.89	1	2/27/2006	
Trichlorofluoromethane	BQL	7.54	6.23	1	2/27/2006	
1,2,3-Trichloropropane	BQL	7.54	4.00	1	2/27/2006	
1,2,4-Trimethylbenzene	BQL	7.54	4.23	1	2/27/2006	
1,3,5-Trimethylbenzene	BQL	7.54	4.50	1	2/27/2006	
Vinyl chloride	BQL	7.54	4.98	1	2/27/2006	
m-p-Xylene	BQL	15.1	8.56	1	2/27/2006	
o-Xylene	BQL	7.54	4.23	1	2/27/2006	

Spike Added	Spike Result	Percent Recovered
50	48.3	97
50	60	120
50	50.1	100

Comments:

Flags:

Reviewed By: JTF

Results for Volatiles
by GCMS 8260-5030

Client Sample ID: PAR 206 HA2
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-4A
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 02-23-2006 10:20
Date Received: 2/24/2006
Matrix: Soil
%Solids: 77.3

Results for Volatiles
by GCMS 8260-5030

Client Sample ID: PAR 206 HA3
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-5A
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 02-23-2006 11:00
Date Received: 2/24/2006
Matrix: Soil
%Solids: 70.9

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	6.03	4.31	1	2/27/2006	
2-Hexanone	BQL	6.03	2.15	1	2/27/2006	
Iodomethane	BQL	6.03	4.34	1	2/27/2006	
Isopropylbenzene	BQL	6.03	4.57	1	2/27/2006	
4-Isopropyltoluene	BQL	6.03	4.44	1	2/27/2006	
Methylene chloride	BQL	24.1	3.71	1	2/27/2006	
4-Methyl-2-pentanone	BQL	6.03	1.43	1	2/27/2006	
Methyl-tert-butyl ether (MTBE)	BQL	6.03	2.74	1	2/27/2006	
Naphthalene	BQL	6.03	2.87	1	2/27/2006	
n-Propyl benzene	BQL	6.03	4.48	1	2/27/2006	
Styrene	BQL	6.03	5.69	1	2/27/2006	
1,1,1,2-Tetrachloroethane	BQL	6.03	3.51	1	2/27/2006	
1,1,2,2-Tetrachloroethane	BQL	6.03	2.18	1	2/27/2006	
Tetrachloroethene	BQL	6.03	4.60	1	2/27/2006	
Toluene	BQL	6.03	3.89	1	2/27/2006	
1,2,3-Trichlorobenzene	BQL	6.03	3.17	1	2/27/2006	
1,2,4-Trichlorobenzene	BQL	6.03	2.81	1	2/27/2006	
Trichloroethene	BQL	6.03	4.19	1	2/27/2006	
1,1,1-Trichloroethane	BQL	6.03	4.22	1	2/27/2006	
1,1,2-Trichloroethane	BQL	6.03	2.42	1	2/27/2006	
Trichlorofluoromethane	BQL	6.03	4.74	1	2/27/2006	
1,2,3-Trichloropropane	BQL	6.03	2.24	1	2/27/2006	
1,2,4-Trimethylbenzene	BQL	6.03	4.36	1	2/27/2006	
1,3,5-Trimethylbenzene	BQL	6.03	4.46	1	2/27/2006	
Vinyl chloride	BQL	6.03	4.15	1	2/27/2006	
m-p-Xylene	BQL	12.1	8.86	1	2/27/2006	
o-Xylene	BQL	6.03	4.28	1	2/27/2006	

Spike Added	Spike Result	Percent Recovered
50	49.2	98
50	48.5	97
50	49.3	99

Comments:

Flags: BQL = Below Quantitation Limits.

Reviewed By: JTF

Comments:

Flags: BQL = Below Quantitation Limits.

Reviewed By: JTF

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	6.78	4.86	1	2/27/2006	
2-Hexanone	BQL	6.78	2.42	1	2/27/2006	
Iodomethane	BQL	6.78	4.88	1	2/27/2006	
Isopropylbenzene	BQL	6.78	5.14	1	2/27/2006	
4-Isopropyltoluene	BQL	6.78	4.99	1	2/27/2006	
Methylene chloride	BQL	27.1	4.18	1	2/27/2006	
4-Methyl-2-pentanone	BQL	6.78	1.61	1	2/27/2006	
Methyl-tert-butyl ether (MTBE)	BQL	6.78	3.08	1	2/27/2006	
Naphthalene	15.0	6.78	3.23	1	2/27/2006	
n-Propyl benzene	7.22	6.78	5.05	1	2/27/2006	
Styrene	BQL	6.78	6.40	1	2/27/2006	
1,1,1,2-Tetrachloroethane	BQL	6.78	3.95	1	2/27/2006	
1,1,2,2-Tetrachloroethane	BQL	6.78	2.46	1	2/27/2006	
Tetrachloroethene	BQL	6.78	5.18	1	2/27/2006	
Toluene	50.5	6.78	4.38	1	2/27/2006	
1,2,3-Trichlorobenzene	BQL	6.78	3.57	1	2/27/2006	
1,2,4-Trichlorobenzene	BQL	6.78	3.16	1	2/27/2006	
Trichloroethene	BQL	6.78	4.72	1	2/27/2006	
1,1,1-Trichloroethane	BQL	6.78	4.75	1	2/27/2006	
1,1,2-Trichloroethane	BQL	6.78	2.73	1	2/27/2006	
Trichlorofluoromethane	BQL	6.78	5.33	1	2/27/2006	
1,2,3-Trichloropropane	BQL	6.78	2.52	1	2/27/2006	
1,2,4-Trimethylbenzene	50.8	6.78	4.91	1	2/27/2006	
1,3,5-Trimethylbenzene	15.6	6.78	5.02	1	2/27/2006	
Vinyl chloride	BQL	6.78	4.67	1	2/27/2006	
m-p-Xylene	125	13.6	9.97	1	2/27/2006	
o-Xylene	57.4	6.78	4.82	1	2/27/2006	

Spike Added	Spike Result	Percent Recovered
50	50.2	100
50	45.5	91
50	51.2	102

Comments:

Flags: BQL = Below Quantitation Limits.

Reviewed By: JTF

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260-5030

Client Sample ID: PAR 206 HA4
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-6A
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 02-23-2006 11:05
Date Received: 2/24/2006
Matrix: Soil
%Solids: 73.4

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	5.82	4.17	1	2/27/2006	
2-Hexanone	BQL	5.82	2.07	1	2/27/2006	
Iodomethane	BQL	5.82	4.19	1	2/27/2006	
Isopropylbenzene	BQL	5.82	4.41	1	2/27/2006	
4-Isopropyltoluene	BQL	5.82	4.28	1	2/27/2006	
Methylene chloride	BQL	23.3	3.59	1	2/27/2006	
4-Methyl-2-pentanone	BQL	5.82	1.39	1	2/27/2006	
Methyl-tert-butyl ether (MTBE)	BQL	5.82	2.64	1	2/27/2006	
Naphthalene	BQL	5.82	2.77	1	2/27/2006	
n-Propyl benzene	BQL	5.82	4.33	1	2/27/2006	
Styrene	BQL	5.82	5.49	1	2/27/2006	
1,1,1,2-Tetrachloroethane	BQL	5.82	3.39	1	2/27/2006	
1,1,2,2-Tetrachloroethane	BQL	5.82	2.11	1	2/27/2006	
Trichloroethene	BQL	5.82	4.45	1	2/27/2006	
Toluene	BQL	5.82	3.76	1	2/27/2006	
1,2,3-Trichlorobenzene	BQL	5.82	3.06	1	2/27/2006	
1,2,4-Trichlorobenzene	BQL	5.82	2.71	1	2/27/2006	
Trichloroethene	BQL	5.82	4.05	1	2/27/2006	
1,1,1-Trichloroethane	BQL	5.82	4.07	1	2/27/2006	
1,1,2-Trichloroethane	BQL	5.82	2.34	1	2/27/2006	
Trichlorofluoromethane	BQL	5.82	4.57	1	2/27/2006	
1,2,3-Trichloropropane	BQL	5.82	2.16	1	2/27/2006	
1,2,4-Trimethylbenzene	BQL	5.82	4.21	1	2/27/2006	
1,3,5-Trimethylbenzene	BQL	5.82	4.31	1	2/27/2006	
Vinyl chloride	BQL	5.82	4.00	1	2/27/2006	
m-p-Xylene	BQL	11.6	8.56	1	2/27/2006	
o-Xylene	BQL	5.82	4.13	1	2/27/2006	

Spike Added	Spike Result	Percent Recovered
50	48.4	97
50	48.4	97
50	52.2	104

Comments:

Flags:
BQL = Below Quantitation Limits.

Reviewed By: JTF

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: PAR 163 GP2-10
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-9A
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 02-22-2006 09:22
Date Received: 2/24/2006
Matrix: Soil
%Solids: 77.2

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	6.35	5.02	1	2/27/2006	
2-Hexanone	BQL	6.35	2.77	1	2/27/2006	
Iodomethane	BQL	6.35	5.91	1	2/27/2006	
Isopropylbenzene	16.3	6.35	4.09	1	2/27/2006	
4-Isopropyltoluene	16.8	6.35	4.32	1	2/27/2006	
Methylene chloride	9.25	25.4	3.63	1	2/27/2006	
4-Methyl-2-pentanone	BQL	6.35	2.93	1	2/27/2006	
Methyl-tert-butyl ether (MTBE)	BQL	6.35	3.23	1	2/27/2006	
Naphthalene	95.4	6.35	2.55	1	2/27/2006	J
n-Propyl benzene	27.6	6.35	4.08	1	2/27/2006	
Styrene	BQL	6.35	4.55	1	2/27/2006	
1,1,1,2-Tetrachloroethane	BQL	6.35	3.45	1	2/27/2006	
1,1,2,2-Tetrachloroethane	BQL	6.35	3.12	1	2/27/2006	
Trichloroethene	BQL	6.35	4.00	1	2/27/2006	
Toluene	BQL	6.35	3.76	1	2/27/2006	
1,2,3-Trichlorobenzene	BQL	6.35	2.78	1	2/27/2006	
1,2,4-Trichlorobenzene	BQL	6.35	2.85	1	2/27/2006	
Trichloroethene	BQL	6.35	3.96	1	2/27/2006	
1,1,1-Trichloroethane	BQL	6.35	4.38	1	2/27/2006	
1,1,2-Trichloroethane	BQL	6.35	3.28	1	2/27/2006	
Trichlorofluoromethane	BQL	6.35	5.25	1	2/27/2006	
1,2,3-Trichloropropane	BQL	6.35	3.37	1	2/27/2006	
1,2,4-Trimethylbenzene	128	6.35	3.56	1	2/27/2006	
1,3,5-Trimethylbenzene	48.3	6.35	3.78	1	2/27/2006	
Vinyl chloride	BQL	6.35	4.19	1	2/27/2006	
m-p-Xylene	18.4	12.7	7.20	1	2/27/2006	
o-Xylene	34.2	6.35	3.56	1	2/27/2006	

Spike Added	Spike Result	Percent Recovered
50	36.4	73
50	66.7	133
50	50.5	101

Comments:

Flags:
BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: JTF

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: PAR 199A GP2-10
Client Project ID: NCDOT-Yancey
Lab Sample ID G106-565-14A
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 02-22-2006 12:45
Date Received: 2/24/2006
Matrix: Soil
%Solids: 90.9

Results for Volatiles
by GCMS 8260-5035

Client Sample ID: PAR 89 HAG-8
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-17A
Lab Project ID: G106-565
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 02-20-2006 12:45
Date Received: 2/24/2006
Matrix: Soil
%Solids: 77.2

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	4.70	3.71	1	2/27/2006	
2-Hexanone	BQL	4.70	2.05	1	2/27/2006	
Iodomethane	BQL	4.70	4.37	1	2/27/2006	
Isopropylbenzene	BQL	4.70	3.03	1	2/27/2006	
4-Isopropyltoluene	BQL	4.70	3.20	1	2/27/2006	
Methylene chloride	BQL	18.8	2.69	1	2/27/2006	J
4-Methyl-2-pentanone	BQL	4.70	2.17	1	2/27/2006	
Methyl-tert-butyl ether (MTBE)	BQL	4.70	2.39	1	2/27/2006	
Naphthalene	BQL	4.70	1.89	1	2/27/2006	
n-Propyl benzene	BQL	4.70	3.02	1	2/27/2006	
Styrene	BQL	4.70	3.37	1	2/27/2006	
1,1,1,2-Tetrachloroethane	BQL	4.70	2.56	1	2/27/2006	
1,1,2,2-Tetrachloroethane	BQL	4.70	2.31	1	2/27/2006	
Tetrachloroethene	BQL	4.70	2.96	1	2/27/2006	
Toluene	BQL	4.70	2.78	1	2/27/2006	
1,2,3-Trichlorobenzene	BQL	4.70	2.06	1	2/27/2006	
1,2,4-Trichlorobenzene	BQL	4.70	2.11	1	2/27/2006	
Trichloroethene	BQL	4.70	2.93	1	2/27/2006	
1,1,1-Trichloroethane	BQL	4.70	3.24	1	2/27/2006	
1,1,2-Trichloroethane	BQL	4.70	2.43	1	2/27/2006	
Trichlorofluoromethane	BQL	4.70	3.88	1	2/27/2006	
1,2,3-Trichloropropane	BQL	4.70	2.49	1	2/27/2006	
1,2,4-Trimethylbenzene	BQL	4.70	2.63	1	2/27/2006	
1,3,5-Trimethylbenzene	BQL	4.70	2.80	1	2/27/2006	
Vinyl chloride	BQL	4.70	3.10	1	2/27/2006	
m-p-Xylene	BQL	9.40	5.33	1	2/27/2006	
o-Xylene	BQL	4.70	2.63	1	2/27/2006	
4-Bromofluorobenzene		50	52.5	105		
1,2-Dichloroethane-d4		50	54.5	109		
Toluene-d8		50	50.6	101		

Comments:

Flags:
BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: JTF

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	6.70	5.30	1	2/28/2006	
2-Hexanone	BQL	6.70	2.92	1	2/28/2006	
Iodomethane	8.51	6.70	6.24	1	2/28/2006	
Isopropylbenzene	BQL	6.70	4.32	1	2/28/2006	
4-Isopropyltoluene	BQL	6.70	4.56	1	2/28/2006	
Methylene chloride	BQL	26.8	3.84	1	2/28/2006	J
4-Methyl-2-pentanone	BQL	6.70	3.10	1	2/28/2006	
Methyl-tert-butyl ether (MTBE)	BQL	6.70	3.41	1	2/28/2006	
Naphthalene	BQL	6.70	2.70	1	2/28/2006	J
n-Propyl benzene	BQL	6.70	4.30	1	2/28/2006	
Styrene	BQL	6.70	4.80	1	2/28/2006	
1,1,1,2-Tetrachloroethane	BQL	6.70	3.65	1	2/28/2006	
1,1,2,2-Tetrachloroethane	BQL	6.70	3.30	1	2/28/2006	
Tetrachloroethene	BQL	6.70	4.22	1	2/28/2006	J
Toluene	BQL	6.70	3.97	1	2/28/2006	
1,2,3-Trichlorobenzene	BQL	6.70	2.94	1	2/28/2006	
1,2,4-Trichlorobenzene	BQL	6.70	3.00	1	2/28/2006	
Trichloroethene	BQL	6.70	4.18	1	2/28/2006	
1,1,1-Trichloroethane	BQL	6.70	4.63	1	2/28/2006	
1,1,2-Trichloroethane	BQL	6.70	3.46	1	2/28/2006	
Trichlorofluoromethane	BQL	6.70	5.54	1	2/28/2006	
1,2,3-Trichloropropane	BQL	6.70	3.55	1	2/28/2006	J
1,2,4-Trimethylbenzene	BQL	6.70	3.75	1	2/28/2006	
1,3,5-Trimethylbenzene	BQL	6.70	4.00	1	2/28/2006	
Vinyl chloride	BQL	6.70	4.43	1	2/28/2006	
m-p-Xylene	BQL	13.4	7.60	1	2/28/2006	
o-Xylene	BQL	6.70	3.75	1	2/28/2006	
4-Bromofluorobenzene		50	55.3	111		
1,2-Dichloroethane-d4		50	74.2	148		
Toluene-d8		50	52.1	104		

Comments:

Flags:
BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: JTF

**Results for MS/MSD
by GC/MS 8260/5035**

**Results for Volatiles
by GCMS 8260-5035**

Client Project ID: Batch QC
Lab Sample ID: g122-2732-6a
Batch ID: 3022706

Date Analyzed: 28 Feb 2006 7:55 am
Matrix: Soil
Analyzed By: JTF

Client Sample ID: Method Blank
Client Project ID: VBLK3022706D
Lab Project ID:
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected:
Date Received:
Matrix: Soil
%Solids: 100.0

Compound	Unspiked Sample ug/L	Spike conc. ug/L	Recovered MS %	Recovered MSD %	Limits		RPD %	RPD Limit %
					Lower %	Upper %		
benzene	BQL	50	98.4	98.2	74.8	133	0.2	30
chlorobenzene	BQL	50	101.8	102.7	66.3	135	0.9	30
1,1-dichloroethene	BQL	50	96.7	97.3	72.0	135	0.6	30
toluene	BQL	50	102.2	101.3	70.5	138	0.8	30
trichloroethene	BQL	50	105.3	103.3	60.7	152	1.9	30

Comments: Concentrations are on column amounts.
Concentration Units: ug/L

Flags: * = Out of limits.
NA = Not applicable
BQL = Below quantitation limit.

Reviewed By: JTF

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	MDL UG/KG	Dilution Factor	Date Analyzed	Flag
Hexachlorobutadiene	BQL	5.00	3.95	1	2/28/2006	
2-Hexanone	BQL	5.00	2.18	1	2/28/2006	
Iodomethane	BQL	5.00	4.65	1	2/28/2006	
Isopropylbenzene	BQL	5.00	3.22	1	2/28/2006	
4-Isopropyltoluene	BQL	5.00	3.40	1	2/28/2006	
Methylene chloride	BQL	20.0	2.86	1	2/28/2006	
4-Methyl-2-pentanone	BQL	5.00	2.31	1	2/28/2006	
Methyl-tert-butyl ether (MTBE)	BQL	5.00	2.54	1	2/28/2006	
Naphthalene	BQL	5.00	2.01	1	2/28/2006	
n-Propyl benzene	BQL	5.00	3.21	1	2/28/2006	
Styrene	BQL	5.00	3.58	1	2/28/2006	
1,1,1,2-Tetrachloroethane	BQL	5.00	2.72	1	2/28/2006	
1,1,2,2-Tetrachloroethane	BQL	5.00	2.46	1	2/28/2006	
Tetrachloroethene	BQL	5.00	3.15	1	2/28/2006	
Toluene	BQL	5.00	2.96	1	2/28/2006	
1,2,3-Trichlorobenzene	BQL	5.00	2.19	1	2/28/2006	
1,2,4-Trichlorobenzene	BQL	5.00	2.24	1	2/28/2006	
Trichloroethene	BQL	5.00	3.12	1	2/28/2006	
1,1,1-Trichloroethane	BQL	5.00	3.45	1	2/28/2006	
1,1,2-Trichloroethane	BQL	5.00	2.58	1	2/28/2006	
Trichlorofluoromethane	BQL	5.00	4.13	1	2/28/2006	
1,2,3-Trichloropropane	BQL	5.00	2.65	1	2/28/2006	
1,2,4-Trimethylbenzene	BQL	5.00	2.80	1	2/28/2006	
1,3,5-Trimethylbenzene	BQL	5.00	2.98	1	2/28/2006	
Vinyl chloride	BQL	5.00	3.30	1	2/28/2006	
m-p-Xylene	BQL	10.0	5.67	1	2/28/2006	
o-Xylene	BQL	5.00	2.80	1	2/28/2006	

Spike Added	Spike Result	Percent Recovered
50	51.3	103
50	46.8	94
50	50.2	100

Comments:

Flags:
BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: JTF

Results for Laboratory Control Spike (LCS)
by GC/MS 8260/5035

Lab Sample ID: lcs3022706a
Analyst: JTF
Batch ID: 3022706

Date Analyzed: 27 Feb 2006 10:23 am
Matrix: Soil

compound	Spiked (µg/Kg)	Amount recovered	LCS (%)	Limits	
				Lower (%)	Upper (%)
benzene	50	48.24	96.5	77.6	122
chlorobenzene	50	40.33	80.7	75.3	125
1,1-dichloroethene	50	43.40	86.8	78.5	121
toluene	50	45.36	90.7	75.7	124
trichloroethene	50	43.65	87.3	60.8	139

Comments: Concentration values are on column amount.

Flags: * = Out of limits.
NA = Not applicable
NS = Not spiked

Reviewed by: ESF

Results for Semivolatiles
by GCMS 8270

Client Sample ID: PAR 163 GP2-10
Lab Project ID: NCDOT-Yancey
Lab Sample ID: G106-565-9K
Lab Project ID: G106-565
Report Basis: Dry weight

Analyzed By: MRC
Date Collected: 2/22/2006 9:22
Date Received: 2/24/2006
Date Extracted: 2/28/2006
Matrix: Soil
% Solids: 77.19

Compound	Result ug/Kg	RL ug/Kg	MDL ug/Kg	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	403	59.3	1	3/1/2006	
2-Methylnaphthalene	BQL	403	118	1	3/1/2006	
2-Methylphenol	BQL	403	142	1	3/1/2006	
3- & 4-Methylphenol	BQL	403	137	1	3/1/2006	
Naphthalene	BQL	403	32.7	1	3/1/2006	
2-Nitroaniline	BQL	403	63.3	1	3/1/2006	
3-Nitroaniline	BQL	2020	415	1	3/1/2006	
4-Nitroaniline	BQL	2020	124	1	3/1/2006	
Nitrobenzene	BQL	403	54.4	1	3/1/2006	
2-Nitrophenol	BQL	403	125	1	3/1/2006	
4-Nitrophenol	BQL	2020	112	1	3/1/2006	
N-Nitrosodi-n-propylamine	BQL	403	51.2	1	3/1/2006	
Pentachlorophenol	BQL	2020	105	1	3/1/2006	
Phenanthrene	BQL	403	46.0	1	3/1/2006	
Phenol	BQL	403	111	1	3/1/2006	
Pyrene	BQL	403	77.4	1	3/1/2006	
1,2,4-Trichlorobenzene	BQL	403	50.4	1	3/1/2006	
2,4,5-Trichlorophenol	BQL	403	156	1	3/1/2006	
2,4,6-Trichlorophenol	BQL	403	144	1	3/1/2006	

Spike Added	Spike Result	Percent Recovered
10	10.1	101
10	11	110
10	11.2	112
10	11.2	112
10	10.7	107
10	10.9	109

Comments: * N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

Flags: BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By: ESF

Results for Semivolatiles
by GCMS 8270

Client Sample ID: PAR 199A GP2-10
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: G106-565-14N
 Lab Project ID: G106-565
 Report Basis: Dry weight

Analyzed By: MRC
 Date Collected: 2/22/2006 12:45
 Date Received: 2/24/2006
 Date Extracted: 2/28/2006
 Matrix: Soil
 % Solids: 90.91

Compound	Result ug/Kg	RL ug/Kg	MDL ug/Kg	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	343	50.4	1	3/1/2006	
2-Methylnaphthalene	BQL	343	100	1	3/1/2006	
2-Methylphenol	BQL	343	121	1	3/1/2006	
3- & 4-Methylphenol	BQL	343	116	1	3/1/2006	
Naphthalene	BQL	343	27.8	1	3/1/2006	
2-Nitroaniline	BQL	343	53.9	1	3/1/2006	
3-Nitroaniline	BQL	1720	353	1	3/1/2006	
4-Nitroaniline	BQL	1720	106	1	3/1/2006	
Nitrobenzene	BQL	343	46.3	1	3/1/2006	
2-Nitrophenol	BQL	343	106	1	3/1/2006	
4-Nitrophenol	BQL	1720	95.0	1	3/1/2006	
N-Nitrosodi-n-propylamine	BQL	343	43.6	1	3/1/2006	
Pentachlorophenol	BQL	1720	89.5	1	3/1/2006	
Phenanthrene	BQL	343	39.1	1	3/1/2006	
Phenol	BQL	343	94.0	1	3/1/2006	
Pyrene	BQL	343	65.9	1	3/1/2006	
1,2,4-Trichlorobenzene	BQL	343	42.9	1	3/1/2006	
2,4,5-Trichlorophenol	BQL	343	133	1	3/1/2006	
2,4,6-Trichlorophenol	BQL	343	122	1	3/1/2006	

Spike Added	Spike Result	Percent Recovered
10	10.3	103
10	8.8	88
10	10.7	107
10	9.2	92
10	9	90
10	11.4	114

Comments: * N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

Flags: BQL = Below Quantitation Limits.
 J = Detected below the quantitation limit.

Reviewed By: CSJ

Results for Semivolatiles
by GCMS 8270

Client Sample ID: PAR 89 HA6-8
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: G106-565-17L
 Lab Project ID: G106-565
 Report Basis: Dry weight

Analyzed By: MRC
 Date Collected: 2/20/2006 12:45
 Date Received: 2/24/2006
 Date Extracted: 2/28/2006
 Matrix: Soil
 % Solids: 77.2

Compound	Result ug/Kg	RL ug/Kg	MDL ug/Kg	Dilution Factor	Date Analyzed	Flag
Isophorone	BQL	404	59.4	1	3/1/2006	
2-Methylnaphthalene	BQL	404	118	1	3/1/2006	
2-Methylphenol	BQL	404	142	1	3/1/2006	
3- & 4-Methylphenol	BQL	404	137	1	3/1/2006	
Naphthalene	BQL	404	32.7	1	3/1/2006	
2-Nitroaniline	BQL	404	63.4	1	3/1/2006	
3-Nitroaniline	BQL	2020	416	1	3/1/2006	
4-Nitroaniline	BQL	2020	124	1	3/1/2006	
Nitrobenzene	BQL	404	54.5	1	3/1/2006	
2-Nitrophenol	BQL	404	125	1	3/1/2006	
4-Nitrophenol	BQL	2020	112	1	3/1/2006	
N-Nitrosodi-n-propylamine	BQL	404	51.3	1	3/1/2006	
Pentachlorophenol	BQL	2020	105	1	3/1/2006	
Phenanthrene	BQL	404	46.0	1	3/1/2006	
Phenol	BQL	404	111	1	3/1/2006	
Pyrene	BQL	404	77.5	1	3/1/2006	
1,2,4-Trichlorobenzene	BQL	404	50.5	1	3/1/2006	
2,4,5-Trichlorophenol	BQL	404	156	1	3/1/2006	
2,4,6-Trichlorophenol	BQL	404	144	1	3/1/2006	

Spike Added	Spike Result	Percent Recovered
10	9.9	99
10	8.3	83
10	10.6	106
10	9.1	91
10	7.5	75
10	10.7	107

Comments: * N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

Flags: BQL = Below Quantitation Limits.
 J = Detected below the quantitation limit.

Reviewed By: CSJ

Results for Oil and Grease

Client Sample ID: PAR 206 HA1
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: g106-565-2L
 Lab Project ID: G106-565
 Matrix: Soil

Date Analyzed: 3/2/2006
 Analyzed By: nio
 Date Collected: 2/22/2006 17:00
 Date Received: 2/24/2006
 Solids: 75.83

Parameter	Method	RL	Result
Oil & Grease	9071	40.7	BQL

Comments:

BQL = Below Quantitation Limit
 All soils are corrected for percent solids.

Results for Oil and Grease

Client Sample ID: PAR 206 HAZ
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: g106-565-4I
 Lab Project ID: G106-565
 Matrix: Soil

Date Analyzed: 3/2/2006
 Analyzed By: nio
 Date Collected: 2/23/2006 10:20
 Date Received: 2/24/2006
 Solids: 77.25

Parameter	Method	RL	Result
Oil & Grease	9071	40	BQL

Comments:

BQL = Below Quantitation Limit
 All soils are corrected for percent solids.

Results for Oil and Grease

Client Sample ID: PAR 206 HA4
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: G106-565-6J
 Lab Project ID: G106-565
 Matrix: Soil

Date Analyzed: 3/2/2006
 Analyzed By: nio
 Date Collected: 2/23/2006 11:05
 Date Received: 2/24/2006
 Solids: 73.43

Parameter	Method	RL	Result
Oil & Grease	9071	MG/KG 39.7	MG/KG 373

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Client Name: Environmental Investigations
 Project Name: NCDOT-Yancey

Sample Information and Analytical Results	
Sample Identification	PAR 163 GP2-10
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	02/22/06
Date Received	02/24/06
Date Extracted	02/22/06
Date Analyzed	02/27/06
Dry Weight	77
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	12 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	10 (mg/Kg)
Surrogate % Recovery - PID	100
Surrogate % Recovery - FID	100

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.
 ** = Excludes any surrogates or internal standards.

Comments:

BQL = Below Quantitation Limit
 All soils are corrected for percent solids.

Lab Info: g106-565-9d

Reviewed By:

VPH (Aliphatics/Aromatics) Laboratory Reporting Form

Attachment 2
VPH Laboratory Reporting Form
Calibration and QA/QC Information

Client Name: Environmental Investigations
Project Name: NCDOT-Yancey

FID Initial Calibration Date: 02/11/06 PID Initial Calibration Date: 02/11/06

Calibration Ranges and Limits

Range	MDL (07/15/2004) (µg/L)	ML (µg/L)	RL (mg/Kg)
C ₅ -C ₈ Aliphatics	4.4	14	100
C ₉ -C ₁₂ Aliphatics	3.4	11	100
C ₉ -C ₁₀ Aromatics	0.13	0.41	100

Calibration Concentration Levels

Range	Levels (µg/L)	%RSD or CCC	Method of Quantitation
C ₅ -C ₈ Aliphatics	40	10.8	Calibration Factor
	1000		
	2000		
	3000		
C ₉ -C ₁₂ Aliphatics	10	0.99	Linear Regression
	250		
	500		
	750		
C ₉ -C ₁₀ Aromatics	10	19.30	Calibration Factor
	250		
	500		
	750		

Calibration Check Date: 02/24/06

Calibration Check

Range	Levels (mg/Kg)	RPD
C ₅ -C ₈ Aliphatics	2000	0.4
C ₉ -C ₁₂ Aliphatics	500	-9.2
C ₉ -C ₁₀ Aromatics	500	-8.2

MDL = Method Detection Limit
ML = Minimum Limit
RL = Reportable Limit
RPD = Relative Percent Difference
%RSD = Percent Relative Standard Deviation
CCC = Correlation Coefficient of Curve

Sample Information and Analytical Results	
Sample Identification	PAR 89 HA6-8
Sample Matrix	Soil
Collection Option (for Soil)*	2
Date Collected	02/20/06
Date Received	02/24/06
Date Extracted	02/20/06
Date Analyzed	02/24/06
Dry Weight	77
Dilution Factor	1
C ₅ -C ₈ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₂ Aliphatics**	< 10 (mg/Kg)
C ₉ -C ₁₀ Aromatics**	< 10 (mg/Kg)
Surrogate % Recovery - PID	96
Surrogate % Recovery - FID	93

* = Option 1 = Established fill line on vial, Option 2 = Sampling Device/Brand, or Option 3 = Field weight of soil.
** = Excludes any surrogates or internal standards.

Lab Info: g106-565-179

Reviewed By:

EPH (Aliphatics/Aromatics) Results
by MDPE-EPH

Client Name: Environmental Investigations
Project Name: NCDOT-Yancey

Sample Information and Analytical Results	
Sample Identification	PAR 163 GP2-10
Sample Matrix	Soil
Date Collected	02/22/06
Date Received	02/24/06
Date Extracted	02/27/06
Date Analyzed	03/06/06
Dry Weight	77.2
Dilution Factor	1:1
C ₉ -C ₁₈ Aliphatics*	160 (mg/Kg)
C ₁₉ -C ₃₀ Aliphatics*	20 (mg/Kg)
C ₁₁ -C ₂₂ Aromatics*	33 (mg/Kg)
Aliphatic Surrogate % Recovery	88
Aromatic Surrogate % Recovery	85
Fractionation Surrogate 1 % Recovery	85

Comments:
* = Excludes any surrogates or internal standards.

Lab Info: G106-565-9J

Reviewed By: Paul

EPH (Aliphatics/Aromatics) Results
by MDPE-EPH

Client Name: Environmental Investigations
Project Name: NCDOT-Yancey

Sample Information and Analytical Results	
Sample Identification	PAR 89 HA6-8
Sample Matrix	Soil
Date Collected	02/20/06
Date Received	02/24/06
Date Extracted	02/27/06
Date Analyzed	02/28/06
Dry Weight	77.2
Dilution Factor	1
C ₉ -C ₁₈ Aliphatics*	< 10 (mg/Kg)
C ₁₉ -C ₃₀ Aliphatics*	< 10 (mg/Kg)
C ₁₁ -C ₂₂ Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	95
Aromatic Surrogate % Recovery	92

Comments:
* = Excludes any surrogates or internal standards.
Sample did not require fractionalation.

Lab Info: G106-565-17J

Reviewed By: Paul

Attachment 3
EPH Laboratory Reporting Form
 Calibration and QA/QC Information

Initial Calibration Date: 12/28/05

Calibration Ranges and Limits

Range	MDL (2/2004) (µg/L)	ML (µg/L)	RL (mg/kg)
C ₉ -C ₁₈ Aliphatics	3.84	12.2	100
C ₁₀ -C ₂₀ Aliphatics	0.57	1.8	100
C ₁₁ -C ₂₂ Aromatics	4.54	14.4	100

Calibration Concentration Levels

Range	Levels (µg/mL)	%RSD or CCC	Method of Quantitation
C ₉ -C ₁₈ Aliphatics	6	24.90	Calibration Factor
	30		
	60		
	120		
	240		
C ₁₀ -C ₂₀ Aliphatics	8	15.4	Calibration Factor
	40		
	80		
	160		
	320		
C ₁₁ -C ₂₂ Aromatics	17	9.8	Calibration Factor
	85		
	170		
	340		

Calibration Check Date: 03/06/06

Calibration Check

Range	Levels (µg/mL)	RPD
C ₉ -C ₁₈ Aliphatics	120	12.7
C ₁₀ -C ₂₀ Aliphatics	160	6.7
C ₁₁ -C ₂₂ Aromatics	340	12.9

MDL = Method Detection Limit
 ML = Minimum Limit
 RPD = Relative Percent Difference
 %RSD = Percent Relative Standard Deviation
 CCC = Correlation Coefficient of Curve

Results for Metals

Client Sample ID: PAR 206 GP1
 Client Project ID: NCDOT-Yancey
 Lab Sample ID: G106-565-1
 Lab Project ID: G106-565
 Batch ID: 4586 4592
 Report Basis: Dry

Analyzed By: PSW
 Date Collected: 2/22/2006 16:00
 Date Received: 2/24/2006
 Matrix: SOIL
 Solids: 78.08

Metals	Result	RL	MDL	DF	Units	Method	Date Analyzed	Flags
Antimony	BQL	7.68	0.553	1	MG/KG	6010B	2/28/2006	B
Arsenic	3.72	1.28	0.541	1	MG/KG	6010B	2/28/2006	
Beryllium	1.41	1.28	0.0152	1	MG/KG	6010B	2/28/2006	
Cadmium	0.756	1.28	0.0215	1	MG/KG	6010B	2/28/2006	JB
Chromium	53.8	1.28	0.0608	1	MG/KG	6010B	2/28/2006	B
Copper	45.1	2.56	0.0569	1	MG/KG	6010B	2/28/2006	B
Lead	53.6	1.28	0.150	1	MG/KG	6010B	2/28/2006	B
Mercury	0.0291	0.0235	0.00411	1	MG/KG	7471	2/28/2006	
Nickel	23.2	5.12	0.0383	1	MG/KG	6010B	2/28/2006	B
Selenium	BQL	2.56	0.566	1	MG/KG	6010B	2/28/2006	B
Silver	BQL	1.28	0.0512	1	MG/KG	6010B	2/28/2006	
Thallium	BQL	1.28	0.585	1	MG/KG	6010B	2/28/2006	B
Zinc	77.0	2.56	0.223	1	MG/KG	6010B	2/28/2006	

Comments
 BQL = Below Quantitation Limits
 DF = Dilution Factor
 J = Between MDL and RL
 B = Amount in Prep Blank > MDL

Results for Metals

METALS Results for LCS/LCD

Metals	Result	RL	MDL	DF	Units	Method	Date Analyzed	Flags
Antimony	0.747	6.00	0.432	1	MG/KG	6010B	2/28/2006	JB
Arsenic	BQL	1.00	0.422	1	MG/KG	6010B	2/28/2006	
Beryllium	BQL	1.00	0.0119	1	MG/KG	6010B	2/28/2006	
Cadmium	0.0350	1.00	0.0168	1	MG/KG	6010B	2/28/2006	JB
Chromium	BQL	1.00	0.0475	1	MG/KG	6010B	2/28/2006	
Copper	0.287	2.00	0.0444	1	MG/KG	6010B	2/28/2006	JB
Lead	0.317	1.00	0.117	1	MG/KG	6010B	2/28/2006	JB
Nickel	0.349	4.00	0.0299	1	MG/KG	6010B	2/28/2006	JB
Selenium	0.648	2.00	0.442	1	MG/KG	6010B	2/28/2006	JB
Silver	BQL	1.00	0.0400	1	MG/KG	6010B	2/28/2006	
Thallium	BQL	1.00	0.457	1	MG/KG	6010B	2/28/2006	JB
Zinc	0.225	2.00	0.174	1	MG/KG	6010B	2/28/2006	

Client Sample ID: Lab Blank
 Client Project ID: pb4586
 Lab Sample ID: pb4586
 Lab Project ID: 4586
 Report Basis: Dry

Analyzed By: PSW
 Date Collected:
 Date Received:
 Matrix: SOIL
 Solids: 100.00

Matrix: SOIL
 Units: MG/KG

ICP Batch: 4586
 HG Batch: 4592
 Other:

Analyte	TRUE Value	LCS	LCS %REC	LCD	LCD %REC	Limit		RPD	RPD Limit
						Lower	Upper		
Antimony	40.0	38.1	95.3	39.2	98.0	80	120	2.85	20
Arsenic	40.0	35.9	89.8	38.1	95.3	80	120	5.95	20
Beryllium	40.0	36.1	90.2	38.3	95.8	80	120	5.91	20
Cadmium	40.0	35	87.5	36.3	90.7	80	120	3.65	20
Chromium	40.0	36.7	91.8	38.3	95.8	80	120	4.27	20
Copper	40.0	38	95.0	40.3	101	80	120	5.87	20
Lead	40.0	36.5	91.2	37.6	94.0	80	120	2.97	20
Mercury	0.500	0.483	96.6	0.484	96.8	80	120	0.207	20
Nickel	40.0	37.1	92.8	36.4	96.0	80	120	3.44	20
Selenium	40.0	32.8	82.0	34.5	86.2	80	120	5.05	20
Silver	40.0	35	87.5	36.0	90.0	80	120	2.82	20
Thallium	40.0	34	85.0	35.7	89.3	80	120	4.88	20
Zinc	40.0	35.4	88.5	36.6	91.5	80	120	3.33	20

Comments
 BQL = Below Quantitation Limits
 DF = Dilution Factor
 J = Between MDL and RL
 B = Amount in Prep Blank > RL



Mr. Bob Shaut
Environmental Investigations
2101 Gateway Centre Boulevard
Suite 200
Morrisville NC 27560
Report Number: G106-578
Client Project: NCDOT-Yancey Par 206

Dear Mr. Shaut:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call SGS/Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS/Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS/Paradigm Analytical Laboratories, Inc.


Laboratory Director
J. Patrick Weaver

4/7/2016
Date



Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: HA6-1
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-1
Lab Project ID: G106-578
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/22/2006 10:39
Date Received: 3/25/2006
Matrix: Soil
Solids 92.98

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.98	5035	1	03/30/06
Diesel Range Organics	BQL	6.63	3541	1	03/31/06

Comments:

Flags:

Reviewed By:
TPH_LIMS_v2.0



Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: HA5-1
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-2
Lab Project ID: G106-578
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/22/2006 10:18
Date Received: 3/25/2006
Matrix: Soil
Solids 74.82

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	8.08	5035	1	03/30/06
Diesel Range Organics	BQL	8.12	3541	1	03/31/06

Comments:

Flags:



Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: HA7-1
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-3
Lab Project ID: G106-578
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/22/2006 10:48
Date Received: 3/25/2006
Matrix: Soil
Solids 77.26

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	8.14	5035	1	03/30/06
Diesel Range Organics	BQL	8.00	3541	1	03/31/06

Comments:

Flags:



Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: HA8-1
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-4
Lab Project ID: G106-578
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/22/2006 11:20
Date Received: 3/25/2006
Matrix: Soil
Solids 85.74

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.10	5035	1	03/30/06
Diesel Range Organics	BQL	7.25	3541	1	04/01/06

Comments:

Flags:



Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: HA9-1
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-5
Lab Project ID: G106-578
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/22/2006 11:30
Date Received: 3/25/2006
Matrix: Soil
Solids 77.15

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.68	5035	1	03/31/06
Diesel Range Organics	BQL	8.01	3541	1	04/01/06

Comments:

Flags:



Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: HA10-1
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-6
Lab Project ID: G106-578
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/22/2006 11:40
Date Received: 3/25/2006
Matrix: Soil
Solids 74.81

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.95	5035	1	03/31/06
Diesel Range Organics	38.0	8.24	3541	1	04/01/06

Comments:

Flags:



Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: HA4-4
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-7
Lab Project ID: G106-578
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/22/2006 11:45
Date Received: 3/25/2006
Matrix: Soil
Solids 80.39

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.52	5035	1	03/31/06
Diesel Range Organics	BQL	7.76	3541	1	04/01/06

Comments:

Flags:

Reviewed By: 
TPH_LIMS_v2.0



Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: HA11-1
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-8
Lab Project ID: G106-578
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/22/2006 11:55
Date Received: 3/25/2006
Matrix: Soil
Solids 80.45

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.46	5030	1	04/04/06
Diesel Range Organics	12.9	7.72	3541	1	04/06/06

Comments:

Flags:



Results for Total Petroleum Hydrocarbons

by GC/FID 8015

Client Sample ID: GP1-4.5
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-9
Lab Project ID: G106-578
Report Basis: Dry Weight

Analyzed By: MJC
Date Collected: 3/22/2006 11:00
Date Received: 3/25/2006
Matrix: Soil
Solids 76.41

Analyte	Result MG/KG	RL MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.65	5035	1	03/31/06
Diesel Range Organics	BQL	8.15	3541	1	04/01/06

Comments:

Flags:

Reviewed By:
TPH_LIMS_V2.0



Results for Pesticides
by EPA 8081

Client Sample ID: HA6-1	Analyzed By: CLP
Client Project ID: NCDOT-Yancey Par 206	Date Collected: 3/22/06 10:39
Lab Sample ID: G106-578-1E	Date Received: 3/25/06
Lab Project ID: G106-578	Date Extracted: 3/29/06
Sample Wt/Vol: 32.19 g	ColumnID: STX_CLPest
Report Basis: Dry Weight	Matrix: Soil
	% Solids: 93.0

Compound	Result ug/KG	RL ug/KG	Dilution Factor	Date Analyzed	Flags
alpha-BHC	BQL	10.0	1	4/4/06	
beta-BHC	BQL	10.0	1	4/4/06	
delta-BHC	BQL	10.0	1	4/4/06	
gamma-BHC (Lindane)	BQL	10.0	1	4/4/06	
Heptachlor	BQL	10.0	1	4/4/06	
Aldrin	BQL	10.0	1	4/4/06	
Heptachlor epoxide	BQL	10.0	1	4/4/06	
Endosulfan I	BQL	10.0	1	4/4/06	
Dieldrin	BQL	10.0	1	4/4/06	
4,4'-DDE	BQL	10.0	1	4/4/06	
Endrin	BQL	10.0	1	4/4/06	
DDD	BQL	10.0	1	4/4/06	
Endosulfan II	BQL	10.0	1	4/4/06	
4,4'-DDT	BQL	10.0	1	4/4/06	
Methoxychlor	BQL	10.0	1	4/4/06	
Toxaphene	BQL	33.4	1	4/4/06	
alpha-Chlordane	BQL	10.0	1	4/4/06	
gamma-Chlordane	BQL	10.0	1	4/4/06	
Endrin aldehyde	BQL	10.0	1	4/4/06	
Endosulfan sulfate	BQL	10.0	1	4/4/06	
Endrin ketone	BQL	10.0	1	4/4/06	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	88.2	88.2

Comments:
BQL = Below Quantitation Limit

Reviewed By:



Results for Pesticides
by EPA 8081

Client Sample ID: HA5-1	Analyzed By: CLP
Client Project ID: NCDOT-Yancey Par 206	Date Collected: 3/22/06 10:18
Lab Sample ID: G106-578-2E	Date Received: 3/25/06
Lab Project ID: G106-578	Date Extracted: 3/29/06
Sample Wt/Vol: 32.40 g	ColumnID: STX_CLPest
Report Basis: Dry Weight	Matrix: Soil
	% Solids: 74.8

Compound	Result ug/KG	RL ug/KG	Dilution Factor	Date Analyzed	Flags
alpha-BHC	BQL	12.4	1	4/4/06	
beta-BHC	BQL	12.4	1	4/4/06	
delta-BHC	BQL	12.4	1	4/4/06	
gamma-BHC (Lindane)	BQL	12.4	1	4/4/06	
Heptachlor	BQL	12.4	1	4/4/06	
Aldrin	BQL	12.4	1	4/4/06	
Heptachlor epoxide	BQL	12.4	1	4/4/06	
Endosulfan I	BQL	12.4	1	4/4/06	
Dieldrin	BQL	12.4	1	4/4/06	
4,4'-DDE	BQL	12.4	1	4/4/06	
Endrin	BQL	12.4	1	4/4/06	
DDD	BQL	12.4	1	4/4/06	
Endosulfan II	BQL	12.4	1	4/4/06	
4,4'-DDT	BQL	12.4	1	4/4/06	
Methoxychlor	BQL	12.4	1	4/4/06	
Toxaphene	BQL	41.2	1	4/4/06	
alpha-Chlordane	BQL	12.4	1	4/4/06	
gamma-Chlordane	BQL	12.4	1	4/4/06	
Endrin aldehyde	BQL	12.4	1	4/4/06	
Endosulfan sulfate	BQL	12.4	1	4/4/06	
Endrin ketone	BQL	12.4	1	4/4/06	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	68.6	68.6

Comments:
BQL = Below Quantitation Limit

Reviewed By: *CLP*



Results for Pesticides
by EPA 8081

Client Sample ID: HA7-1
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-3E
Lab Project ID: G106-578
Sample Wt/Vol: 32.07 g
Report Basis: Dry Weight

Analyzed By: CLP
Date Collected: 3/22/06 10:48
Date Received: 3/25/06
Date Extracted: 3/29/06
ColumnID: STX_CLPest
Matrix: Soil
% Solids: 77.3

Compound	Result ug/KG	RL ug/KG	Dilution Factor	Date Analyzed	Flags
alpha-BHC	BQL	12.1	1	4/4/06	
beta-BHC	BQL	12.1	1	4/4/06	
delta-BHC	BQL	12.1	1	4/4/06	
gamma-BHC (Lindane)	BQL	12.1	1	4/4/06	
Heptachlor	BQL	12.1	1	4/4/06	
Aldrin	BQL	12.1	1	4/4/06	
Heptachlor epoxide	BQL	12.1	1	4/4/06	
Endosulfan I	BQL	12.1	1	4/4/06	
Dieldrin	BQL	12.1	1	4/4/06	
4,4'-DDE	BQL	12.1	1	4/4/06	
Endrin	BQL	12.1	1	4/4/06	
DDD	BQL	12.1	1	4/4/06	
Endosulfan II	BQL	12.1	1	4/4/06	
4,4'-DDT	BQL	12.1	1	4/4/06	
Methoxychlor	BQL	12.1	1	4/4/06	
Toxaphene	BQL	40.4	1	4/4/06	
alpha-Chlordane	BQL	12.1	1	4/4/06	
gamma-Chlordane	BQL	12.1	1	4/4/06	
Endrin aldehyde	BQL	12.1	1	4/4/06	
Endosulfan sulfate	BQL	12.1	1	4/4/06	
Endrin ketone	BQL	12.1	1	4/4/06	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	72.9	72.9

Comments:
BQL = Below Quantitation Limit

Reviewed By:



Results for Pesticides
by EPA 8081

Client Sample ID: HA8-1	Analyzed By: CLP
Client Project ID: NCDOT-Yancey Par 206	Date Collected: 3/22/06 11:20
Lab Sample ID: G106-578-4E	Date Received: 3/25/06
Lab Project ID: G106-578	Date Extracted: 3/29/06
Sample Wt/Vol: 34.10 g	ColumnID: STX_CLPest
Report Basis: Dry Weight	Matrix: Soil
	% Solids: 85.7

Compound	Result ug/KG	RL ug/KG	Dilution Factor	Date Analyzed	Flags
alpha-BHC	BQL	10.3	1	4/4/06	
beta-BHC	BQL	10.3	1	4/4/06	
delta-BHC	BQL	10.3	1	4/4/06	
gamma-BHC (Lindane)	BQL	10.3	1	4/4/06	
Heptachlor	BQL	10.3	1	4/4/06	
Aldrin	BQL	10.3	1	4/4/06	
Heptachlor epoxide	BQL	10.3	1	4/4/06	
Endosulfan I	BQL	10.3	1	4/4/06	
Dieldrin	BQL	10.3	1	4/4/06	
4,4'-DDE	BQL	10.3	1	4/4/06	
Endrin	BQL	10.3	1	4/4/06	
DDD	BQL	10.3	1	4/4/06	
Endosulfan II	BQL	10.3	1	4/4/06	
4,4'-DDT	BQL	10.3	1	4/4/06	
Methoxychlor	BQL	10.3	1	4/4/06	
Toxaphene	BQL	34.2	1	4/4/06	
alpha-Chlordane	BQL	10.3	1	4/4/06	
gamma-Chlordane	BQL	10.3	1	4/4/06	
Endrin aldehyde	BQL	10.3	1	4/4/06	
Endosulfan sulfate	BQL	10.3	1	4/4/06	
Endrin ketone	BQL	10.3	1	4/4/06	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	75.6	75.6

Comments:
BQL = Below Quantitation Limit

Reviewed By:



Results for Pesticides
by EPA 8081

Client Sample ID: HA9-1	Analyzed By: CLP
Client Project ID: NCDOT-Yancey Par 206	Date Collected: 3/22/06 11:30
Lab Sample ID: G106-578-5E	Date Received: 3/25/06
Lab Project ID: G106-578	Date Extracted: 3/29/06
Sample Wt/Vol: 34.12 g	ColumnID: STX_CLPest
Report Basis: Dry Weight	Matrix: Soil
	% Solids: 77.2

Compound	Result ug/KG	RL ug/KG	Dilution Factor	Date Analyzed	Flags
alpha-BHC	BQL	11.4	1	4/4/06	
beta-BHC	BQL	11.4	1	4/4/06	
delta-BHC	BQL	11.4	1	4/4/06	
gamma-BHC (Lindane)	BQL	11.4	1	4/4/06	
Heptachlor	BQL	11.4	1	4/4/06	
Aldrin	BQL	11.4	1	4/4/06	
Heptachlor epoxide	BQL	11.4	1	4/4/06	
Endosulfan I	BQL	11.4	1	4/4/06	
Dieldrin	BQL	11.4	1	4/4/06	
4,4'-DDE	BQL	11.4	1	4/4/06	
Endrin	BQL	11.4	1	4/4/06	
DDD	BQL	11.4	1	4/4/06	
Endosulfan II	BQL	11.4	1	4/4/06	
4,4'-DDT	BQL	11.4	1	4/4/06	
Methoxychlor	BQL	11.4	1	4/4/06	
Toxaphene	BQL	38.0	1	4/4/06	
alpha-Chlordane	BQL	11.4	1	4/4/06	
gamma-Chlordane	BQL	11.4	1	4/4/06	
Endrin aldehyde	BQL	11.4	1	4/4/06	
Endosulfan sulfate	BQL	11.4	1	4/4/06	
Endrin ketone	BQL	11.4	1	4/4/06	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	73.3	73.3

Comments:
BQL = Below Quantitation Limit

Reviewed By: *CLP*



Results for Pesticides
by EPA 8081

Client Sample ID: HA10-1	Analyzed By: CLP
Client Project ID: NCDOT-Yancey Par 206	Date Collected: 3/22/06 11:40
Lab Sample ID: G106-578-6E	Date Received: 3/25/06
Lab Project ID: G106-578	Date Extracted: 3/29/06
Sample Wt/Vol: 33.00 g	ColumnID: STX_CLPest
Report Basis: Dry Weight	Matrix: Soil
	% Solids: 74.8

Compound	Result ug/KG	RL ug/KG	Dilution Factor	Date Analyzed	Flags
alpha-BHC	BQL	12.2	1	4/4/06	
beta-BHC	BQL	12.2	1	4/4/06	
delta-BHC	BQL	12.2	1	4/4/06	
gamma-BHC (Lindane)	BQL	12.2	1	4/4/06	
Heptachlor	BQL	12.2	1	4/4/06	
Aldrin	BQL	12.2	1	4/4/06	
Heptachlor epoxide	BQL	12.2	1	4/4/06	
Endosulfan I	BQL	12.2	1	4/4/06	
Dieldrin	BQL	12.2	1	4/4/06	
4,4'-DDE	BQL	12.2	1	4/4/06	
Endrin	BQL	12.2	1	4/4/06	
DDD	BQL	12.2	1	4/4/06	
Endosulfan II	BQL	12.2	1	4/4/06	
4,4'-DDT	BQL	12.2	1	4/4/06	
Methoxychlor	BQL	12.2	1	4/4/06	
Toxaphene	BQL	40.5	1	4/4/06	
alpha-Chlordane	BQL	12.2	1	4/4/06	
gamma-Chlordane	BQL	12.2	1	4/4/06	
Endrin aldehyde	BQL	12.2	1	4/4/06	
Endosulfan sulfate	BQL	12.2	1	4/4/06	
Endrin ketone	BQL	12.2	1	4/4/06	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	76.6	76.6

Comments:
BQL = Below Quantitation Limit

Reviewed By: CLP



Results for Pesticides
by EPA 8081

Client Sample ID: HA4-4	Analyzed By: CLP
Client Project ID: NCDOT-Yancey Par 206	Date Collected: 3/22/06 11:45
Lab Sample ID: G106-578-7E	Date Received: 3/25/06
Lab Project ID: G106-578	Date Extracted: 3/29/06
Sample Wt/Vol: 33.00 g	ColumnID: STX_CLPest
Report Basis: Dry Weight	Matrix: Soil
	% Solids: 80.4

Compound	Result ug/KG	RL ug/KG	Dilution Factor	Date Analyzed	Flags
alpha-BHC	BQL	11.3	1	4/4/06	
beta-BHC	BQL	11.3	1	4/4/06	
delta-BHC	BQL	11.3	1	4/4/06	
gamma-BHC (Lindane)	BQL	11.3	1	4/4/06	
Heptachlor	BQL	11.3	1	4/4/06	
Aldrin	BQL	11.3	1	4/4/06	
Heptachlor epoxide	BQL	11.3	1	4/4/06	
Endosulfan I	BQL	11.3	1	4/4/06	
Dieldrin	BQL	11.3	1	4/4/06	
4,4'-DDE	BQL	11.3	1	4/4/06	
Endrin	BQL	11.3	1	4/4/06	
DDD	BQL	11.3	1	4/4/06	
Endosulfan II	BQL	11.3	1	4/4/06	
4,4'-DDT	BQL	11.3	1	4/4/06	
Methoxychlor	BQL	11.3	1	4/4/06	
Toxaphene	BQL	37.7	1	4/4/06	
alpha-Chlordane	BQL	11.3	1	4/4/06	
gamma-Chlordane	BQL	11.3	1	4/4/06	
Endrin aldehyde	BQL	11.3	1	4/4/06	
Endosulfan sulfate	BQL	11.3	1	4/4/06	
Endrin ketone	BQL	11.3	1	4/4/06	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	75.5	75.5

Comments:
BQL = Below Quantitation Limit

Reviewed By:



Results for Pesticides
by EPA 8081

Client Sample ID: HA11-1	Analyzed By: CLP
Client Project ID: NCDOT-Yancey Par 206	Date Collected: 3/22/06 11:55
Lab Sample ID: G106-578-8C	Date Received: 3/25/06
Lab Project ID: G106-578	Date Extracted: 1/0/00
Sample Wt/Vol: 32.41 g	ColumnID: STX_CLPest
Report Basis: Dry Weight	Matrix: Soil
	% Solids: 80.5

Compound	Result ug/KG	RL ug/KG	Dilution Factor	Date Analyzed	Flags
alpha-BHC	BQL	11.5	1	4/12/06	
beta-BHC	BQL	11.5	1	4/12/06	
delta-BHC	BQL	11.5	1	4/12/06	
gamma-BHC (Lindane)	BQL	11.5	1	4/12/06	
Heptachlor	BQL	11.5	1	4/12/06	
Aldrin	BQL	11.5	1	4/12/06	
Heptachlor epoxide	BQL	11.5	1	4/12/06	
Endosulfan I	BQL	11.5	1	4/12/06	
Dieldrin	BQL	11.5	1	4/12/06	
4,4'-DDE	BQL	11.5	1	4/12/06	
Endrin	BQL	11.5	1	4/12/06	
DDD	BQL	11.5	1	4/12/06	
Endosulfan II	BQL	11.5	1	4/12/06	
4,4'-DDT	BQL	11.5	1	4/12/06	
Methoxychlor	BQL	11.5	1	4/12/06	
Toxaphene	BQL	38.4	1	4/12/06	
alpha-Chlordane	BQL	11.5	1	4/12/06	
gamma-Chlordane	BQL	11.5	1	4/12/06	
Endrin aldehyde	BQL	11.5	1	4/12/06	
Endosulfan sulfate	BQL	11.5	1	4/12/06	
Endrin ketone	BQL	11.5	1	4/12/06	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	74.6	74.6

Comments:
BQL = Below Quantitation Limit

Reviewed By:



Results for Pesticides
by EPA 8081

Client Sample ID: GP1-4.5	Analyzed By: CLP
Client Project ID: NCDOT-Yancey Par 206	Date Collected: 3/22/06 11:00
Lab Sample ID: G106-578-9E	Date Received: 3/25/06
Lab Project ID: G106-578	Date Extracted: 1/0/00
Sample Wt/Vol: 33.16 g	ColumnID: STX_CLPest
Report Basis: Dry Weight	Matrix: Soil
	% Solids: 76.4

Compound	Result ug/KG	RL ug/KG	Dilution Factor	Date Analyzed	Flags
alpha-BHC	BQL	11.8	1	4/12/06	
beta-BHC	BQL	11.8	1	4/12/06	
delta-BHC	BQL	11.8	1	4/12/06	
gamma-BHC (Lindane)	BQL	11.8	1	4/12/06	
Heptachlor	BQL	11.8	1	4/12/06	
Aldrin	BQL	11.8	1	4/12/06	
Heptachlor epoxide	BQL	11.8	1	4/12/06	
Endosulfan I	BQL	11.8	1	4/12/06	
Dieldrin	BQL	11.8	1	4/12/06	
4,4'-DDE	BQL	11.8	1	4/12/06	
Endrin	BQL	11.8	1	4/12/06	
DDD	BQL	11.8	1	4/12/06	
Endosulfan II	BQL	11.8	1	4/12/06	
4,4'-DDT	BQL	11.8	1	4/12/06	
Methoxychlor	BQL	11.8	1	4/12/06	
Toxaphene	BQL	39.5	1	4/12/06	
alpha-Chlordane	BQL	11.8	1	4/12/06	
gamma-Chlordane	BQL	11.8	1	4/12/06	
Endrin aldehyde	BQL	11.8	1	4/12/06	
Endosulfan sulfate	BQL	11.8	1	4/12/06	
Endrin ketone	BQL	11.8	1	4/12/06	

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
TCMX	100	58.8	58.8

Comments:
BQL = Below Quantitation Limit

Reviewed By:



Results for Metals

Client Sample ID: HA11-1
Client Project ID: NCDOT-Yancey Par 206
Lab Sample ID: G106-578-8
Lab Project ID: G106-578
Batch ID: 4869 4878
Report Basis: Dry

Analyzed By: PSW
Date Collected: 3/22/2006 11:55
Date Received: 3/25/2006
Matrix: SOIL
Solids 80.45

Metals	Result	RL	DF	Units	Method	Date Analyzed
Arsenic	BQL	1.22	1	MG/KG	6010B	4/7/2006
Barium	151	12.2	1	MG/KG	6010B	4/7/2006
Cadmium	BQL	1.22	1	MG/KG	6010B	4/7/2006
Chromium	41.0	1.22	1	MG/KG	6010B	4/7/2006
Lead	190	1.22	1	MG/KG	6010B	4/7/2006
Mercury	BQL	0.0232	1	MG/KG	7471	4/10/2006
Selenium	2.77	2.44	1	MG/KG	6010B	4/7/2006
Silver	BQL	1.22	1	MG/KG	6010B	4/7/2006

Comments

BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By: 
MET_LIMS_4.0



List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% solids = Percent Solids

Special Notes:

- 1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.
- 2) Uncertainty for all reported data is less than or equal to 30 percent.



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056675

1 CLIENT: *ELI, INC.*

CONTACT: *BOB SHAW* PHONE NO.: *(919) 657-7800*

PROJECT: *NCDDI - YANCEY* SITE/RWSID#:

REPORTS FOR: *BOB SHAW - ELI*

FAX NO.:

INVOICE TO: *NCDDI* QUOTE # *35609.1.1*
STATE R-25194 WBS # *35609.1.1*
P.O. NUMBER

SGS Reference:

PAR 206 G106-578

PAGE *1* OF *1*

2 LAB NO. SAMPLE IDENTIFICATION DATE TIME MATRIX

PAR 206 HA6-1 *3-22-06* *1039* *SOIL*

HA5-1 *1018* *SOIL*

HA7-1 *1048* *SOIL*

HA8-1 *1120* *SOIL*

HA9-1 *1130* *SOIL*

HA10-1 *1140* *SOIL*

HA4-4 *1145* *SOIL*

HA11-1 *1152* *SOIL*

AP1-45 *1100* *SOIL*

No CONTAINERS

SAMPLE TYPE
C= COMP
G= GRAB

Preservatives Used
Analysis Required
TPH 620
TPH 420
8081
RCRA 8 metals
added per Rob Shaw 4/17/06

REMARKS

5 Collected/Relinquished By: (1)

Date Time Received By: *3/24/06* *Matt Brown*

Relinquished By: (2)

Date Time Received By:

Relinquished By: (3)

Date Time Received By:

Relinquished By: (4)

Date Time Received By: *3/25/06* *9:45*

4 Shipping Carrier:

Shipping Ticket No:

Special Deliverable Requirements:

Requested Turnaround Time and Special Instructions:

Samples Received Cold? (Circle) YES NO

Temperature (C): *0 13*

Chain of Custody Seal: (Circle)

INTACT BROKEN

ABSENT

200 W. Polk Drive Anchoorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-6301

5500 Business Wilmington, NC 28405 Tel: (910) 350-1803 Fax: (910) 350-1557

1258 Greenbrier Street Charleston, WV 25311 Tel: (304) 346-0725 Fax: (304) 346-0761

White - Returned by Lab
Yellow - Returner
Pink - Retainer



RECEIVED MAY 10 2006

Mr. Bob Shaut
Environmental Investigations
2101 Gateway Centre Boulevard
Suite 200
Morrisville NC 27560
Report Number: G106-601
Client Project: NCDOT-Yancey/R-2519A

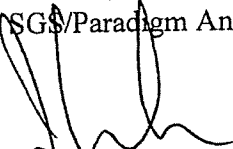
Dear Mr. Shaut:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call SGS/Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS/Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
SGS/Paradigm Analytical Laboratories, Inc.


Laboratory Director
J. Patrick Weaver

5/3/2006
Date



Results for Metals

Client Sample ID: S-1
Client Project ID: NCDOT-Yancey/R-2519A
Lab Sample ID: G106-601-1
Lab Project ID: G106-601
Batch ID: 5047
Report Basis: Dry

Analyzed By: PSW
Date Collected: 4/20/2006 10:37
Date Received: 4/25/2006
Matrix: SOIL
Solids 73.69

Metals	Result	RL	DF	Units	Method	Date Analyzed
Arsenic	2.64	1.21	1	MG/KG	6010B	5/2/2006

Comments

BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By: 
MET_LIMS_4.1



Results for Metals

Client Sample ID: S-2
Client Project ID: NCDOT-Yancey/R-2519A
Lab Sample ID: G106-601-2
Lab Project ID: G106-601
Batch ID: 5047
Report Basis: Dry

Analyzed By: PSW
Date Collected: 4/20/2006 10:44
Date Received: 4/25/2006
Matrix: SOIL
Solids: 70.57

Metals	Result	RL	DF	Units	Method	Date Analyzed
Arsenic	BQL	1.18	1	MG/KG	6010B	5/2/2006

Comments

BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By: 
MET_LIMS_4.1



Results for Metals

Client Sample ID: S-3
Client Project ID: NCDOT-Yancey/R-2519A
Lab Sample ID: G106-601-3
Lab Project ID: G106-601
Batch ID: 5047
Report Basis: Dry

Analyzed By: PSW
Date Collected: 4/20/2006 10:51
Date Received: 4/25/2006
Matrix: SOIL
Solids 73.00

Metals	Result	RL	DF	Units	Method	Date Analyzed
Arsenic	3.56	1.29	1	MG/KG	6010B	5/2/2006

Comments

BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By: 
MET_LIMS_4.1



Results for Metals

Client Sample ID: BK-2
Client Project ID: NCDOT-Yancey/R-2519A
Lab Sample ID: G106-601-5
Lab Project ID: G106-601
Batch ID: 5047
Report Basis: Dry

Analyzed By: PSW
Date Collected: 4/20/2006 10:20
Date Received: 4/25/2006
Matrix: SOIL
Solids 76.86

Metals	Result	RL	DF	Units	Method	Date Analyzed
Arsenic	BQL	1.25	1	MG/KG	6010B	5/2/2006

Comments

BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By: 
MET_LIMS_4.1



Results for Metals


Client Sample ID: BK-3
Client Project ID: NCDOT-Yancey/R-2519A
Lab Sample ID: G106-601-6
Lab Project ID: G106-601
Batch ID: 5047
Report Basis: Dry

Analyzed By: PSW
Date Collected: 4/20/2006 10:32
Date Received: 4/25/2006
Matrix: SOIL
Solids 79.73

Metals	Result	RL	DF	Units	Method	Date Analyzed
Arsenic	BQL	1.25	1	MG/KG	6010B	5/2/2006

Comments

BQL = Below Quantitation Limits
DF = Dilution Factor
J = Between MDL and RL
B= Amount in Prep Blank > MDL

Reviewed By: 
MET_LIMS_4.1



List of Reporting Abbreviations and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% solids = Percent Solids

Special Notes:

- 1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.
- 2) Uncertainty for all reported data is less than or equal to 30 percent.



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057203

1 CLIENT: <u>ELI, INC.</u> CONTRACT: <u>BOB SHAWT</u> PHONE NO: <u>(919) 653-9500</u> PROJECT: <u>NC DOT - YHURBY</u> STEPSID: <u>R-25194</u> REPORTS TO: <u>BOB SHAWT - ELI</u> INVOICE TO: <u>AC DOT</u> QUOTE # _____ WBS: <u>35609.1.1</u> P.O. NUMBER _____ FAX NO: _____		SGS Reference: <u>PH 206 C106-601</u> PAGE <u>1</u> OF <u>1</u>	
2 LAB NO. SAMPLE IDENTIFICATION DATE TIME MATRIX <u>S-1</u> <u>4-20-06</u> <u>1037</u> <u>Soil</u> <u>S-2</u> <u>1014</u> <u>S-3</u> <u>1051</u> <u>BK-1</u> <u>1011</u> <u>BK-2</u> <u>1020</u> <u>BK-3</u> <u>1032</u>		No CONTAINERS SAMPLE TYPE: <u>AS</u> (3) <u>As</u>	
3 Collected/Refrig. By: <u>Bob Shawt</u> Date: <u>4-20-06</u> Time: _____ Refrigerated By: _____ Date: _____ Time: _____ Refrigerated By: _____ Date: _____ Time: _____ Refrigerated By: _____ Date: _____ Time: _____		4 Shipping Carrier: _____ Shipping Ticket No.: _____ Special Deliverable Requirements: _____ Requested Turnaround Time and Special Instructions: <u>5-DAY</u>	
Received By: _____ Received By: _____ Received By: _____ Received By: _____		Samples Received Cold? (Circle) YES NO Temperature (C): <u>19°C</u> Chain of Custody Seal: (Circle) INTACT BROKEN <u>ABSENT</u>	
REMARKS: <u>AS = ARSENIC</u>			

Order Drive Anchorage, AK 99518 Tel: (907) 882-2343 Fax: (907) 591-6301
 2200 Business Drive Wilmington, NC 28405 Tel: (910) 350-1503 Fax: (910) 350-1557
 1225 Greenbrier Street Charleston, WV 25311 Tel: (304) 346-0725 Fax: (304) 346-0761
 Yellow White - Reprinted by Lab
 Pink - Reprinted by Report
 Blue - Reprinted by Samples



Results for Volatiles
by GC 6230D

Client Sample ID: PAR 206 GP1
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-566-2A
Lab Project ID: G106-566

Analyzed By: MJC
Date Collected: 2/23/2006 9:30
Date Received: 2/24/2006
Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Benzene	BQL	0.500	0.161	1	3/1/2006	
Bromobenzene	BQL	0.500	0.929	1	3/1/2006	
Bromochloromethane	BQL	0.500	0.171	1	3/1/2006	
Bromodichloromethane	BQL	0.500	0.213	1	3/1/2006	
Bromoform	BQL	0.500	0.197	1	3/1/2006	
Bromomethane	BQL	0.500	0.405	1	3/1/2006	
n-Butylbenzene	BQL	0.500	0.376	1	3/1/2006	
sec-Butylbenzene	BQL	0.500	0.185	1	3/1/2006	
tert-Butylbenzene	BQL	0.500	0.175	1	3/1/2006	
Carbon tetrachloride	BQL	0.500	0.41	1	3/1/2006	
Chlorobenzene	BQL	0.500	0.177	1	3/1/2006	
Chloroethane	BQL	0.500	0.384	1	3/1/2006	
Chloroform	BQL	0.500	0.179	1	3/1/2006	
Chloromethane	BQL	0.500	0.38	1	3/1/2006	
2-Chlorotoluene	BQL	0.500	0.207	1	3/1/2006	
4-Chlorotoluene	BQL	0.500	0.377	1	3/1/2006	
Dibromochloromethane	BQL	0.500	0.177	1	3/1/2006	
1,2-Dibromo-3-chloropropane	BQL	0.500	0.233	1	3/1/2006	
1,2-Dibromoethane (EDB)	BQL	0.500	0.208	1	3/1/2006	
Dibromomethane	BQL	0.500	0.207	1	3/1/2006	
1,2-Dichlorobenzene	BQL	0.500	0.195	1	3/1/2006	
1,3-Dichlorobenzene	BQL	0.500	0.218	1	3/1/2006	
1,4-Dichlorobenzene	BQL	0.500	0.211	1	3/1/2006	
Dichlorodifluoromethane	BQL	0.500	0.407	1	3/1/2006	
1,1-Dichloroethane	BQL	0.500	0.177	1	3/1/2006	
1,2-Dichloroethane	BQL	0.500	0.19	1	3/1/2006	
1,1-Dichloroethene	BQL	0.500	0.14	1	3/1/2006	
cis-1,2-Dichloroethene	BQL	0.500	0.423	1	3/1/2006	
trans-1,2-Dichloroethene	BQL	0.500	0.186	1	3/1/2006	
1,2-Dichloropropane	BQL	0.500	0.187	1	3/1/2006	
2,2-Dichloropropane	BQL	0.500	0.423	1	3/1/2006	
cis-1,3-Dichloropropene	BQL	0.500	0.21	1	3/1/2006	
trans-1,3-Dichloropropene	BQL	0.500	0.205	1	3/1/2006	
Diisopropyl ether (DIPE)	BQL	0.500	0.176	1	3/1/2006	
Ethylbenzene	BQL	0.500	0.166	1	3/1/2006	
Hexachlorobutadiene	BQL	0.500	0.188	1	3/1/2006	
Isopropylbenzene	BQL	0.500	0.18	1	3/1/2006	
p-Isopropyltoluene	BQL	0.500	0.383	1	3/1/2006	
Methyl-tert butyl ether (MTBE)	BQL	0.500	0.347	1	3/1/2006	
Methylene Chloride	BQL	5.00	0.464	1	3/1/2006	

Reviewed By: Bd
GC_LIMS_v2.0



Results for Volatiles
by GC 6230D

Client Sample ID: PAR 206 GP1
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-566-2A
Lab Project ID: G106-566

Analyzed By: MJC
Date Collected: 2/23/2006 9:30
Date Received: 2/24/2006
Matrix: Water

Analyte	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flags
Naphthalene	BQL	0.500	0.2	1	3/1/2006	
n-Propylbenzene	BQL	0.500	0.176	1	3/1/2006	
Styrene	BQL	1.00	0.348	1	3/1/2006	
1,1,1,2-Tetrachloroethane	BQL	0.500	0.198	1	3/1/2006	
1,1,2,2-Tetrachloroethane	BQL	0.500	0.929	1	3/1/2006	
Tetrachloroethene	BQL	0.500	0.445	1	3/1/2006	
Toluene	BQL	0.500	0.187	1	3/1/2006	
1,2,3-Trichlorobenzene	BQL	0.500	0.237	1	3/1/2006	
1,2,4-Trichlorobenzene	BQL	0.500	0.2	1	3/1/2006	
1,1,1-Trichloroethane	BQL	0.500	0.177	1	3/1/2006	
1,1,2-Trichloroethane	BQL	0.500	0.252	1	3/1/2006	
Trichloroethene	BQL	0.500	0.266	1	3/1/2006	
Trichlorofluoromethane	BQL	0.500	0.402	1	3/1/2006	
1,2,3-Trichloropropane	BQL	0.500	0.929	1	3/1/2006	
1,2,4-Trimethylbenzene	BQL	0.500	0.174	1	3/1/2006	
1,3,5-Trimethylbenzene	BQL	0.500	0.374	1	3/1/2006	
Vinyl Chloride	BQL	0.500	0.424	1	3/1/2006	
m/p-Xylene	BQL	1.00	0.35	1	3/1/2006	
o-Xylene	BQL	1.00	0.348	1	3/1/2006	

Surrogate Spike Recoveries

	Spike Added	Spike Result	Percent Recovery
Trifluorotoluene	40	39.9	99.7
1,4-Dichlorobutane	40	38.5	96.1

Comments:

All values corrected for dilution.
BQL = Below quantitation limit.



Results for Semivolatiles
by GCMS 625

Client Sample ID: PAR 206 GP1
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-566-2E
Lab Project ID: G106-566

Analyzed By: MRC
Date Collected: 2/23/2006 9:30
Date Received: 2/24/2006
Date Extracted: 2/27/2006
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
Acenaphthene	BQL	10.0	1.22	1	3/1/2006	
Acenaphthylene	BQL	10.0	1.12	1	3/1/2006	
Anthracene	BQL	10.0	1.75	1	3/1/2006	
Benzo[a]anthracene	BQL	10.0	1.36	1	3/1/2006	
Benzo[a]pyrene	BQL	10.0	1.27	1	3/1/2006	
Benzo[b]fluoranthene	BQL	10.0	1.43	1	3/1/2006	
Benzo[g,h,i]perylene	BQL	10.0	4.57	1	3/1/2006	
Benzo[k]fluoranthene	BQL	10.0	1.09	1	3/1/2006	
Bis(2-chloroethoxy)methane	BQL	10.0	1.11	1	3/1/2006	
Bis(2-chloroethyl)ether	BQL	10.0	1.09	1	3/1/2006	
Bis(2-chloroisopropyl)ether	BQL	10.0	1.57	1	3/1/2006	
Bis(2-ethylhexyl)phthalate	BQL	10.0	1.33	1	3/1/2006	
4-bromophenyl phenyl ether	BQL	10.0	1.99	1	3/1/2006	
Butylbenzylphthalate	BQL	10.0	1.53	1	3/1/2006	
2-Chloronaphthalene	BQL	10.0	1.25	1	3/1/2006	
2-Chlorophenol	BQL	10.0	4.22	1	3/1/2006	
4-Chloro-3-methylphenol	BQL	10.0	3.26	1	3/1/2006	
4-Chlorophenyl phenyl ether	BQL	10.0	1.42	1	3/1/2006	
Chrysene	BQL	10.0	1.11	1	3/1/2006	
Dibenzo[a,h]anthracene	BQL	10.0	4.87	1	3/1/2006	
Di-n-Butylphthalate	BQL	10.0	1.65	1	3/1/2006	
1,2-Dichlorobenzene	BQL	10.0	1.25	1	3/1/2006	
1,3-Dichlorobenzene	BQL	10.0	1.24	1	3/1/2006	
1,4-Dichlorobenzene	BQL	10.0	1.20	1	3/1/2006	
3,3'-Dichlorobenzidine	BQL	20.0	4.10	1	3/1/2006	
2,4-Dichlorophenol	BQL	10.0	3.75	1	3/1/2006	
Diethylphthalate	BQL	10.0	1.48	1	3/1/2006	
Dimethylphthalate	BQL	10.0	1.04	1	3/1/2006	
2,4-Dimethylphenol	BQL	10.0	9.25	1	3/1/2006	
Di-n-octylphthalate	BQL	10.0	1.16	1	3/1/2006	
4,6-Dinitro-2-methylphenol	BQL	50.0	3.71	1	3/1/2006	
2,4-Dinitrophenol	BQL	50.0	4.20	1	3/1/2006	
2,4-Dinitrotoluene	BQL	10.0	1.52	1	3/1/2006	
2,6-Dinitrotoluene	BQL	10.0	1.41	1	3/1/2006	
Diphenylamine *	BQL	10.0	1.53	1	3/1/2006	
Fluoranthene	BQL	10.0	1.41	1	3/1/2006	
Fluorene	BQL	10.0	1.22	1	3/1/2006	
Hexachlorobenzene	BQL	10.0	1.22	1	3/1/2006	
Hexachlorobutadiene	BQL	10.0	1.58	1	3/1/2006	
Hexachlorocyclopentadiene	BQL	20.0	20.0	1	3/1/2006	
Hexachloroethane	BQL	10.0	1.58	1	3/1/2006	
Indeno(1,2,3-c,d)pyrene	BQL	10.0	4.57	1	3/1/2006	
Isophorone	BQL	10.0	1.27	1	3/1/2006	
Naphthalene	BQL	10.0	1.08	1	3/1/2006	
Nitrobenzene	BQL	10.0	1.32	1	3/1/2006	



Results for Semivolatiles
by GCMS 625

Client Sample ID: PAR 206 GP1
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-566-2E
Lab Project ID: G106-566

Analyzed By: MRC
Date Collected: 2/23/2006 9:30
Date Received: 2/24/2006
Date Extracted: 2/27/2006
Matrix: Water

Compound	Result ug/L	RL ug/L	MDL ug/L	Dilution Factor	Date Analyzed	Flag
2-Nitrophenol	BQL	10.0	3.52	1	3/1/2006	
4-Nitrophenol	BQL	50.0	3.17	1	3/1/2006	
N-Nitrosodi-n-propylamine	BQL	10.0	1.87	1	3/1/2006	
Pentachlorophenol	BQL	50.0	2.83	1	3/1/2006	
Phenanthrene	BQL	10.0	1.38	1	3/1/2006	
Phenol	BQL	10.0	3.38	1	3/1/2006	
Pyrene	BQL	10.0	2.08	1	3/1/2006	
1,2,4-Trichlorobenzene	BQL	10.0	1.33	1	3/1/2006	
2,4,6-Trichlorophenol	BQL	10.0	2.92	1	3/1/2006	
		Spike Added	Spike Result	Percent Recovered		
2-Fluorobiphenyl		10	9.1	91		
2-Fluorophenol		10	7.9	79		
Nitrobenzene-d5		10	9.5	95		
Phenol-d6		10	8.4	84		
2,4,6-Tribromophenol		10	9.5	95		
4-Terphenyl-d14		10	10.6	106		

Comments:

* N-Nitrosodiphenylamine is reported as the breakdown product Diphenylamine.

Flags:

BQL = Below Quantitation Limits.
J = Detected below the quantitation limit.

Reviewed By:



Results of Library Search for Semivolatile Compounds
by GCMS

Client Sample ID: PAR 206 GP1
Client Project ID: NCDOT-Yancey
Lab Sample ID: G106-566-2E
Lab Project ID: G106-566
Sample Wt/Vol: 500 ML
Dilution: 1

Analyzed By: MRC
Date Collected: 2/23/2006 9:30
Date Received: 2/24/2006
Date Extracted: 2/27/2006
Date Analyzed: 3/1/2006
Matrix: Water

No.	Compound	Retention Time	CAS#	Match Probability	Result (ug/L)
1	No library search compounds detected.				
2					
3					
4					
5					
6					
7					
8					
9					
10					

Comment:

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak area of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak area is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: *mb*



CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

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 - Louisiana
 - Maryland
 - New Jersey
 - North Carolina
 - West Virginia

055055

1 CLIENT: EL
 CONTACT: BOB SHAW PHONE NO: (919) 544-7500
 PROJECT: NC DOT - Yancey SITE/PWSID#: R-25194
 REPORTS TO: BOB SHAW - EL FAX NO: (919) 544-2199
 INVOICE TO: NC DOT QUOTE # WBS # 35609.1.1
 P.O. NUMBER

SGS Reference: G106-516
 PAGE _____ OF _____

2

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX
PAR 199A	GP2	2-22-06	1445	H2O
PAR 206	GP1	2-23-06	0930	H2O
PAR 221	GP1	2-23-06	1130	H2O
PAR 163	GP2	2-23-06	0900	H2O
PAR 127	GP1	2-23-06	1530	H2O

No	CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis Required	REMARKS
8	6	COMB			
4	1	COMB			
8	1	COMB			
8	1	COMB			

3

Collected/Relinquished By: (1)	Date	Time	Received By:	Shipping Carrier:	Samples Received Cold? (Circle) YES NO
<u>[Signature]</u>	<u>2-23-06</u>		<u>[Signature]</u>		<u>NO</u>
Relinquished By: (2)	Date	Time	Received By:	Shipping Ticket No:	Temperature (C): <u>31.5</u>
<u>[Signature]</u>	<u>2/21/06</u>	<u>1000</u>	<u>[Signature]</u>		<u>31.5</u>
Relinquished By: (3)	Date	Time	Received By:	Special Deliverable Requirements:	Chain of Custody Seal: (Circle) INTACT BROKEN
<u>[Signature]</u>			<u>[Signature]</u>		<u>INTACT</u>
Relinquished By: (4)	Date	Time	Received By:	Requested Turnaround Time and Special Instructions:	<u>ABSENT</u>
<u>[Signature]</u>					

4

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 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

White - Released by Lab
 Yellow - Returned with Report
 Pink - Retained by Sampler