

**SUMMARY REPORT  
195 BAY CIRCLE (FORMERLY 1 BAY CIRCLE)  
LAUREL BAY MILITARY HOUSING AREA  
MARINE CORPS AIR STATION BEAUFORT  
BEAUFORT, SC**

**Revision: 0  
Prepared for:**

**Department of the Navy  
Naval Facilities Engineering Command, Mid-Atlantic  
9324 Virginia Avenue  
Norfolk, Virginia 23511-3095**

**and**



**Naval Facilities Engineering Command Atlantic  
9324 Virginia Avenue  
Norfolk, Virginia 23511-3095**

**JUNE 2021**

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**9324 Virginia Avenue  
Norfolk, Virginia 23511-3095**

**Prepared by:**

**CDM - AECOM**  
Multimedia Joint Venture

**CDM - AECOM Multimedia Joint Venture  
10560 Arrowhead Drive, Suite 500  
Fairfax, Virginia 22030**

**Contract Number: N62470-14-D-9016  
CTO WE52  
JUNE 2021**

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### **List of Acronyms**

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CTO	Contract Task Order
COPC	constituents of potential concern
ft	feet
IDIQ	Indefinite Delivery, Indefinite Quantity
IGWA	Initial Groundwater Assessment
JV	Joint Venture
LBMH	Laurel Bay Military Housing
MCAS	Marine Corps Air Station
NAVFAC Mid-Lant	Naval Facilities Engineering Command Mid-Atlantic
NFA	No Further Action
PAH	polynuclear aromatic hydrocarbon
QAPP	Quality Assurance Program Plan
RBSL	risk-based screening level
SCDHEC	South Carolina Department of Health and Environmental Control
Site	LBMH area at MCAS Beaufort, South Carolina
UST	underground storage tank
VISL	vapor intrusion screening level

## **1.0 INTRODUCTION**

The CDM - AECOM Multimedia Joint Venture (JV) was contracted by the Naval Facilities Engineering Command, Mid-Atlantic (NAVFAC Mid-Lant) to provide reporting services for the heating oil underground storage tanks (USTs) located in Laurel Bay Military Housing (LBMH) area at the Marine Corps Air Station (MCAS) Beaufort, South Carolina (Site). This work has been awarded under Contract Task Order (CTO) WE52 of the Indefinite Delivery, Indefinite Quantity (IDIQ) Multimedia Environmental Compliance Contract (Contract No. N62470-14-D-9016).

As of January 2014, the LBMH addresses were re-numbered to comply with the E-911 emergency response addressing system; however, in order to remain consistent with historical sampling and reporting for LBMH area, the residences will continue to be referenced with their original address numbers in sample nomenclature and reporting documents.

This report summarizes the results the environmental investigation activities associated with the storage of home heating oil and the potential release of petroleum constituents at the referenced property. Based on the results of the investigation, a No Further Action (NFA) determination has been made by the South Carolina Department of Health and Environmental Control (SCDHEC) for 195 Bay Circle (Formerly 1 Bay Circle). This NFA determination indicates that there are no unacceptable risks to human health or the environment for the petroleum constituents associated with the home heating oil USTs. The following information is included in this report:

- Background information;
- Sampling activities and results; and
- A determination of the property status.

### **1.1 Background Information**

The LBMH area is located approximately 3.5 miles west of MCAS Beaufort. The area is approximately 970 acres in size and serves as an enlisted and officer family housing area. The area is configured with single family and duplex residential structures, and includes recreation, open space, and community facilities. The community includes approximately 1,300 housing units, including legacy Capehart style homes and newer duplex style homes. The housing area

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is bordered on the west by salt marshes and the Broad River, and to the north, east and south by uplands. Forested areas lie along the northern and northeastern borders.

Capehart style homes within the LBMH area were formerly heated using heating oil stored in USTs at each residence. There were 1,100 Capehart style housing units in the LBMH area. The newer duplex homes within the LBMH area never utilized heating oil tanks. Heating oil has not been used at Laurel Bay since the mid-1980s. As was the accepted practice at the time, USTs were drained, filled with dirt, capped, and left in place when they were removed from service. Residential USTs are not regulated in the State of South Carolina (i.e., there are no federal or state laws governing installation, management, or removal).

In 2007, MCAS Beaufort began a voluntary program to remove the unregulated, residential USTs and conduct sampling activities to determine if, and to what extent, petroleum constituents may have impacted the surrounding environment. MCAS Beaufort coordinated with SCDHEC to develop removal procedures that were consistent with procedural requirements for regulated USTs. All tank removal activities and follow-on actions are conducted in coordination with SCDHEC. To date, all known USTs have been removed from all residential properties within the LBMH area.

The LBMH UST removal and assessment process is described below in Section 1.2. The LBMH multi-media investigation selection process tree, used to evaluate the environmental impact of USTs for most sites at LBMH, is presented in Appendix A. It should be noted that because the USTs were removed prior to 2007, the subject property of this report did not follow the typical multi-media investigation selection process presented in Appendix A.

## **1.2 UST Removal and Assessment Process**

As stated above, the assessment process at this property did not follow the typical process presented in Appendix A.

During the UST removal process, soil samples were collected from around the UST excavations (approximately 4 to 6 feet [ft] below ground surface [bgs]) and analyzed for a predetermined list of constituents of potential concern (COPCs) associated with the petroleum compounds found in home heating oil. These COPCs, derived from the *Quality Assurance Program Plan (QAPP) for the Underground Storage Tank Management Division, Revision 3.1* (SCDHEC, 2016) and the *Underground Storage Tank Assessment Instructions for Permanent Closure and Change-In-Service*, (SCDHEC, 2018), are as follows:

- benzene, toluene, ethylbenzene, and xylenes (BTEX),
- naphthalene, and
- five select polynuclear aromatic hydrocarbons (PAHs): benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene and dibenz(a,h)anthracene.

Soil sample results were submitted by MCAS Beaufort to SCDHEC utilizing SCDHEC's UST Assessment Report form. In accordance with SCDHEC's *QAPP for the UST Management Division* (SCDHEC, 2016), the soil screening levels consists of SCDHEC risk-based screening levels (RBSLs). It should be noted that the RBSLs for select PAHs were revised in Revision 2.0 of the QAPP (SCDHEC, 2013) and were revised again in Revision 3.0 (SCDHEC, 2015). The screening levels used for evaluation at each site were those levels that were in effect at the time of reporting and review by SCDHEC.

A groundwater sample was also collected from the base of the excavation and analyzed for the petroleum COPCs.

The results of the soil and groundwater sampling at each former UST location were used to determine the presence or absence of petroleum COPCs in soil and/or groundwater and identify whether former UST locations may require additional delineation of COPCs in soil and groundwater. The results of the additional soil sampling and initial groundwater assessment (IGWA) sampling (if necessary) are used to determine the presence or absence of the aforementioned COPCs in groundwater and identify whether former UST locations will require additional delineation of COPCs in groundwater. In order to delineate the extent of impact to groundwater, permanent wells are installed and a sampling program is established for those former UST locations where IGWA sampling has indicated the presence of COPCs in excess of the SCDHEC RBSLs for groundwater. Groundwater analytical results are also compared to the site specific groundwater vapor intrusion screening levels (VISLs) to evaluate the potential for vapor intrusion and the necessity for an investigation associated with this media.

## **2.0 SAMPLING ACTIVITIES AND RESULTS**

The following section presents the sampling activities and associated results for 195 Bay Circle (Formerly 1 Bay Circle). Details regarding the soil and groundwater investigation conducted during the UST removals at this site are provided in the *SCDHEC UST Assessment Report – 1 Bay Circle* (MCAS Beaufort, 2004). The UST Assessment Report is provided in Appendix B. Details regarding the additional soil and IGWA sampling activities at this site are provided in the

*Tier II Assessment Report Laurel Bay Housing Area 1, 7, 8, 9 and 10 Bay Circle* (ADVENT Environmental, Inc., 2005). The laboratory reports that include the pertinent soil and IGWA analytical results for this site are presented in Appendices C and D, respectively.

## **2.1 UST Removal and Sampling Activities**

On August 2, 2004, two 280 gallon heating oil USTs were removed from the front landscaped area adjacent to the house at 195 Bay Circle (Formerly 1 Bay Circle). The former UST locations are indicated on the sketch included in the UST Assessment Report (Appendix B). The USTs were removed and properly disposed of (i.e., shipped offsite for recycling or transported to a landfill). Visual evidence (i.e., staining or sheen) of petroleum impact was recorded at the time of the UST removals. According to the UST Assessment Report (Appendix B), the depths to the bases of the USTs were 4'6' bgs. Delineation soil samples were collected prior to excavation.

A groundwater sample was collected from the base of the excavation, following the UST removals at 195 Bay Circle (Formerly 1 Bay Circle). Further details are provided in the *SCDHEC UST Assessment Report – 1 Bay Circle* (MCAS Beaufort, 2004).

Soil and groundwater samples were collected and shipped to an offsite laboratory for analysis of the petroleum COPCs. Sampling was performed in accordance with applicable South Carolina regulation R.61-92, Part 280 (SCDHEC, 2017) and assessment guidelines.

## **2.2 UST Removal Soil and Groundwater Analytical Results**

A summary of the soil laboratory analytical results and SCDHEC RBSLs is presented in Table 1. A summary of the groundwater laboratory analytical results and SCDHEC RBSLs is presented in Table 2. A copy of the laboratory analytical data reports are included in the UST Assessment Report presented in Appendix B. The laboratory analytical data reports include the soil and groundwater results for the additional PAHs that were analyzed, but do not have associated RBSLs.

The soil and groundwater sample results were submitted by MCAS Beaufort to SCDHEC utilizing SCDHEC's UST Assessment Report form (Appendix B). The results of the soil and groundwater sampling at the former UST location were used by MCAS Beaufort, in consultation with SCDHEC, to determine a path forward (i.e., additional sampling or NFA) for the property. The soil and groundwater results collected from 195 Bay Circle (Formerly 1 Bay Circle) were greater than the SCDHEC RBSLs, which indicated further investigation was required. In a letter dated



December 2, 2004, SCDHEC requested additional assessment for 195 Bay Circle (Formerly 1 Bay Circle). SCDHEC's request letter is provided in Appendix E.

### **2.3 Tier 2 Soil Sampling**

In May 2005, five soil borings were advanced at 195 Bay Circle (Formerly 1 Bay Circle). The soil borings were collocated with the temporary monitoring wells discussed in Section 2.5. A single soil sample was collected from each soil boring and shipped to an offsite laboratory for analysis of the petroleum COPCs. Further details are provided in the *Tier II Assessment Report Laurel Bay Housing Area 1, 7, 8, 9 and 10 Bay Circle* (ADVENT Environmental, Inc., 2005).

### **2.4 Tier 2 Soil Analytical Results**

A summary of the laboratory analytical results and SCDHEC RBSLs is presented in Table 3. A copy of the laboratory analytical data reports are included as Appendix C.

The soil results collected from 195 Bay Circle (Formerly 1 Bay Circle) were less than the SCDHEC RBSLs (Table 3), which indicated that the soil was not impacted by COPCs associated with the former UST at concentrations that present a potential risk to human health and the environment.

### **2.5 Tier 2 Groundwater Sampling**

In May 2005, the five soil borings were converted into temporary monitoring wells and then sampled at 195 Bay Circle (Formerly 1 Bay Circle), in accordance with the South Carolina Well Standards and Regulations (R.61-71.H-I, updated June 24, 2016). Further details are provided in the *Tier II Assessment Report Laurel Bay Housing Area 1, 7, 8, 9 and 10 Bay Circle* (ADVENT Environmental, Inc, 2005).

The sampling strategy for this phase of the investigation required a one-time sampling event of the temporarily installed monitoring wells. Following well installation, groundwater samples were collected via grab methods and shipped to an offsite laboratory for analysis of the petroleum COPCs. Upon completion of groundwater sampling, the temporary wells were abandoned in accordance with the South Carolina Well Standards and Regulations R.61-71 (SCDHEC, 2016). Field forms are provided in the *Tier II Assessment Report Laurel Bay Housing Area 1, 7, 8, 9 and 10 Bay Circle* (ADVENT Environmental, Inc, 2005).

## **2.6 Tier 2 Groundwater Analytical Results**

A summary of the laboratory analytical results and SCDHEC RBSLs is presented in Table 4. A copy of the laboratory analytical data report is included in Appendix D.

The groundwater results collected from 195 Bay Circle (Formerly 1 Bay Circle) were less than the SCDHEC RBSLs and the site-specific groundwater VISLs (Table 4), which indicated that the groundwater was not impacted by COPCs associated with the former UST at concentrations that present a potential risk to human health and the environment.

## **3.0 PROPERTY STATUS**

Based on the analytical results for groundwater from the temporary monitoring wells, SCDHEC made the determination that NFA was required for 195 Bay Circle (Formerly 1 Bay Circle). This NFA determination was obtained in a letter dated October 27, 2005. SCDHEC's NFA letter is provided in Appendix D.

## **4.0 REFERENCES**

Marine Corps Air Station Beaufort, 2004. *South Carolina Department of Health and Environmental Control (SCDHEC) Underground Storage Tank Assessment Report – 1 Bay Circle, Laurel Bay Military Housing Area*, November 2004.

ADVENT Environmental, Inc., 2005. *Tier II Assessment Report Laurel Bay Housing Area 1, 7, 8, 9 and 10 Bay Circle Marine Corps Air Station, Beaufort, South Carolina*, September 2005.

South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2013. *Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 2.0*, April 2013.

South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2015. *Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 3.0*, May 2015.

South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2016. *Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 3.1*, February 2016.

South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2017. *R.61-92, Part 280, Underground Storage Tank Control Regulations*, March 2017.

South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2018. *Underground Storage Tank Assessment Instructions for Permanent Closure and Change-In-Service*, March 2018.

South Carolina Department of Health and Environmental Control Bureau of Water, 2016. *R.61-71, Well Standards*, June 2016.

## Tables

**Table 1**  
**Laboratory Analytical Results - Soil - UST Assessment Report**  
**195 Bay Circle (Formerly 1 Bay Circle)**  
**Laurel Bay Military Housing Area**  
**Marine Corps Air Station Beaufort**  
**Beaufort, South Carolina**

Constituent	SCDHEC RBSLs <sup>(1)</sup>	Results Sample Collected 07/13/04			
		01SB01	01SB02	01SB03	01SB04
<b>Volatile Organic Compounds Analyzed by EPA Method 8260B (mg/kg)</b>					
Benzene	0.003	ND	ND	ND	ND
Ethylbenzene	1.551	<b>0.035</b>	ND	ND	ND
Naphthalene	0.047	<b>0.440</b>	<b>0.029</b>	<b>0.003</b>	<b>0.0043</b>
Toluene	0.627	ND	ND	ND	ND
Xylenes, Total	13.01	<b>0.0062</b>	ND	ND	ND
<b>Semivolatile Organic Compounds Analyzed by EPA Method 8270C (mg/kg)</b>					
Benzo(a)anthracene	0.066	ND	ND	ND	ND
Benzo(b)fluoranthene	0.066	ND	ND	ND	ND
Benzo(k)fluoranthene	0.066	ND	ND	ND	ND
Chrysene	0.066	ND	ND	ND	ND
Dibenz(a,h)anthracene	0.066	ND	ND	ND	ND

**Notes:**

<sup>(1)</sup> South Carolina Risk-Based Screening Levels from the Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 1.0 (SCDHEC, May 2001).

Bold font indicates the analyte was detected.

Bold font and shading indicates the concentration exceeds the SCDHEC RBSL.

EPA - United States Environmental Protection Agency

mg/kg - milligrams per kilogram

ND - not detected at the reporting limit (or method detection limit if shown on the laboratory report). The soil laboratory report is provided in Appendix B.

RBSL - Risk-Based Screening Level

SCDHEC - South Carolina Department Of Health and Environmental Control

**Table 2**  
**Laboratory Analytical Results - Groundwater - UST Assessment Report**  
**195 Bay Circle (Formerly 1 Bay Circle)**  
**Laurel Bay Military Housing Area**  
**Marine Corps Air Station Beaufort**  
**Beaufort, South Carolina**

Constituent	SCDHEC RBSLs <sup>(1)</sup>	Results Sample Collected 07/13/04
<b>Volatile Organic Compounds Analyzed by EPA Method 8260B (µg/L)</b>		
Benzene	5	ND
Ethylbenzene	700	<b>8.1</b>
Naphthalene	25	<b>95</b>
Toluene	1,000	<b>1.2</b>
Xylenes, Total	10,000	<b>4.4</b>
<b>Semivolatile Organic Compounds Analyzed by EPA Method 8270D (µg/L)</b>		
Benzo(a)anthracene	10	ND
Benzo(b)fluoranthene	10	ND
Benzo(k)fluoranthene	10	ND
Chrysene	10	ND
Dibenz(a,h)anthracene	10	ND

**Notes:**

<sup>(1)</sup> South Carolina Risk-Based Screening Levels from the Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 3.1 (SCDHEC, February 2016).

Bold font indicates the analyte was detected.

Bold font and shading indicates the concentration exceeds the SCDHEC RBSL .

EPA - United States Environmental Protection Agency

JE - Johnson & Ettinger

NA - not applicable

ND - not detected at the reporting limit (or method detection limit if shown on the laboratory report). The groundwater laboratory report is provided in Appendix B.

RBSL - Risk-Based Screening Level

SCDHEC - South Carolina Department Of Health and Environmental Control

µg/L - micrograms per liter

**Table 3**  
**Laboratory Analytical Results - Soil - Tier 2 Assessment**  
**195 Bay Circle (Formerly 1 Bay Circle)**  
**Laurel Bay Military Housing Area**  
**Marine Corps Air Station Beaufort**  
**Beaufort, South Carolina**

Constituent	SCDHEC RBSLs <sup>(1)</sup>	Results Sample Collected 05/20/05				
		001SB01	001SB02	001SB03	001SB04	01SB05
<b>Volatile Organic Compounds Analyzed by EPA Method 8260B (mg/kg)</b>						
Benzene	0.007	ND	ND	ND	ND	ND
Ethylbenzene	1.15	ND	ND	ND	ND	ND
Naphthalene	0.036	ND	ND	ND	<b>0.0037</b>	ND
Toluene	1.45	ND	ND	ND	ND	ND
Xylenes, Total	14.5	ND	ND	ND	ND	ND
<b>Semivolatile Organic Compounds Analyzed by EPA Method 8270C (mg/kg)</b>						
Benzo(a)anthracene	0.066	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	0.066	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	0.066	ND	ND	ND	ND	ND
Chrysene	0.066	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	0.066	ND	ND	ND	ND	ND

**Notes:**

<sup>(1)</sup> South Carolina Risk-Based Screening Levels from the Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 1.0 (SCDHEC, May 2001).

Bold font indicates the analyte was detected.

Bold font and shading indicates the concentration exceeds the SCDHEC RBSL.

EPA - United States Environmental Protection Agency

mg/kg - milligrams per kilogram

ND - not detected at the reporting limit (or method detection limit if shown on the laboratory report). The soil laboratory report is provided in Appendix C.

RBSL - Risk-Based Screening Level

SCDHEC - South Carolina Department Of Health and Environmental Control

**Table 4**  
**Laboratory Analytical Results - Groundwater - Tier 2 Assessment**  
**195 Bay Circle (Formerly 1 Bay Circle)**  
**Laurel Bay Military Housing Area**  
**Marine Corps Air Station Beaufort**  
**Beaufort, South Carolina**

Constituent	SCDHEC RBSLs <sup>(1)</sup>	Site-Specific Groundwater VISLs (µg/L) <sup>(2)</sup>	Results Sample Collected 05/23/05				
			01TMW01	01TMW02	01TMW03	01TMW04	01TMW05
<b>Volatile Organic Compounds Analyzed by EPA Method 8260B (µg/L)</b>							
Benzene	5	16.24	ND	ND	ND	ND	ND
Ethylbenzene	700	45.95	ND	ND	ND	ND	ND
Naphthalene	25	29.33	ND	ND	ND	ND	ND
Toluene	1,000	105,445	ND	ND	ND	ND	ND
Xylenes, Total	10,000	2,133	ND	ND	ND	ND	ND
<b>Semivolatile Organic Compounds Analyzed by EPA Method 8270D (µg/L)</b>							
Benzo(a)anthracene	10	NA	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	10	NA	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	10	NA	ND	ND	ND	ND	ND
Chrysene	10	NA	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	10	NA	ND	ND	ND	ND	ND

**Notes:**

<sup>(1)</sup> South Carolina Risk-Based Screening Levels from the Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 1.0 (SCDHEC, May 2001).

<sup>(2)</sup> Site-specific groundwater VISLs were calculated using the EPA JE Model Spreadsheets (Version 3.1, February 2004) and conservative modeling inputs representative of a small single-story house with an 8 foot ceiling. Site-specific groundwater VISLs were developed based on a target risk level of  $1 \times 10^{-6}$ , a target hazard quotient of 1 (per target organ), and a default residential exposure scenario, assuming exposure for 24 hours/day, 350 days/year, for 26 years. Modeling was performed for a range of depths to groundwater for application as appropriate in different areas of the Laurel Bay Military Housing Area. The most conservative levels are presented for comparison. Refer to Appendix H of the Uniform Federal Policy Sampling Analysis and Sampling Plan for Vapor Media, Revision 4 (Resolution Consultants, April 2017) for additional information.

Bold font indicates the analyte was detected.

Bold font and shading indicates the concentration exceeds the SCDHEC RBSL and/or the Site-Specific Groundwater VISL.

EPA - United States Environmental Protection Agency

JE - Johnson & Ettinger

NA - not applicable

ND - not detected at the reporting limit (or method detection limit if shown on the laboratory report). The groundwater laboratory report is provided in Appendix D.

RBSL - Risk-Based Screening Level

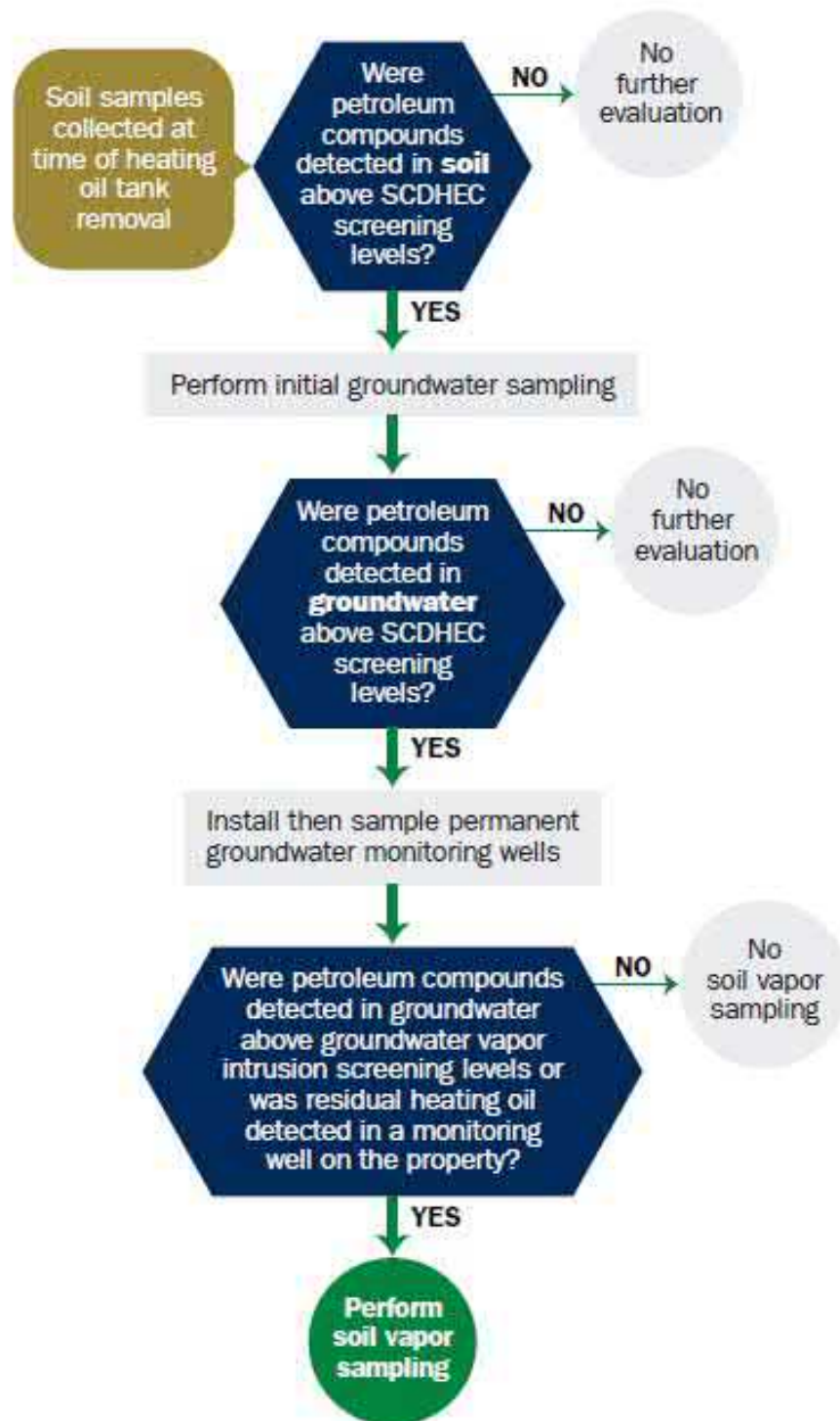
SCDHEC - South Carolina Department Of Health and Environmental Control

µg/L - micrograms per liter

VISL - Vapor Intrusion Screening Level



**Appendix A**  
**Multi-Media Selection Process for LBMH**



Appendix A - Multi-Media Selection Process for LBMH

**Appendix B**  
**UST Assessment Report**

02768

**ASSESSMENT REPORT**

LAUREL BAY HOUSING AREA, # 1-LAUREL BAY  
MARINE CORPS AIR STATION, BEAUFORT, SOUTH CAROLINA

Prepared for:



Naval Facilities Engineering Command  
North Charleston, South Carolina

**Contract Number**  
N62467-04-M-0113

**Prepared By:**

ADVENT Environmental, Inc.  
498 Wando Park Blvd.  
Suite 500  
Mt. Pleasant SC 29464

**RECEIVED**  
NOV 29 2004  
Water Monitoring Assessment & Protection Division

A handwritten signature in black ink, appearing to read "BR C".

\_\_\_\_\_  
Brian R. Crawford, R.E.M.  
Project Manager

A handwritten signature in black ink, appearing to read "Jeffrey C. Smoak".

\_\_\_\_\_  
Jeffrey C. Smoak, P.E.  
Principal

November 2004  
ADVENT 04-515

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1965 US 100

General Services Administration  
Washington, D.C. 20540

## **Executive Summary**

The initial Statement of Work was to remove one Underground Storage Tank (UST) at 1 Bay Circle in the Laurel Bay Housing Area at the Marine Corps Air Station in Beaufort, South Carolina.

Soils were sampled prior to excavation and were used as delineation samples for soil removal. While onsite performing the UST removal, one additional UST was found in relation to the site. A NAVFAC Southern Division representative was onsite and approved the removal of the additional UST. Because both tanks were within the boundaries of the delineation soil samples, no additional soil samples were needed.

The two USTs along with the contaminated soils were removed and disposed of (see assessment report). During the tank removal one (1) ground-water sample was collected from the excavation. Samples were sent to a certified laboratory and tested for constituents as required by the South Carolina Department of Health and Environmental Control (DHEC) guidance document dated March 15, 2000. Personal Protective Equipment (PPE) and other plastic debris were contained in the 20 yard dumpsters along with the contaminated soils. Decon water was vacuumed out of the decon pad area with the vacuum truck.

Backfill material was compacted in several lifts. Two lifts were tested for compaction. The first lift was three feet below land surface and the second was six inches below land surface. Both of the lifts passed the compaction test at over 95% compaction.

**South Carolina Department of Health and Environmental Control (SCDHEC)  
Underground Storage Tank (UST) Assessment Report**



**Submit Completed Form To:**  
**UST Program**  
**SCDHEC**  
**2600 Bull Street**  
**Columbia, South Carolina 29201**  
**Telephone (803) 896-6240**

**I. OWNERSHIP OF UST(S)**

Marine Corp Air Station		
<b>Owner Name (Corporation, Individual, Public Agency, Other)</b>		
Bldg 601 2nd Floor Geiger Blvd MCAS		
<b>Mailing Address</b>		
Beaufort	South Carolina	29904-5001
<b>City</b>	<b>State</b>	<b>Zip Code</b>
843	228-7317	Alice Howard
<b>Area Code</b>	<b>Telephone Number</b>	<b>Contact Person</b>

**II. SITE IDENTIFICATION AND LOCATION**

Permit I.D. #	
Laurel Bay Housing- MCAS Beaufort, SC	
<b>Facility Name or Company Site Identifier</b>	
1 Laurel Bay Circle	
<b>Street Address or State Road (as applicable)</b>	
Beaufort	Beaufort
<b>City</b>	<b>County</b>

**III. CLOSURE INFORMATION**

August 2, 2004	August 6, 2004	Two (2)
<b>Closure Started</b>	<b>Closure Completed</b>	<b>Number of USTs Closed</b>
ADVENT Environmental, Inc		
<b>Consultant</b>	<b>UST Removal Contractor</b>	

**IV. CERTIFICATION (To be signed by the UST owner/operator.)**

I certify that I have personally examined and am familiar with the information submitted in this and all attached documents; and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

A.G. Howard  
**Name (Type or print)**

A. G. Howard  
**Signature**

**V. UST INFORMATION**

- A. Product...(ex. Gas, Kerosene).....
- B. Capacity..(ex. 1k, 2k).....
- C. Age.....
- D. Construction Material..(ex. Steel, FRP).....
- E. Month/Year of Last Use.....
- F. Depth (ft.) To Base of Tank.....
- G. Spill Prevention Equipment Y/N.....
- H. Overfill Prevention Equipment Y/N.....
- I. Method of Closure Removed/Filled.....
- J. Date Tanks Removed/Filled.....
- K. Visible Corrosion or Pitting Y/N.....
- L. Visible Holes Y/N.....

Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6
heating oil	heating oil				
280 Gal	280 Gal				
> 40	> 40				
steel	steel				
N/A	N/A				
4.5 ft	4.5 ft				
no	no				
no	no				
re- moval	re- moval				
8/2/04	8/2/04				
yes	yes				
yes	yes				

M. Method of disposal for any USTs removed from the ground (attach disposal manifests)  
Tanks were cut up and cleaned for scrap metal. All metal was taken to Beaufort County Recycling landfill.

---

N. Method of disposal for any liquid petroleum, sludges, or waste waters removed from the USTs (attach disposal manifests)  
Water found inside in Tank #1 was vacuumed out (see manifest).  
Tank #2 was full of sand.

---

O. If any corrosion, pitting, or holes were observed, describe the location and extent for each UST  
Both of the USTS had visual corrosion and pitting located on the body of the tanks.

---



## VI. PIPING INFORMATION

- A. Construction Material..(ex. Steel, FRP).....
- B. Distance from UST to Dispenser.....
- C. Number of Dispensers.....
- D. Type of System Pressure or Suction.....
- E. Was Piping Removed from the Ground? Y/N
- F. Visible Corrosion or Pitting Y/N.....
- G. Visible Holes Y/N.....
- H. Age.....

Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6
copper	copper				
3'	3'				
1	1				
S	S				
yes	yes				
no	no				
no	no				
> 40 years	> 40 Years				

- I. If any corrosion, pitting, or holes were observed, describe the location and extent for each piping run.

none

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## VII. BRIEF SITE DESCRIPTION AND HISTORY

Site is used for military housing for MCAS. The structure ( 1 Laruel Bay Circle) was built

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in the 1950's (see attached pictures for more detail of site). The onsite underground

---

storage tanks were used to heat 1 Laurel Bay Circle. There are no records

---

available confirming date the tanks were last used

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## VIII. SITE CONDITIONS

	Yes	No	Unk
<p>A. Were any petroleum-stained or contaminated soils found in the UST excavation, soil borings, trenches, or monitoring wells?</p> <p>If yes, indicate depth and location on the site map.</p>	X		
<p>B. Were any petroleum odors detected in the excavation, soil borings, trenches, or monitoring wells?</p> <p>If yes, indicate location on site map and describe the odor (strong, mild, etc.)</p> <p style="padding-left: 40px;">Mild odor in Excavations</p>	X		
<p>C. Was water present in the UST excavation, soil borings, or trenches?</p> <p>If yes, how far below land surface (indicate location and depth)?</p>	X		
<p>D. Did contaminated soils remain stockpiled on site after closure?</p> <p>If yes, indicate the stockpile location on the site map.</p> <p>Name of DHEC representative authorizing soil removal:</p>		X	
<p>E. Was a petroleum sheen or free product detected on any excavation or boring waters?</p> <p>If yes, indicate location and thickness.</p>		X	

IX. SAMPLE INFORMATION

A. SCDHEC Lab Certification Number: 99030

B.

SAMPLE #	LOCATION	SAMPLE TYPE (SOIL/WATER)	SOIL TYPE (SAND/CLAY)	DEPTH*	DATE/TIME OF COLLECTION	COLLECTED BY	OVA #
01SB01		Soil	sand	4-6'	7-13-04/ 1300	BRC	65.0
01SB02		Soil	sand	4-6'	7-13-04/1310	BRC	142.0
01SB03		Soil	sand	4-6'	7-13-04/1330	BRC	0.0
01SB04		Soil	sand	4-6'	7-13-04/1345	BRC	0.0
01GW01		Water	n/a	6'	8-4-04/0915	BRC	0.0

\* Depth Below Surrounding Land Surface (bls)

**X.**

**SAMPLING METHODOLOGY**

Provide a detailed description of the methods used to collect and store the samples. Also include the preservative used for each sample. Please use the space provided below.

Soil samples were collected using "grab method" and stored at 4 C using ice.

---

Groundwater samples were collected using Grab Method and stored at 4 C using ice.

---

Methods: Soil: BTEX-8260; Naphthalene 8260; PAH 8270. Soil samples were collected prior to excavation and used as delineation boundaries.

---

Methods Water: BTEX-8260; Naphthalene-8260; PAH-8270; MtBE-8260. Groundwater was sampled after removal of the tanks.

---

Prior to excavating, soil samples were collected in two foot intervals and screened with an OVA. The interval from each boring with the highest reading was sent to a certified laboratory to be analysed for BTEX, Naphthalene, and PAHs. These borings were used as the delineation points for the UST excavation area.

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## XI. RECEPTORS

	Yes	No
<p>A. Are there any lakes, ponds, streams, or wetlands located within 1000 feet of the UST system?</p> <p>If yes, indicate type of receptor, distance, and direction on site map.</p> <p style="text-align: center;">See Site Map</p>	X	
<p>B. Are there any public, private, or irrigation water supply wells within 1000 feet of the UST system?</p> <p>If yes, indicate type of well, distance, and direction on site map.</p>		X
<p>C. Are there any underground structures (e.g., basements) Located within 100 feet of the UST system?</p> <p>If yes, indicate type of structure, distance, and direction on site map.</p>		X
<p>D. Are there any underground utilities (e.g., telephone, electricity, gas, water, sewer, storm drain) located within 100 feet of the UST system that could potentially come in contact with the contamination?</p> <p>If yes, indicate the type of utility, distance, and direction on the site map.</p>	X	
<p>E. Has contaminated soil been identified at a depth less than 3 feet below land surface in an area that is not capped by asphalt or concrete?</p> <p>If yes, indicate the area of contaminated soil on the site map.</p>		X



Laurel Bay # 1 Pre-Excavation



Laurel Bay #1 Fill Port



Laurel Bay #1 During Excavation



Laurel Bay #1 Tank One



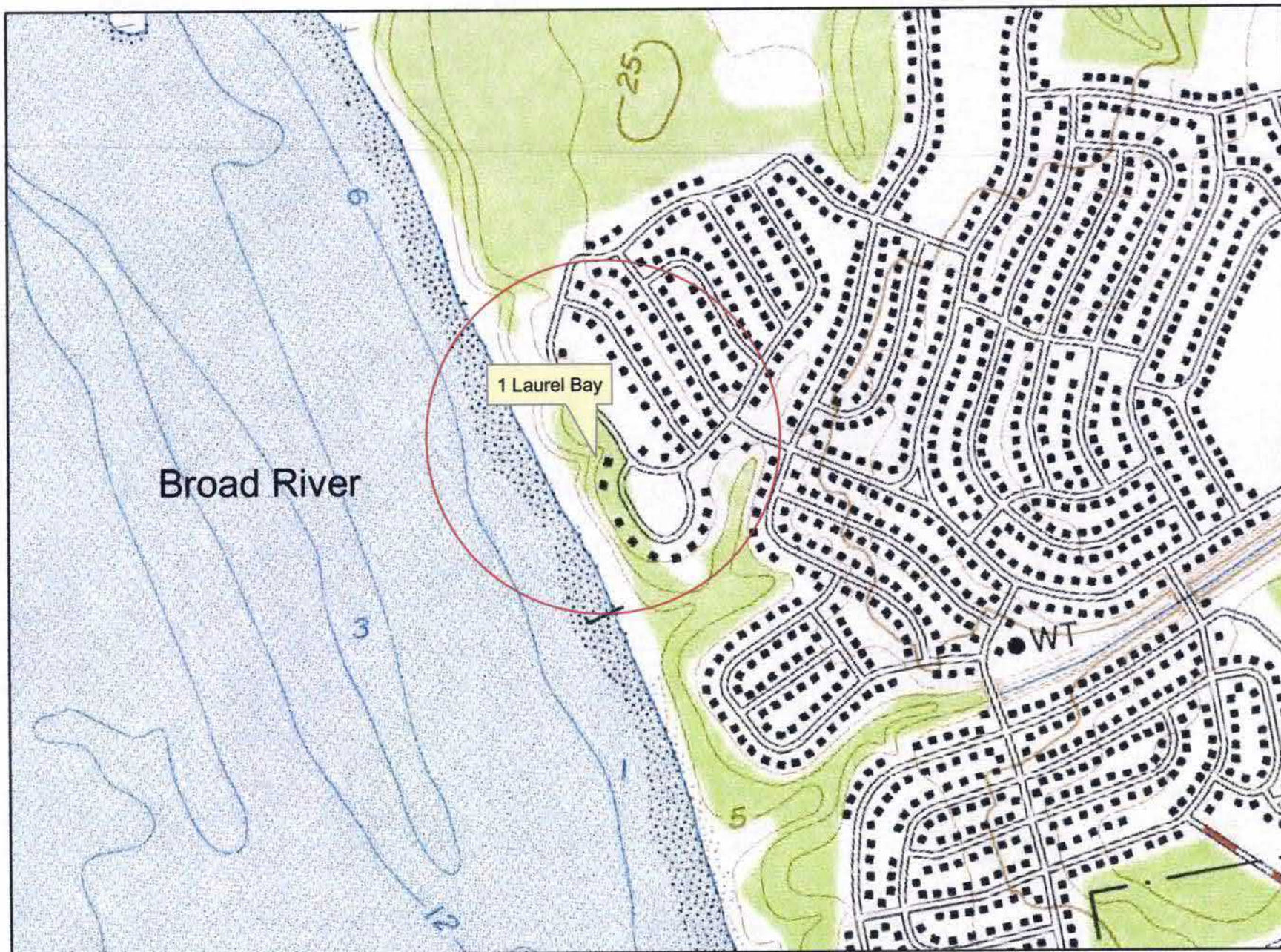
Larel Bay #1 Tank Two (full of sand)



Laurel Bay #1 Post Excavtion



# 1 Laurel Bay MCAS, Beaufort, SC



0 250 500 1,000  
Feet

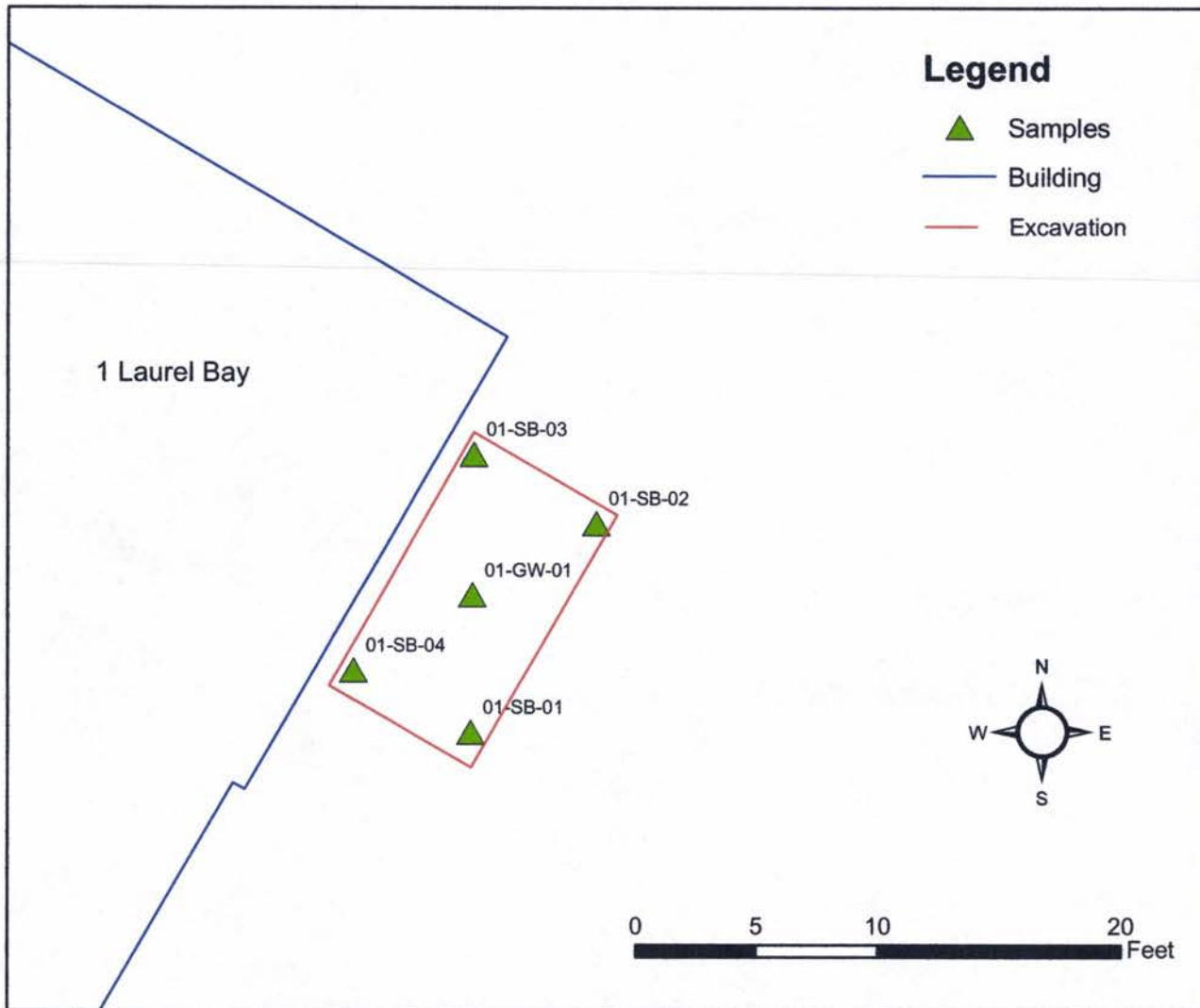
— 1,000 ft radius



# Concentrations of Constituents of Concern from Soil Borings and Ground Water Samples

## 1 Laurel Bay MCAS, Beaufort, SC

Created by



- Legend**
- ▲ Samples
  - Building
  - Excavation

Constituents	01SB01 7/13/2004		01SB02 7/13/2004		01SB03 7/13/2004		01SB04 7/13/2004	
	RBSL Clay Rich Soils (ug/kg)	Result (ug/kg)	Result (ug/kg)	Result (ug/kg)	Result (ug/kg)	Result (ug/kg)	Result (ug/kg)	
<b>Volatile Organic Compounds</b>								
Method 8260								
Benzene	3	ND	ND	ND	ND	ND	ND	ND
Toluene	627	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1551	35	ND	ND	ND	ND	ND	ND
Xylenes	13010	8.2	ND	ND	ND	ND	ND	ND
Naphthalene	47	440	29	3.0	4.3			
<b>Semi-Volatile Organic Compounds</b>								
Method 8270								
Benzo(a)anthracene	66	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	66	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	66	ND	ND	ND	ND	ND	ND	ND
Chrysene	66	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	66	ND	ND	ND	ND	ND	ND	ND

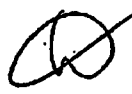
Constituents	01GW01 7/13/2004	
	RBSL Clay Rich Soils (ug/L)	Result (ug/kg)
<b>Volatile Organic Compounds</b>		
Method 8260		
Benzene	5	ND
Toluene	1000	1.2
Ethylbenzene	700	8.1
Xylenes	10000	4.4
MtBE	40	ND
Naphthalene	10	95
<b>Semi-Volatile Organic Compounds</b>		
Method 8270		
Benzo(a)anthracene	10	ND
Benzo(b)fluoranthene	10	ND
Benzo(k)fluoranthene	10	ND
Chrysene	10	ND
Dibenz(a,h)anthracene	10	ND
Total PAH's	25	ND

ND= Non Detected  
RBSL= Risk Based Screening Levels (SCDHEC)  
ug/L= micrograms per Liter  
ug/kg= micrograms per kilograms

# US Water Recovery

<b>Non-Hazardous Wastewater Manifest</b>		<b>Number:</b> 487
1. Generator's EPA ID# (if applicable):		<b>Waste ID Number:</b>
2. Generator's Name and Mailing Address: <del>Advent Environmental, Inc.</del> 408 Wando Park Blvd, Suite 500 <del>Mt. Pleasant, SC 29464</del> Commanding Officer, PMSAS, ATTN NREAC PO Box 55001, Beaufort, SC 29904		Phone (843) 228-7370 PO#:
3. Agent of Generator and Mailing Address: Sani-Tech Environment, LLC P O Box 71619 Charleston, SC 29415		Phone (843) 744-0406 PO#:
4. Transporter Company Name: Sani-Tech Environment, LLC P O Box 71619 Charleston, SC 29415		Phone (843) 744-0406
Truck & Trailer License Number:		
5. Transporter U.S. EPA ID#: SCR000005363		
6. Facility Name and Site Address: U S Water Recovery 435 Old Mt. Holly Rd. Mt. Holly, SC 29445		Phone: (843) 797-8574 Fax: (843) 797-2128
		Mailing Address: U S Water Recovery P O Box 70397 North Charleston, SC 29415 Phone: (843) 744-0118 Fax: (843) 744-0730
7. Facility U.S. EPA ID#:		
Start Level:	End Level:	Total Gallons: <span style="float: right;">Tank Number: 3</span>
8. U.S. DOT Description		Quantity
		Unit
		No. Type
Non-Hazardous, non-regulated waste water		01 TT GAL 700
9. Generator's Certification: I hereby declare that the contents of this consignment are not hazardous by definition or labeling and are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and the laws of the State of South Carolina. I further certify that the contents of this consignment are as represented by the description contained on the Waste Profile Form previously submitted to and approved by the Designated Facility.		
Printed/Typed Name: <i>W.C. Decker</i>		Signature: <i>[Signature]</i> Date: 8-3-04
10. Transporter Acknowledgment of Receipt of Materials Printed/Typed Name: <i>Joby Ready</i>		Signature: <i>[Signature]</i> Date:
11. Discrepancy Indication space:		
12. Facility Owner or Operator: Certification of Receipt of Materials Printed/Typed Name: <i>Mark Roberts</i>		Signature: <i>[Signature]</i> Date: 8/3/04

White - Facility    Yellow - Transporter    Pink - Generator





OAKRIDGE LANDFILL  
WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST

Approval # VB 3878  
Expiration 06/25/05 *W.C.*

Generator: MCAS BEAUFORT *Name Address: Commanding Office*

Account Number: 490-335 *ATTN: NREB*

Location/Address: HIGHWAY 21 S BEAUFORT, SC (07) *MCAS  
PO Box 55001  
Beaufort, SC 29901*

Tele Number: 843-563-8916 Contact: W G DUKES JR

Generator Signature: *[Signature]*  
*W. G. Dukes, Jr.  
MCAS Beaufort*

\*\*\*\*\* TO BE COMPLETED BY TRANSPORTER \*\*\*\*\*

Transporter of Waste: GLOBAL ENVIRO ASSURANCE Truck: *003*

Date: *8-17-04* Driver's Signature: *[Signature]*

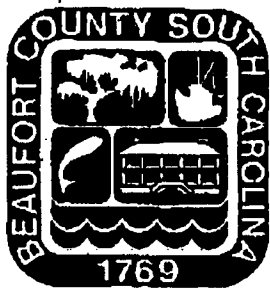
\*\*\*\*\* TO BE COMPLETED BY OAKRIDGE LANDFILL \*\*\*\*\*

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOL/UST REMOVAL

Ticket Number: *287533* Tonnage: *11.37*

Received By: *[Signature]* Date: *8/16*



Beaufort County Public Works  
Solid Waste and Recycling Division  
120 Shanklin Road  
Beaufort, South Carolina 29906  
843-470-6406 phone 843-470-6422 fax

## FACSIMILE TRANSMISSION

To: BRIAN CRAWFORD

Phone: \_\_\_\_\_ Fax: 843-388-1891

From: Jim Minor, Superintendent  
Solid Waste and Recycling

Date: Aug 10, 2004 # of pages: 2

Comments: Hope this helps.

Jim Minor



**BEAUFORT COUNTY PUBLIC WORKS**  
120 Shanklin Road  
Beaufort, South Carolina 29906  
Voice (843) 470-6400 Facsimile (843) 470-6418



Date August 10, 2004

TO WHOM IT MAY CONCERN:

Beaufort County maintains a facility for scrap metal and white goods at Shanklin Road, Beaufort, S.C. Receipts are not issued for the material as it is received, as we have no requirement or means for weighing the material.

Through an agreement between Beaufort County and Charleston Steel, Inc. all material we receive is removed and recycled as scrap metal.

James S. Minor, Jr.  
Solid Waste and Recycling Superintendent





Post-It™ brand fax transmittal memo 7571		# of pages	1
To	BRIAN CRAWFORD	From	JIM MINOR
Co.	ADVENT	Co.	BEAUFORT COUNTY PW
Dept.		Phone #	
Fax #	843-388-1891	Fax #	843-470-6422

ADVENT Environmental Inc.  
 498 Wando Park Blvd.  
 Mt Pleasant, SC 29464

(843) 388-1851 Phone  
 (843) 388-1891 Fax

Origination of recyclable materials:

Lance Bay # 1 (2) @ 250 gallon each  
Lance Bay # 2 (3) @ 250 gallon each

Disposal Location: Beaufort County Public Works  
 Solid Waste and Recycling Division  
 120 Shanklin Road  
 Beaufort, South Carolina 29906  
 (843) 470-6406-Phone

I certify that the above scrap metal equipment has been properly cleaned.

BRIAN CRAWFORD  
 PRINT (ADVENT REPRESENTATIVE)

[Signature] 8-4-04  
 SIGNATURE DATE

I certify that the above <sup>scrap metal</sup> tanks have been accepted and will be recycled by the Beaufort County Solid Waste and Recycling Division.

JAMES S. MINOR JR.  
 PRINT (BCPW REPRESENTATIVE)

[Signature] 8-4-04  
 SIGNATURE DATE

BCPW Contact information:  
 Gary Jones (843) 812-2052  
 Darrell Hylton (843) 812-3864







# SOIL CONSULTANTS, INC.

P.O. DRAWER 898  
CHARLESTON, SC 29402  
(843)723-4539

P.O. BOX 30457  
MYRTLE BEACH, SC 29588  
(843)236-8616

ORDER NO. PAGE 2 OF 2.....

DATE 8-5-2004.....

REPORT NO. CMT-04-1088.....

## REPORT OF IN-PLACE FIELD DENSITY TESTS

CLIENT: ADVENT.....

PROJECT: MARINE CORPS AIR STATION, BEAUFORT, SC.....

METHOD OF TEST: ASTM D2922.....

### LABORATORY TEST RESULTS:

MAXIMUM DRY DENSITY: 103.0 lbs./cu.ft.

OPTIMUM MOISTURE CONTENT: 15.0 %

PERCENT COMPACTION REQUIRED: 95.0 %

SEE SKETCH ATTACHED

DATE	LOCATION	FIELD DRY DENSITY lbs./cu. ft.	FIELD MOISTURE %	ACTUAL FIELD COMPACTION %	REMARKS*
	L-BAY #1				
8-4-2004	BACKFILL HOLE				
3 Feet b/s	1. TOP 0-12" +/- LIFT #1	116.7	6.9	100+	S
3 Feet b/s	2. TOP 0-12" +/- LIFT #1	112.5	10.4	100+	S
6 INCH b/s	3. TOP 0-12" +/- LIFT #2	97.9	16.0	95.1	S
6 INCH b/s	4. TOP 0-12" +/- LIFT #2	98.5	18.4	95.8	S

\* S - SATISFACTORY U - UNSATISFACTORY

REMARKS:

RESPECTFULLY SUBMITTED:  
SOIL CONSULTANTS, INC.

BY:

# SOIL CONSULTANTS, INC.

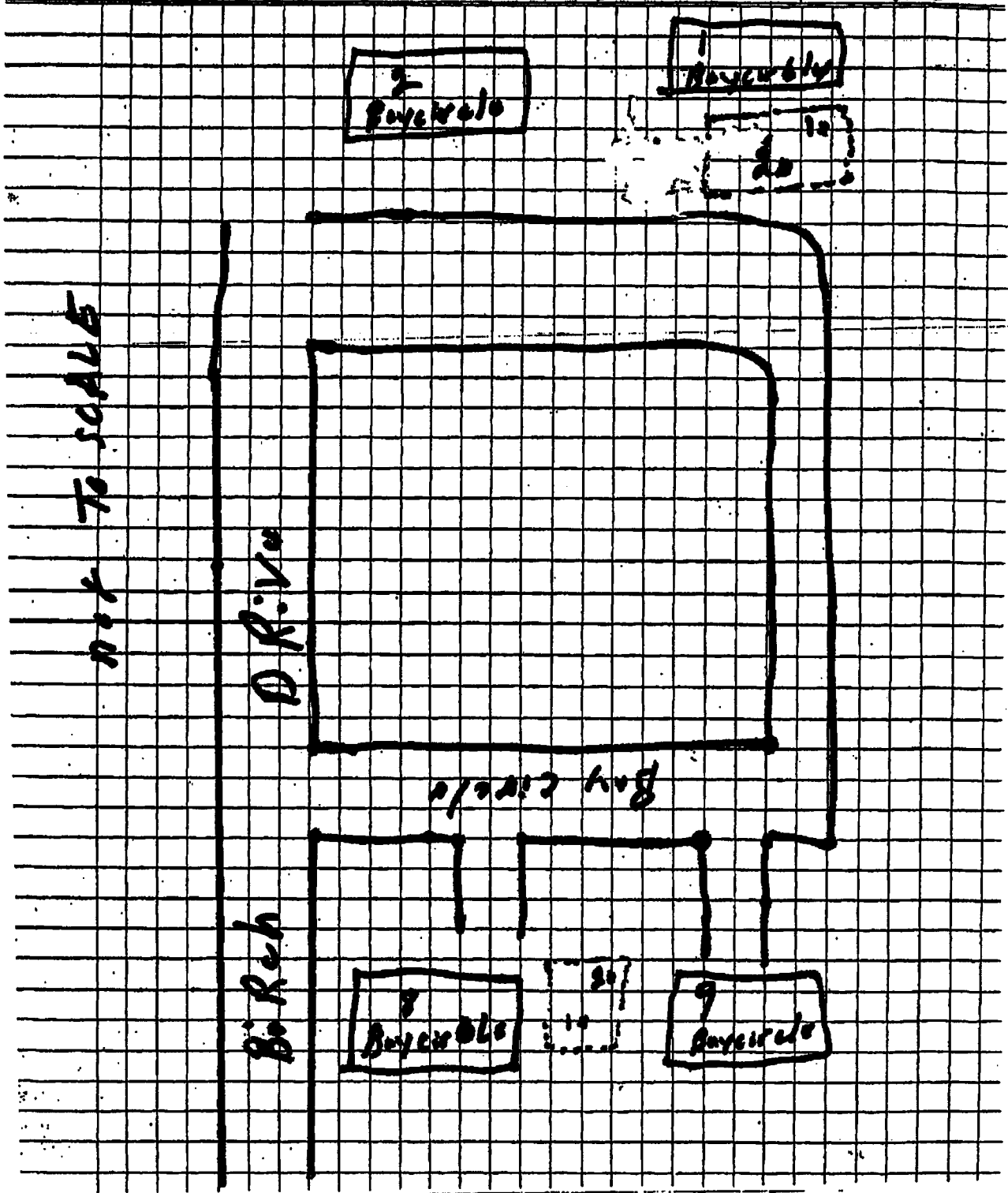
DATE 8-4-04

PROJECT OR JOB NO. 04-1089

FORM 80

TITLE McAS Beaufort L-Buy 8+1

INITIALS RJ



**Table 1: Summary of Soil Analytical Data  
Housing 1 Laurel Bay MCAS Beaufort**

**Soil Results**

Constituents	01SB01 7/13/2004		01SB02 7/13/2004		01SB03 7/13/2004		01SB04 7/13/2004	
	Result	RBSL Clay Rich Soils	Result	RBSL Clay Rich Soils	Result	RBSL Clay Rich Soils	Result	RBSL Clay Rich Soils
<b>Method 8260</b>								
Benzene	ND	3	ND	3	ND	3	ND	3
Toluene	ND	627	ND	627	ND	627	ND	627
Ethylbenzene	35	1551	ND	1551	ND	1551	ND	1551
Xylenes	6.2	13010	ND	13010	ND	13010	ND	13010
Naphthalene	440	47	29	47	3.0	47	4.3	47
<b>Semi-Volatile Organic Compounds</b>								
<b>Method 8270</b>								
Benzo(a)anthracene	ND	66	ND	66	ND	66	ND	66
Benzo(b)fluoranthene	ND	66	ND	66	ND	66	ND	66
Benzo(k)fluoranthene	ND	66	ND	66	ND	66	ND	66
Chrysene	ND	66	ND	66	ND	66	ND	66
Dibenz(a,h)anthracene	ND	66	ND	66	ND	66	ND	66

Constituents	01GW01 7/13/2004	
	Result	RBSL Clay Rich Soils
<b>Volatile Organic Compounds</b>		
<b>Method 8260</b>		
Benzene	ND	5
Toluene	1.2	1000
Ethylbenzene	8.1	700
Xylenes	4.4	10000
MIBE	ND	40
Naphthalene	95	10
<b>Semi-Volatile Organic Compounds</b>		
<b>Method 8270</b>		
Benzo(a)anthracene	ND	10
Benzo(b)fluoranthene	ND	10
Benzo(k)fluoranthene	ND	10
Chrysene	ND	10
Dibenz(a,h)anthracene	ND	10
Total PAH's	ND	25

ND= Non Detected  
RBSL= Risk Based Screening Levels (SCDHEC)  
ug/L= micrograms per Liter  
ug/kg= micrograms per kilograms

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

854982

Required Client Information: Section A

Required Client Information: Section B

Page: 1 of 1

To Be Completed by Pace Analytical and Client Section C

Report To: Evon Crawford  
 Copy To: \_\_\_\_\_  
 Company: ADVENT  
 Invoice To: ADVENT  
 Address: 498 WANDO PK BLVD  
Suite 500  
Mt. Pleasant SC  
 Project Name: MCAS  
 Project Number: 04-515  
 Phone: 383 381 851 Fax: 383 1891

Client Information (Check quote/contract):  
 Requested Due Date: \_\_\_\_\_ \*TAT:  
 \*Turn around time less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.  
 Turn Around Time (TAT) in calendar days.

Quote Reference: \_\_\_\_\_  
 Project Manager: \_\_\_\_\_  
 Project #: 9273503  
 Profile #: 157115  
 Requested Analysis: \_\_\_\_\_

ITEM #	Section D Required Client Information:		Valid Matrix Codes MATRIX CODE SAMPLE TYPE G-GRAB C-COMP.	COLLECTED				SAMPLE TEMP AT COLLECTION	Preservatives						Remarks / Lab ID		
	SAMPLE ID			START		END			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>		Methanol	Other
	One character per box. (A-Z, 0-9 / -)			DATE	TIME	DATE	TIME										
	Sample IDs MUST BE UNIQUE																
1	0	8GW01	924565104	8/3/04	1330					X						GRAB	
2	0	1GW01	924565112	8-4-04	0915					X						GRAB	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

SITE LOCATION			REGULATORY AGENCY			RELINQUISHED BY / AFFILIATION		DATE	TIME	ACCEPTED BY / AFFILIATION		DATE	TIME
<input type="checkbox"/> NC	<input type="checkbox"/> SC	<input type="checkbox"/> GA	<input checked="" type="checkbox"/> NRD/ST	<input checked="" type="checkbox"/> GROUND WATER	<input type="checkbox"/> DRINKING WATER					<u>J. J. J. J.</u>	<u>8/10/04</u>		
SAMPLE CONDITION:			SAMPLE NOTES										
Temp in °C													
Received on Ice	Y/N												
Sealed Cooler	Y/N												
Samples Intact	Y/N												

Additional Comments:

3

SAMPLER NAME AND SIGNATURE  
 PRINT Name of SAMPLER:  
 SIGNATURE of SAMPLER: \_\_\_\_\_ DATE Signed: (MM / DD / YY)

SEE REVERSE SIDE FOR INSTRUCTIONS



Pace Analytical Services, Inc.  
 9800 Kinsey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

Lab Project Number: 9273503  
 Client Project ID: MCAS 04-515

Lab Sample No: 924565112      Project Sample Number: 9273503-002      Date Collected: 08/04/04 09:15  
 Client Sample ID: 01GW01      Matrix: Water      Date Received: 08/06/04 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	Req/Lmt
<b>GC/MS Semivolatiles</b>									
Semivolatiles Organics	Prep/Method: EPA 3510 / EPA 8270								
Benzo (k) fluoranthene	ND	ug/l	17.		1.7	08/13/04 20:08	BET 207-08-9		
Benzo (b) fluoranthene	ND	ug/l	17.		1.7	08/13/04 20:08	BET 205-99-2		
Benzo (a) anthracene	ND	ug/l	17.		1.7	08/13/04 20:08	BET 56-55-3		
Chrysene	ND	ug/l	17.		1.7	08/13/04 20:08	BET 218-01-9		
Dibenz (a,b) anthracene	ND	ug/l	17.		1.7	08/13/04 20:08	BET 53-70-3		
Nitrobenzene-d5 (S)	78	%			1.0	08/13/04 20:08	BET 4165-60-0		
2-Fluorobiphenyl (S)	78	%			1.0	08/13/04 20:08	BET 321-60-8		
Terphenyl-d14 (S)	82	%			1.0	08/13/04 20:08	BET 1718-51-0		
Date Extracted	08/11/04					08/11/04			

**GC/MS Volatiles**

GC/MS VOCs by 8260, low level	Method: EPA 8260	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	Req/Lmt
Benzene		ND	ug/l	1.0		1.0	08/15/04 16:40	MSF 71-43-2		
Ethylbenzene		8.1	ug/l	1.0		1.0	08/15/04 16:40	MSF 100-41-4		
Methyl-tert-butyl ether		ND	ug/l	1.0		1.0	08/15/04 16:40	MSF 1634-04-4		
Naphthalene		95.	ug/l	1.0		1.0	08/15/04 16:40	MSF 91-20-3		
Toluene		1.2	ug/l	1.0		1.0	08/15/04 16:40	MSF 108-88-3		
m,p-Xylene		4.4	ug/l	2.0		1.0	08/15/04 16:40	MSF 95-47-6		
o-Xylene		ND	ug/l	1.0		1.0	08/15/04 16:40	MSF 2037-26-5		
Toluene-d8 (S)		96	%			1.0	08/15/04 16:40	MSF 460-00-4		
4-Bromofluorobenzene (S)		96	%			1.0	08/15/04 16:40	MSF 1868-53-7		1
Dibromofluoromethane (S)		83	%			1.0	08/15/04 16:40	MSF 17060-07-0		
1,2-Dichloroethane-d4 (S)		94	%							

Date: 08/15/04

Page: 2 of 9

Asheville Certification IDs  
 NC Wastewater 40  
 NC Drinking Water 37712  
 SC Environmental 99030  
 FL NELAP E87648

**REPORT OF LABORATORY ANALYSIS**

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Charlotte Certification IDs  
 NC Wastewater 12  
 NC Drinking Water 37706  
 SC 99006  
 FL NELAP E87627



Pace Analytical Services, Inc.  
 9800 Kinsey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9082  
 Fax: 704.875.9091

Lab Project Number: 9271562  
 Client Project ID: 04-515

Lab Sample No: 924467962 Project Sample Number: 9271562-019 Date Collected: 07/13/04 13:00  
 Client Sample ID: 01SB01 Matrix: Soil Date Received: 07/14/04 09:45

Parameters Results Units Report Limit DF Analyzed By CAS No. Qual Req/Lmt

Wet Chemistry

Percent Moisture Method: % Moisture  
 Percent Moisture 17.8 % 1.0 07/15/04 10:48 TRH

GC/MS Semivolatiles

Semivolatiles Organics Prep/Method: EPA 3545 / EPA 8270  
 Benzo (k) fluoranthene ND ug/kg 400 1.2 07/16/04 14:52 BET 207-08-9  
 Benzo (b) fluoranthene ND ug/kg 400 1.2 07/16/04 14:52 BET 205-99-2  
 Benzo (a) anthracene ND ug/kg 400 1.2 07/16/04 14:52 BET 56-55-3  
 Chrysene ND ug/kg 400 1.2 07/16/04 14:52 BET 218-01-9  
 Dibenz (a,h) anthracene ND ug/kg 400 1.2 07/16/04 14:52 BET 53-70-3  
 Nitrobenzene-d5 (S) 35 % 1.0 07/16/04 14:52 BET 4165-60-0  
 2-Fluorobiphenyl (S) 46 % 1.0 07/16/04 14:52 BET 321-60-8  
 Terphenyl-d14 (S) 59 % 1.0 07/16/04 14:52 BET 1718-51-0  
 Date Extracted 07/15/04 07/15/04

GC/MS Volatiles

GC/MS VOCs 5035/8260 low level Method: EPA 8260  
 Benzene ND ug/kg 2.9 0.6 07/20/04 20:56 MSF 71-43-2  
 Ethylbenzene 35 ug/kg 2.9 0.6 07/20/04 20:56 MSF 100-41-4 1  
 Naphthalene 440 ug/kg 2.9 0.6 07/20/04 20:56 MSF 91-20-3 1,2  
 Toluene ND ug/kg 2.9 0.6 07/20/04 20:56 MSF 108-88-3  
 m,p-Xylene 6.2 ug/kg 5.9 0.6 07/20/04 20:56 MSF 1  
 o-Xylene ND ug/kg 2.9 0.6 07/20/04 20:56 MSF 95-47-6  
 Toluene-d8 (S) 82 % 1.0 07/20/04 20:56 MSF 2037-26-5  
 4-Bromofluorobenzene (S) 83 % 1.0 07/20/04 20:56 MSF 460-00-4  
 Dibromofluoromethane (S) 114 % 1.0 07/20/04 20:56 MSF 1868-53-7  
 1,2-Dichloroethane-d4 (S) 114 % 1.0 07/20/04 20:56 MSF 17060-07-0

Date: 07/22/04

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Pace Analytical Services, Inc.  
 9800 Kincaid Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9082  
 Fax: 704.875.9091

Lab Project Number: 9271562  
 Client Project ID: 04-515

Lab Sample No: 924467970 Project Sample Number: 9271562-020 Date Collected: 07/13/04 13:10  
 Client Sample ID: 018B02 Matrix: Soil Date Received: 07/14/04 09:45

Parameters	Results	Units	Report Limit	DF	Analysed	By	CAS No.	Qual	Reg/Lmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	16.5	%			1.0	07/15/04 11:10	TSE		
<b>GC/MS Semivolatiles</b>									
Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270								
Benzo(k)fluoranthene	ND	ug/kg	790		2.4	07/16/04 15:31	BET 207-08-9		
Benzo(b)fluoranthene	ND	ug/kg	790		2.4	07/16/04 15:31	BET 205-99-2		
Benzo(a)anthracene	ND	ug/kg	790		2.4	07/16/04 15:31	BET 56-55-3		
Chrysene	ND	ug/kg	790		2.4	07/16/04 15:31	BET 218-01-9		
Dibenz(a,h)anthracene	ND	ug/kg	790		2.4	07/16/04 15:31	BET 53-70-3		
Nitrobenzene-d5 (S)	34	%			1.0	07/16/04 15:31	BET 4165-60-0		
2-Fluorobiphenyl (S)	36	%			1.0	07/16/04 15:31	BET 321-60-8		
Terphenyl-d14 (S)	63	%			1.0	07/16/04 15:31	BET 1718-51-0		
Date Extracted	07/15/04					07/15/04			

**GC/MS Volatiles**

GC/MS VOCs 5035/8260 low level	Method: EPA 8260	Results	Units	Report Limit	DF	Analysed	By	CAS No.	Qual	Reg/Lmt
Benzene	ND	ug/kg	2.7		0.5	07/20/04 21:14	MSF 71-43-2			
Ethylbenzene	ND	ug/kg	2.7		0.5	07/20/04 21:14	MSF 100-41-4			
Naphthalene	29	ug/kg	2.7		0.5	07/20/04 21:14	MSF 91-20-3			1
Toluene	ND	ug/kg	2.7		0.5	07/20/04 21:14	MSF 108-88-3			
m,p-Xylene	ND	ug/kg	5.4		0.5	07/20/04 21:14	MSF			
o-Xylene	ND	ug/kg	2.7		0.5	07/20/04 21:14	MSF 95-47-6			
Toluene-d8 (S)	96	%			1.0	07/20/04 21:14	MSF 2037-26-5			
4-Bromofluorobenzene (S)	102	%			1.0	07/20/04 21:14	MSF 460-00-4			
Dibromofluoromethane (S)	106	%			1.0	07/20/04 21:14	MSF 1868-53-7			
1,2-Dichloroethane-d4 (S)	114	%			1.0	07/20/04 21:14	MSF 17060-07-0			

Date: 07/23/04

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 9800 Kincsey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9082  
 Fax: 704.875.9091

Lab Project Number: 9271562  
 Client Project ID: 04-515

Lab Sample No: 924467988 Project Sample Number: 9271562-021 Date Collected: 07/13/04 13:30  
 Client Sample ID: 018B03 Matrix: Soil Date Received: 07/14/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	Reg/Lmt
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**Wet Chemistry**

Percent Moisture	Method: % Moisture								
Percent Moisture	19.8	%			1.0	07/15/04 11:11	TSE		

**GC/MS Semivolatiles**

Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270								
Benzo(k) fluoranthene	ND	ug/kg	410		1.2	07/16/04 16:10	BET	207-08-9	
Benzo(b) fluoranthene	ND	ug/kg	410		1.2	07/16/04 16:10	BET	205-99-2	
Benzo(a)anthracene	ND	ug/kg	410		1.2	07/16/04 16:10	BET	56-55-3	
Chrysene	ND	ug/kg	410		1.2	07/16/04 16:10	BET	218-01-9	
Dibenz(a,b)anthracene	ND	ug/kg	410		1.2	07/16/04 16:10	BET	53-70-3	
Nitrobenzene-d5 (S)	34	%			1.0	07/16/04 16:10	BET	4165-60-0	
2-Fluorobiphenyl (S)	33	%			1.0	07/16/04 16:10	BET	321-60-8	
Terphenyl-d14 (S)	61	%			1.0	07/16/04 16:10	BET	1718-51-0	
Date Extracted	07/15/04					07/15/04			

**GC/MS Volatiles**

GC/MS VOCs 5035/8260 low level	Method: EPA 8260								
Benzene	ND	ug/kg	2.8		0.6	07/21/04 15:07	MSF	71-43-2	
Ethylbenzene	ND	ug/kg	2.8		0.6	07/21/04 15:07	MSF	100-41-4	
Naphthalene	3.0	ug/kg	2.8		0.6	07/21/04 15:07	MSF	91-20-3	1
Toluene	ND	ug/kg	2.8		0.6	07/21/04 15:07	MSF	108-88-3	
m,p-Xylene	ND	ug/kg	5.7		0.6	07/21/04 15:07	MSF		
o-Xylene	ND	ug/kg	2.8		0.6	07/21/04 15:07	MSF	95-47-6	
Toluene-d8 (S)	96	%			1.0	07/21/04 15:07	MSF	2037-26-5	
4-Bromofluorobenzene (S)	102	%			1.0	07/21/04 15:07	MSF	460-00-4	
Dibromofluoromethane (S)	88	%			1.0	07/21/04 15:07	MSF	1868-53-7	
1,2-Dichloroethane-d4 (S)	88	%			1.0	07/21/04 15:07	MSF	17060-07-0	

Date: 07/22/04

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 9800 Kinoy Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9082  
 Fax: 704.875.9091

Lab Project Number: 9271562  
 Client Project ID: 04-515

Lab Sample No: 924467996 Project Sample Number: 9271562-022 Date Collected: 07/13/04 13:45  
 Client Sample ID: 018804 Matrix: Soil Date Received: 07/14/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	Req/Lmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	19.8	%			1.0	07/15/04 11:11	TSE		
<b>GC/MS Semivolatiles</b>									
Prep/Method: EPA 3545 / EPA 8270									
Semivolatile Organics	ND	ug/kg	410		1.2	07/16/04 16:49	BET	207-08-9	
Benzo(k) fluoranthene	ND	ug/kg	410		1.2	07/16/04 16:49	BET	205-99-2	
Benzo(b) fluoranthene	ND	ug/kg	410		1.2	07/16/04 16:49	BET	56-55-3	
Benzo(a) anthracene	ND	ug/kg	410		1.2	07/16/04 16:49	BET	218-01-9	
Chrysenes	ND	ug/kg	410		1.2	07/16/04 16:49	BET	53-70-3	
Dibenz(a,h)anthracene	ND	ug/kg	410		1.2	07/16/04 16:49	BET	4165-60-0	
Nitrobenzene-d5 (S)	37	%			1.0	07/16/04 16:49	BET	321-60-8	
2-Fluorobiphenyl (S)	36	%			1.0	07/16/04 16:49	BET	1718-51-0	
Terphenyl-d14 (S)	66	%			1.0	07/16/04 16:49	BET	4165-62-2	4
Phenol-d5 (S)	38	%			1.0	07/16/04 16:49	BET	367-12-4	
2-Fluorophenol (S)	38	%			1.0	07/16/04 16:49	BET		
2,4,6-Tribromophenol (S)	47	%			1.0	07/16/04 16:49	BET		
Date Extracted	07/15/04					07/15/04			

**GC/MS Volatiles**

GC/MS VOCs 5035/8260 low level	Method: EPA 8260								
Benzene	ND	ug/kg	2.5		0.5	07/21/04 15:25	MSF	71-43-2	
Ethylbenzene	ND	ug/kg	2.5		0.5	07/21/04 15:25	MSF	100-41-4	
Naphthalene	4.3	ug/kg	2.5		0.5	07/21/04 15:25	MSF	91-20-3	1
Toluene	ND	ug/kg	2.5		0.5	07/21/04 15:25	MSF	108-88-3	
m,p-Xylene	ND	ug/kg	5.1		0.5	07/21/04 15:25	MSF		
o-Xylene	ND	ug/kg	2.5		0.5	07/21/04 15:25	MSF	95-47-6	
Toluene-d8 (S)	94	%			1.0	07/21/04 15:25	MSF	2037-26-5	
4-Bromofluorobenzene (S)	107	%			1.0	07/21/04 15:25	MSF	460-00-4	
Dibromofluoromethane (S)	92	%			1.0	07/21/04 15:25	MSF	1868-53-7	
1,2-Dichloroethane-d4 (S)	101	%			1.0	07/21/04 15:25	MSF	17060-07-0	

Date: 07/22/04

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 NC Wastewater 40  
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 SC Environmental 99030  
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Charlotte Certification IDs  
 NO Wastewater 12  
 NC Drinking Water 37706  
 SC 89006  
 FL NELAP EB7827



Pace Analytical Services, Inc.
9800 Kinsey Avenue, Suite 100
Huntersville, NC 28078
Phone: 704.875.9082
Fax: 704.875.9091

Lab Project Number: 9271562
Client Project ID: 04-515

PARAMETER FOOTNOTES

Dilution factor shown represents the factor applied to the reported result and reporting limit due to changes in sample preparation, dilution of the extract, or moisture content

Inorganic Wet Chemistry and Metals Analyses were performed at our Pace Asheville laboratory and Organic testing was performed at our Pace Charlotte laboratory unless otherwise footnoted.

Method 9071B modified to use ASE.

All pH, Free Chlorine, Total Chlorine and Ferrous Iron analyses conducted outside of EPA recommended immediate hold time.

- ND Not detected at or above adjusted reporting limit
NC Not Calculable
J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL Adjusted Method Detection Limit
(S) Surrogate
[1] The reported result may be biased high due to matrix interference with the internal standard. This was confirmed by reanalysis of the sample.
[2] Compound concentration exceeds the calibration range of the instrument (CLP E-Flag).
[3] High surrogate recovery was confirmed as a matrix effect by a second analysis.
[4] Acid surrogate recovery outside of control limits. The data was accepted based on valid recovery of the two remaining acid surrogates.

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NC Wastewater 40
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**Appendix C**  
**Laboratory Analytical Reports – Soil – Tier 2 Assessment**



**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9294937  
 Client Project ID: Laurel Bay Tier-II/05-504

Lab Sample No: 925659823 Project Sample Number: 9294937-002 Date Collected: 05/20/05 15:00  
 Client Sample ID: 010SB01 Matrix: Soil Date Received: 05/21/05 09:10

Parameters      Results      Units      Report Limit      Analyzed      By      CAS No.      Qual      RegLmt

**Wet Chemistry**

Percent Moisture      Method: % Moisture  
 Percent Moisture      16.0      %      05/23/05 09:28 TNS

**GC/MS Semivolatiles**

Semivolatile Organics      Prep/Method: EPA 3545 / EPA 8270

Acenaphthene	ND	ug/kg	390	05/28/05 20:09	BET	83-32-9
Acenaphthylene	ND	ug/kg	390	05/28/05 20:09	BET	208-96-8
Anthracene	ND	ug/kg	390	05/28/05 20:09	BET	120-12-7
Benzo (a) anthracene	ND	ug/kg	390	05/28/05 20:09	BET	56-55-3
Benzo (a) pyrene	ND	ug/kg	390	05/28/05 20:09	BET	50-32-8
Benzo (b) fluoranthene	ND	ug/kg	390	05/28/05 20:09	BET	205-99-2
Benzo (g,h,i) perylene	ND	ug/kg	390	05/28/05 20:09	BET	191-24-2
Benzo (k) fluoranthene	ND	ug/kg	390	05/28/05 20:09	BET	207-08-9
Chrysene	ND	ug/kg	390	05/28/05 20:09	BET	218-01-9
Dibenz (a,h) anthracene	ND	ug/kg	390	05/28/05 20:09	BET	53-70-3
Fluoranthene	ND	ug/kg	390	05/28/05 20:09	BET	206-44-0
Fluorene	ND	ug/kg	390	05/28/05 20:09	BET	86-73-7
Indeno (1,2,3-cd) pyrene	ND	ug/kg	390	05/28/05 20:09	BET	193-39-5
Naphthalene	ND	ug/kg	390	05/28/05 20:09	BET	91-20-3
Phenanthrene	ND	ug/kg	390	05/28/05 20:09	BET	85-01-8
Pyrene	ND	ug/kg	390	05/28/05 20:09	BET	129-00-0
Nitrobenzene-d5 (S)	73	%		05/28/05 20:09	BET	4165-60-0
2-Fluorobiphenyl (S)	54	%		05/28/05 20:09	BET	321-60-8
Terphenyl-d14 (S)	68	%		05/28/05 20:09	BET	1718-51-0
Date Extracted	05/26/05			05/26/05		

**GC Semivolatiles**

TPH in Soil by 3545/8015      Prep/Method: EPA 3545 / EPA 8015

Diesel Fuel	ND	mg/kg	6.0	05/27/05 16:45	KBS	68334-30-5
n-Pentacosane (S)	58	%		05/27/05 16:45	KBS	629-99-2
Date Extracted	05/25/05			05/25/05		

**GC/MS Volatiles**

GC/MS VOCs 5035/8260 low level      Method: EPA 8260

Benzene	ND	ug/kg	2.7	05/27/05 06:09	RWS	71-43-2
Ethylbenzene	ND	ug/kg	2.7	05/27/05 06:09	RWS	100-41-4
Naphthalene	ND	ug/kg	2.7	05/27/05 06:09	RWS	91-20-3
Toluene	ND	ug/kg	2.7	05/27/05 06:09	RWS	108-88-3

Date: 06/08/05

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**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9294937  
 Client Project ID: Laurel Bay Tier-II/05-504

Lab Sample No: 925659823      Project Sample Number: 9294937-002      Date Collected: 05/20/05 15:00  
 Client Sample ID: 010SB01      Matrix: Soil      Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
m&p-Xylene	ND	ug/kg	5.5	05/27/05 06:09	RWS			
o-Xylene	ND	ug/kg	2.7	05/27/05 06:09	RWS	95-47-6		
Toluene-d8 (S)	100	%		05/27/05 06:09	RWS	2037-26-5		
4-Bromofluorobenzene (S)	91	%		05/27/05 06:09	RWS	460-00-4		
Dibromofluoromethane (S)	88	%		05/27/05 06:09	RWS	1868-53-7		
1,2-Dichloroethane-d4 (S)	80	%		05/27/05 06:09	RWS	17060-07-0		

Date: 06/08/05

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 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9294937  
 Client Project ID: Laurel Bay Tier-II/05-504

Lab Sample No: 925659831 Project Sample Number: 9294937-003 Date Collected: 05/20/05 15:00  
 Client Sample ID: 010SB02 Matrix: Soil Date Received: 05/21/05 09:10

**Parameters Results Units Report Limit Analyzed By CAS No. Qual RegLmt**

**Wet Chemistry**

Percent Moisture Method: % Moisture  
 Percent Moisture 18.5 % 05/23/05 09:28 TNS

**GC/MS Semivolatiles**

Semivolatile Organics Prep/Method: EPA 3545 / EPA 8270  
 Acenaphthene ND ug/kg 400 05/28/05 02:20 BET 83-32-9  
 Acenaphthylene ND ug/kg 400 05/28/05 02:20 BET 208-96-8  
 Anthracene ND ug/kg 400 05/28/05 02:20 BET 120-12-7  
 Benzo (a) anthracene ND ug/kg 400 05/28/05 02:20 BET 56-55-3  
 Benzo (a) pyrene ND ug/kg 400 05/28/05 02:20 BET 50-32-8  
 Benzo (b) fluoranthene ND ug/kg 400 05/28/05 02:20 BET 205-99-2  
 Benzo (g,h,i) perylene ND ug/kg 400 05/28/05 02:20 BET 191-24-2  
 Benzo (k) fluoranthene ND ug/kg 400 05/28/05 02:20 BET 207-08-9  
 Chrysene ND ug/kg 400 05/28/05 02:20 BET 218-01-9  
 Dibenz (a,h) anthracene ND ug/kg 400 05/28/05 02:20 BET 53-70-3  
 Fluoranthene ND ug/kg 400 05/28/05 02:20 BET 206-44-0  
 Fluorene ND ug/kg 400 05/28/05 02:20 BET 86-73-7  
 Indeno (1,2,3-cd) pyrene ND ug/kg 400 05/28/05 02:20 BET 193-39-5  
 Naphthalene ND ug/kg 400 05/28/05 02:20 BET 91-20-3  
 Phenanthrene ND ug/kg 400 05/28/05 02:20 BET 85-01-8  
 Pyrene ND ug/kg 400 05/28/05 02:20 BET 129-00-0  
 Nitrobenzene-d5 (S) 56 % 05/28/05 02:20 BET 4165-60-0  
 2-Fluorobiphenyl (S) 47 % 05/28/05 02:20 BET 321-60-8  
 Terphenyl-d14 (S) 37 % 05/28/05 02:20 BET 1718-51-0  
 Date Extracted 05/26/05 05/26/05

**GC Semivolatiles**

TPH in Soil by 3545/8015 Prep/Method: EPA 3545 / EPA 8015  
 Diesel Fuel ND mg/kg 6.1 05/27/05 17:15 KBS 68334-30-5  
 n-Pentacosane (S) 76 % 05/27/05 17:15 KBS 629-99-2  
 Date Extracted 05/25/05 05/25/05

**GC/MS Volatiles**

GC/MS VOCs 5035/8260 low level Method: EPA 8260  
 Benzene ND ug/kg 2.2 05/27/05 06:27 RWS 71-43-2  
 Ethylbenzene ND ug/kg 2.2 05/27/05 06:27 RWS 100-41-4  
 Naphthalene ND ug/kg 2.2 05/27/05 06:27 RWS 91-20-3  
 Toluene ND ug/kg 2.2 05/27/05 06:27 RWS 108-88-3

Date: 06/08/05

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 Huntersville, NC 28078  
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 Fax: 704.875.9091

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 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9294937  
 Client Project ID: Laurel Bay Tier-II/05-504

Lab Sample No: 925659831      Project Sample Number: 9294937-003      Date Collected: 05/20/05 15:00  
 Client Sample ID: 010SB02      Matrix: Soil      Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
m&p-Xylene	ND	ug/kg	4.3	05/27/05 06:27	RWS			
o-Xylene	ND	ug/kg	2.2	05/27/05 06:27	RWS	95-47-6		
Toluene-d8 (S)	96	%		05/27/05 06:27	RWS	2037-26-5		
4-Bromofluorobenzene (S)	87	%		05/27/05 06:27	RWS	460-00-4		
Dibromofluoromethane (S)	81	%		05/27/05 06:27	RWS	1868-53-7		
1,2-Dichloroethane-d4 (S)	71	%		05/27/05 06:27	RWS	17060-07-0		

Date: 06/08/05

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 Fax: 704.875.9091

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 Asheville, NC 28804  
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 Fax: 828.252.4618

Lab Project Number: 9294938  
 Client Project ID: Laurel Bay Tier-II/05-504

Solid results are reported on a dry weight basis

Lab Sample No: 925659849 Project Sample Number: 9294938-001 Date Collected: 05/20/05 15:00  
 Client Sample ID: 001SB03 Matrix: Soil Date Received: 05/21/05 09:10

Parameters Results Units Report Limit Analyzed By CAS No. Qual RegLmt

Wet Chemistry

Percent Moisture Method: % Moisture  
 Percent Moisture 17.4 % 05/23/05 09:28 TNS

GC/MS Semivolatiles

Semivolatile Organics Prep/Method: EPA 3545 / EPA 8270  
 Acenaphthene ND ug/kg 400 05/28/05 22:27 BET 83-32-9  
 Acenaphthylene ND ug/kg 400 05/28/05 22:27 BET 208-96-8  
 Anthracene ND ug/kg 400 05/28/05 22:27 BET 120-12-7  
 Benzo (a) anthracene ND ug/kg 400 05/28/05 22:27 BET 56-55-3  
 Benzo (a) pyrene ND ug/kg 400 05/28/05 22:27 BET 50-32-8  
 Benzo (b) fluoranthene ND ug/kg 400 05/28/05 22:27 BET 205-99-2  
 Benzo (g,h,i) perylene ND ug/kg 400 05/28/05 22:27 BET 191-24-2  
 Benzo (k) fluoranthene ND ug/kg 400 05/28/05 22:27 BET 207-08-9  
 Chrysene ND ug/kg 400 05/28/05 22:27 BET 218-01-9  
 Dibenz (a,h) anthracene ND ug/kg 400 05/28/05 22:27 BET 53-70-3  
 Fluoranthene ND ug/kg 400 05/28/05 22:27 BET 206-44-0  
 Fluorene ND ug/kg 400 05/28/05 22:27 BET 86-73-7  
 Indeno (1,2,3-cd) pyrene ND ug/kg 400 05/28/05 22:27 BET 193-39-5  
 Naphthalene ND ug/kg 400 05/28/05 22:27 BET 91-20-3  
 Phenanthrene ND ug/kg 400 05/28/05 22:27 BET 85-01-8  
 Pyrene ND ug/kg 400 05/28/05 22:27 BET 129-00-0  
 Nitrobenzene-d5 (S) 75 % 05/28/05 22:27 BET 4165-60-0  
 2-Fluorobiphenyl (S) 61 % 05/28/05 22:27 BET 321-60-8  
 Terphenyl-d14 (S) 74 % 05/28/05 22:27 BET 1718-51-0  
 Date Extracted 05/28/05 05/28/05

GC Semivolatiles

TPH in Soil by 3545/8015 Prep/Method: EPA 3545 / EPA 8015  
 Diesel Fuel ND mg/kg 6.1 05/31/05 11:02 KBS 68334-30-5  
 n-Pentacosane (S) 52 % 05/31/05 11:02 KBS 629-99-2  
 Date Extracted 05/25/05 05/25/05

GC/MS Volatiles

GC/MS VOCs 5035/8260 low level Method: EPA 8260  
 Benzene ND ug/kg 3.0 05/27/05 06:44 RWS 71-43-2  
 Ethylbenzene ND ug/kg 3.0 05/27/05 06:44 RWS 100-41-4  
 Naphthalene ND ug/kg 3.0 05/27/05 06:44 RWS 91-20-3

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 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9294938  
 Client Project ID: Laurel Bay Tier-II/05-504

Lab Sample No: 925659849      Project Sample Number: 9294938-001      Date Collected: 05/20/05 15:00  
 Client Sample ID: 001SB03      Matrix: Soil      Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Toluene	ND	ug/kg	3.0	05/27/05 06:44	RWS	108-88-3		
m&p-Xylene	ND	ug/kg	6.0	05/27/05 06:44	RWS			
o-Xylene	ND	ug/kg	3.0	05/27/05 06:44	RWS	95-47-6		
Toluene-d8 (S)	98	%		05/27/05 06:44	RWS	2037-26-5		
4-Bromofluorobenzene (S)	90	%		05/27/05 06:44	RWS	460-00-4		
Dibromofluoromethane (S)	89	%		05/27/05 06:44	RWS	1868-53-7		
1,2-Dichloroethane-d4 (S)	83	%		05/27/05 06:44	RWS	17060-07-0		

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 2225 Riverside Drive  
 Asheville, NC 28804  
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 Fax: 828.252.4618

Lab Project Number: 9294938  
 Client Project ID: Laurel Bay Tier-II/05-504

Lab Sample No: 925659856 Project Sample Number: 9294938-002 Date Collected: 05/20/05 15:00  
 Client Sample ID: 001SB04 Matrix: Soil Date Received: 05/21/05 09:10

Parameters Results Units Report Limit Analyzed By CAS No. Qual RegLmt

Wet Chemistry

Percent Moisture Method: % Moisture  
 Percent Moisture 16.4 % 05/23/05 09:29 TNS

GC/MS Semivolatiles

Semivolatile Organics Prep/Method: EPA 3545 / EPA 8270  
 Acenaphthene ND ug/kg 390 05/28/05 23:02 BET 83-32-9  
 Acenaphthylene ND ug/kg 390 05/28/05 23:02 BET 208-96-8  
 Anthracene ND ug/kg 390 05/28/05 23:02 BET 120-12-7  
 Benzo (a) anthracene ND ug/kg 390 05/28/05 23:02 BET 56-55-3  
 Benzo (a) pyrene ND ug/kg 390 05/28/05 23:02 BET 50-32-8  
 Benzo (b) fluoranthene ND ug/kg 390 05/28/05 23:02 BET 205-99-2  
 Benzo (g,h,i) perylene ND ug/kg 390 05/28/05 23:02 BET 191-24-2  
 Benzo (k) fluoranthene ND ug/kg 390 05/28/05 23:02 BET 207-08-9  
 Chrysene ND ug/kg 390 05/28/05 23:02 BET 218-01-9  
 Dibenz (a,h) anthracene ND ug/kg 390 05/28/05 23:02 BET 53-70-3  
 Fluoranthene ND ug/kg 390 05/28/05 23:02 BET 206-44-0  
 Fluorene ND ug/kg 390 05/28/05 23:02 BET 86-73-7  
 Indeno (1,2,3-cd) pyrene ND ug/kg 390 05/28/05 23:02 BET 193-39-5  
 Naphthalene ND ug/kg 390 05/28/05 23:02 BET 91-20-3  
 Phenanthrene ND ug/kg 390 05/28/05 23:02 BET 85-01-8  
 Pyrene ND ug/kg 390 05/28/05 23:02 BET 129-00-0  
 Nitrobenzene-d5 (S) 75 % 05/28/05 23:02 BET 4165-60-0  
 2-Fluorobiphenyl (S) 56 % 05/28/05 23:02 BET 321-60-8  
 Terphenyl-d14 (S) 75 % 05/28/05 23:02 BET 1718-51-0  
 Date Extracted 05/28/05 05/28/05

GC Semivolatiles

TPH in Soil by 3545/8015 Prep/Method: EPA 3545 / EPA 8015  
 Diesel Fuel ND mg/kg 6.0 05/31/05 11:02 KBS 68334-30-5  
 n-Pentacosane (S) 70 % 05/31/05 11:02 KBS 629-99-2  
 Date Extracted 05/25/05 05/25/05

GC/MS Volatiles

GC/MS VOCs 5035/8260 low level Method: EPA 8260  
 Benzene ND ug/kg 2.6 05/27/05 07:01 RWS 71-43-2  
 Ethylbenzene ND ug/kg 2.6 05/27/05 07:01 RWS 100-41-4  
 Naphthalene 3.7 ug/kg 2.6 05/27/05 07:01 RWS 91-20-3 1  
 Toluene ND ug/kg 2.6 05/27/05 07:01 RWS 108-88-3

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 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9294938  
 Client Project ID: Laurel Bay Tier-II/05-504

Lab Sample No: 925659856      Project Sample Number: 9294938-002      Date Collected: 05/20/05 15:00  
 Client Sample ID: 001SB04      Matrix: Soil      Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
m&p-Xylene	ND	ug/kg	5.1	05/27/05 07:01	RWS			
o-Xylene	ND	ug/kg	2.6	05/27/05 07:01	RWS	95-47-6		
Toluene-d8 (S)	95	%		05/27/05 07:01	RWS	2037-26-5		
4-Bromofluorobenzene (S)	138	%		05/27/05 07:01	RWS	460-00-4	2	
Dibromofluoromethane (S)	0	%		05/27/05 07:01	RWS	1868-53-7	3	
1,2-Dichloroethane-d4 (S)	185	%		05/27/05 07:01	RWS	17060-07-0	2	

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 Phone: 704.875.9092  
 Fax: 704.875.9091

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 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9294938  
 Client Project ID: Laurel Bay Tier-II/05-504

Lab Sample No: 925659864 Project Sample Number: 9294938-003 Date Collected: 05/20/05 15:00  
 Client Sample ID: 001SB05 Matrix: Soil Date Received: 05/21/05 09:10

Parameters                      Results                      Units                      Report Limit                      Analyzed                      By                      CAS No.                      Qual                      RegLmt

**Wet Chemistry**

Percent Moisture                      Method: % Moisture  
 Percent Moisture                      15.5                      %                      05/23/05 09:29 TNS

**GC/MS Semivolatiles**

Semivolatile Organics                      Prep/Method: EPA 3545 / EPA 8270  
 Acenaphthene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      83-32-9  
 Acenaphthylene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      208-96-8  
 Anthracene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      120-12-7  
 Benzo (a) anthracene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      56-55-3  
 Benzo (a) pyrene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      50-32-8  
 Benzo (b) fluoranthene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      205-99-2  
 Benzo (g, h, i) perylene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      191-24-2  
 Benzo (k) fluoranthene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      207-08-9  
 Chrysene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      218-01-9  
 Dibenz (a, h) anthracene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      53-70-3  
 Fluoranthene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      206-44-0  
 Fluorene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      86-73-7  
 Indeno (1, 2, 3-cd) pyrene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      193-39-5  
 Naphthalene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      91-20-3  
 Phenanthrene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      85-01-8  
 Pyrene                      ND                      ug/kg                      390                      05/28/05 04:13 BET                      129-00-0  
 Nitrobenzene-d5 (S)                      41                      %                      05/28/05 04:13 BET                      4165-60-0  
 2-Fluorobiphenyl (S)                      33                      %                      05/28/05 04:13 BET                      321-60-8  
 Terphenyl-d14 (S)                      41                      %                      05/28/05 04:13 BET                      1718-51-0  
 Date Extracted                      05/26/05                      05/26/05

**GC Semivolatiles**

TPH in Soil by 3545/8015                      Prep/Method: EPA 3545 / EPA 8015  
 Diesel Fuel                      ND                      mg/kg                      5.9                      05/27/05 18:44 KBS                      68334-30-5  
 n-Pentacosane (S)                      60                      %                      05/27/05 18:44 KBS                      629-99-2  
 Date Extracted                      05/25/05                      05/25/05

**GC/MS Volatiles**

GC/MS VOCs 5035/8260 low level                      Method: EPA 8260  
 Benzene                      ND                      ug/kg                      6.6                      05/27/05 07:18 RWS                      71-43-2  
 Ethylbenzene                      ND                      ug/kg                      6.6                      05/27/05 07:18 RWS                      100-41-4  
 Naphthalene                      ND                      ug/kg                      6.6                      05/27/05 07:18 RWS                      91-20-3  
 Toluene                      ND                      ug/kg                      6.6                      05/27/05 07:18 RWS                      108-88-3

Date: 06/08/05

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 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

Pace Analytical Services, Inc.  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9294938  
 Client Project ID: Laurel Bay Tier-II/05-504

Lab Sample No: 925659864 Project Sample Number: 9294938-003 Date Collected: 05/20/05 15:00  
 Client Sample ID: 001SB05 Matrix: Soil Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
m&p-Xylene	ND	ug/kg	13.	05/27/05 07:18	RWS			
o-Xylene	ND	ug/kg	6.6	05/27/05 07:18	RWS	95-47-6		
Toluene-d8 (S)	94	%		05/27/05 07:18	RWS	2037-26-5		
4-Bromofluorobenzene (S)	82	%		05/27/05 07:18	RWS	460-00-4		
Dibromofluoromethane (S)	97	%		05/27/05 07:18	RWS	1868-53-7		
1,2-Dichloroethane-d4 (S)	95	%		05/27/05 07:18	RWS	17060-07-0		

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**Appendix D**  
**Laboratory Analytical Reports – Groundwater – Tier 2 Assessment**



**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9295080  
 Client Project ID: Laural Bay/05-504

Lab Sample No: 925669814 Project Sample Number: 9295080-007 Date Collected: 05/23/05 11:30  
 Client Sample ID: 01TMW01 Matrix: Water Date Received: 05/24/05 09:15

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
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**Metals**

Dissolved Metals, Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Lead, Dissolved	ND	mg/l	0.0050	06/03/05 03:30	ARH	7439-92-1		
Date Digested	05/27/05 12:00			05/27/05 12:00				

**Wet Chemistry**

Iron, Ferrous	Method: SM 3500-Fe D#4							
Iron, Ferrous	2.0	mg/l	0.50	05/25/05 03:10	BMF		1	
48 Hour NO3 / NO2 / NOX	Method: EPA 353.2							
Nitrate as N	ND	mg/l	0.10	05/24/05 22:38	JDA1			
Oxygen, Dissolved	Method: EPA 360.1							
Oxygen, Dissolved	9.5	mg/l	1.0	05/31/05 11:00	TMR	7782-44-7	1	

**GC/MS Semivolatiles**

Semivolatile Organics	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Prep/Method: EPA 3510 / EPA 8270								
Acenaphthene	ND	ug/l	11.	06/01/05 00:21	BET	83-32-9		
Acenaphthylene	ND	ug/l	11.	06/01/05 00:21	BET	208-96-8		
Anthracene	ND	ug/l	11.	06/01/05 00:21	BET	120-12-7		
Benzo (a) anthracene	ND	ug/l	11.	06/01/05 00:21	BET	56-55-3		
Benzo (a) pyrene	ND	ug/l	11.	06/01/05 00:21	BET	50-32-8		
Benzo (b) fluoranthene	ND	ug/l	11.	06/01/05 00:21	BET	205-99-2		
Benzo (g, h, i) perylene	ND	ug/l	11.	06/01/05 00:21	BET	191-24-2		
Benzo (k) fluoranthene	ND	ug/l	11.	06/01/05 00:21	BET	207-08-9		
Chrysene	ND	ug/l	11.	06/01/05 00:21	BET	218-01-9		
Dibenz (a, h) anthracene	ND	ug/l	11.	06/01/05 00:21	BET	53-70-3		
Fluoranthene	ND	ug/l	11.	06/01/05 00:21	BET	206-44-0		
Fluorene	ND	ug/l	11.	06/01/05 00:21	BET	86-73-7		
Indeno (1, 2, 3-cd) pyrene	ND	ug/l	11.	06/01/05 00:21	BET	193-39-5		
Naphthalene	ND	ug/l	11.	06/01/05 00:21	BET	91-20-3		
Phenanthrene	ND	ug/l	11.	06/01/05 00:21	BET	85-01-8		
Pyrene	ND	ug/l	11.	06/01/05 00:21	BET	129-00-0		
Nitrobenzene-d5 (S)	68	%		06/01/05 00:21	BET	4165-60-0		
2-Fluorobiphenyl (S)	49	%		06/01/05 00:21	BET	321-60-8		
Terphenyl-d14 (S)	59	%		06/01/05 00:21	BET	1718-51-0		
Date Extracted	05/31/05			05/31/05				

Date: 06/13/05

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**REPORT OF LABORATORY ANALYSIS**

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Charlotte Certification IDs  
 NC Wastewater 12  
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 SC 99006  
 FL NELAP E87627





**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9295080  
 Client Project ID: Laural Bay/05-504

Lab Sample No: 925669814      Project Sample Number: 9295080-007      Date Collected: 05/23/05 11:30  
 Client Sample ID: 01TMW01      Matrix: Water      Date Received: 05/24/05 09:15

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
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**GC Semivolatiles**

EDB and DBCP in Water		Method: EPA 8011						
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	05/27/05	16:40	JEM	106-93-4	
1,2-Dibromo-3-chloropropane	ND	ug/l	0.050	05/27/05	16:40	JEM	96-12-8	
1,2,3-Trichloropropane	ND	ug/l	0.050	05/27/05	16:40	JEM	96-18-4	
1-Chloro-2-bromopropane (S)	100	%		05/27/05	16:40	JEM	301-79-56	

**GC/MS Volatiles**

GC/MS VOCs by 8260, low level		Method: EPA 8260						
Benzene	ND	ug/l	1.0	05/29/05	00:08	MSF	71-43-2	
Ethylbenzene	ND	ug/l	1.0	05/29/05	00:08	MSF	100-41-4	
Methyl-tert-butyl ether	ND	ug/l	1.0	05/29/05	00:08	MSF	1634-04-4	
Naphthalene	ND	ug/l	1.0	05/29/05	00:08	MSF	91-20-3	
Toluene	ND	ug/l	1.0	05/29/05	00:08	MSF	108-88-3	
m&p-Xylene	ND	ug/l	2.0	05/29/05	00:08	MSF		
o-Xylene	ND	ug/l	1.0	05/29/05	00:08	MSF	95-47-6	
Toluene-d8 (S)	96	%		05/29/05	00:08	MSF	2037-26-5	
4-Bromofluorobenzene (S)	93	%		05/29/05	00:08	MSF	460-00-4	
Dibromofluoromethane (S)	105	%		05/29/05	00:08	MSF	1868-53-7	
1,2-Dichloroethane-d4 (S)	105	%		05/29/05	00:08	MSF	17060-07-0	

Date: 06/13/05

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**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9295080  
 Client Project ID: Laural Bay/05-504

Lab Sample No: 925669822      Project Sample Number: 9295080-008      Date Collected: 05/23/05 11:50  
 Client Sample ID: 01TMW02      Matrix: Water      Date Received: 05/24/05 09:15

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
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**Metals**

Dissolved Metals, Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Lead, Dissolved	ND	mg/l	0.0050	06/03/05 03:34	ARH	7439-92-1		
Date Digested	05/27/05 12:00			05/27/05 12:00				

**Wet Chemistry**

Iron, Ferrous	Method: SM 3500-Fe D#4							
Iron, Ferrous	1.8	mg/l	0.50	05/25/05 03:10	BMF		1	
48 Hour NO3 / NO2 / NOX	Method: EPA 353.2							
Nitrate as N	ND	mg/l	0.10	05/24/05 22:38	JDA1			
Oxygen, Dissolved	Method: EPA 360.1							
Oxygen, Dissolved	9.6	mg/l	1.0	05/31/05 11:00	TMR	7782-44-7	1	

**GC/MS Semivolatiles**

Semivolatile Organics	Prep/Method: EPA 3510 / EPA 8270							
Acenaphthene	ND	ug/l	11.	06/01/05 04:48	BET	83-32-9		
Acenaphthylene	ND	ug/l	11.	06/01/05 04:48	BET	208-96-8		
Anthracene	ND	ug/l	11.	06/01/05 04:48	BET	120-12-7		
Benzo (a) anthracene	ND	ug/l	11.	06/01/05 04:48	BET	56-55-3		
Benzo (a) pyrene	ND	ug/l	11.	06/01/05 04:48	BET	50-32-8		
Benzo (b) fluoranthene	ND	ug/l	11.	06/01/05 04:48	BET	205-99-2		
Benzo (g, h, i) perylene	ND	ug/l	11.	06/01/05 04:48	BET	191-24-2		
Benzo (k) fluoranthene	ND	ug/l	11.	06/01/05 04:48	BET	207-08-9		
Chrysene	ND	ug/l	11.	06/01/05 04:48	BET	218-01-9		
Dibenz (a, h) anthracene	ND	ug/l	11.	06/01/05 04:48	BET	53-70-3		
Fluoranthene	ND	ug/l	11.	06/01/05 04:48	BET	206-44-0		
Fluorene	ND	ug/l	11.	06/01/05 04:48	BET	86-73-7		
Indeno (1, 2, 3-cd) pyrene	ND	ug/l	11.	06/01/05 04:48	BET	193-39-5		
Naphthalene	ND	ug/l	11.	06/01/05 04:48	BET	91-20-3		
Phenanthrene	ND	ug/l	11.	06/01/05 04:48	BET	85-01-8		
Pyrene	ND	ug/l	11.	06/01/05 04:48	BET	129-00-0		
Nitrobenzene-d5 (S)	74	%		06/01/05 04:48	BET	4165-60-0		
2-Fluorobiphenyl (S)	59	%		06/01/05 04:48	BET	321-60-8		
Terphenyl-d14 (S)	64	%		06/01/05 04:48	BET	1718-51-0		
Date Extracted	05/31/05			05/31/05				

Date: 06/13/05

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**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9295080  
 Client Project ID: Laural Bay/05-504

Lab Sample No: 925669822      Project Sample Number: 9295080-008      Date Collected: 05/23/05 11:50  
 Client Sample ID: 01TMW02      Matrix: Water      Date Received: 05/24/05 09:15

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
<b>GC Semivolatiles</b>								
EDB and DBCP in Water      Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	05/27/05 17:01	JEM	106-93-4		
1,2-Dibromo-3-chloropropane	ND	ug/l	0.050	05/27/05 17:01	JEM	96-12-8		
1,2,3-Trichloropropane	ND	ug/l	0.050	05/27/05 17:01	JEM	96-18-4		
1-Chloro-2-bromopropane (S)	100	%		05/27/05 17:01	JEM	301-79-56		
<b>GC/MS Volatiles</b>								
GC/MS VOCs by 8260, low level      Method: EPA 8260								
Benzene	ND	ug/l	1.0	05/29/05 00:35	MSF	71-43-2		
Ethylbenzene	ND	ug/l	1.0	05/29/05 00:35	MSF	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	1.0	05/29/05 00:35	MSF	1634-04-4		
Naphthalene	ND	ug/l	1.0	05/29/05 00:35	MSF	91-20-3		
Toluene	ND	ug/l	1.0	05/29/05 00:35	MSF	108-88-3		
m&p-Xylene	ND	ug/l	2.0	05/29/05 00:35	MSF			
o-Xylene	ND	ug/l	1.0	05/29/05 00:35	MSF	95-47-6		
Toluene-d8 (S)	100	%		05/29/05 00:35	MSF	2037-26-5		
4-Bromofluorobenzene (S)	94	%		05/29/05 00:35	MSF	460-00-4		
Dibromofluoromethane (S)	98	%		05/29/05 00:35	MSF	1868-53-7		
1,2-Dichloroethane-d4 (S)	98	%		05/29/05 00:35	MSF	17060-07-0		

Date: 06/13/05

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**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9295080  
 Client Project ID: Laural Bay/05-504

Lab Sample No: 925669830 Project Sample Number: 9295080-009 Date Collected: 05/23/05 12:15  
 Client Sample ID: 01TMW03 Matrix: Water Date Received: 05/24/05 09:15

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	ReqLmt
<b>Metals</b>								
Dissolved Metals, Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Lead, Dissolved	ND	mg/l	0.0050	06/03/05 03:38	ARH	7439-92-1		
Date Digested	05/27/05 12:00			05/27/05 12:00				
<b>Wet Chemistry</b>								
Iron, Ferrous	Method: SM 3500-Fe D#4							
Iron, Ferrous	4.0	mg/l	0.50	05/25/05 03:10	BMF		1	
48 Hour NO3 / NO2 / NOX	Method: EPA 353.2							
Nitrate as N	ND	mg/l	0.10	05/24/05 22:38	JDA1			
Oxygen, Dissolved	Method: EPA 360.1							
Oxygen, Dissolved	9.3	mg/l	1.0	05/31/05 11:00	TMR	7782-44-7	1	
<b>GC/MS Semivolatiles</b>								
Semivolatile Organics	Prep/Method: EPA 3510 / EPA 8270							
Acenaphthene	ND	ug/l	10.	06/01/05 05:22	BET	83-32-9		
Acenaphthylene	ND	ug/l	10.	06/01/05 05:22	BET	208-96-8		
Anthracene	ND	ug/l	10.	06/01/05 05:22	BET	120-12-7		
Benzo (a) anthracene	ND	ug/l	10.	06/01/05 05:22	BET	56-55-3		
Benzo (a) pyrene	ND	ug/l	10.	06/01/05 05:22	BET	50-32-8		
Benzo (b) fluoranthene	ND	ug/l	10.	06/01/05 05:22	BET	205-99-2		
Benzo (g, h, i) perylene	ND	ug/l	10.	06/01/05 05:22	BET	191-24-2		
Benzo (k) fluoranthene	ND	ug/l	10.	06/01/05 05:22	BET	207-08-9		
Chrysene	ND	ug/l	10.	06/01/05 05:22	BET	218-01-9		
Dibenz (a, h) anthracene	ND	ug/l	10.	06/01/05 05:22	BET	53-70-3		
Fluoranthene	ND	ug/l	10.	06/01/05 05:22	BET	206-44-0		
Fluorene	ND	ug/l	10.	06/01/05 05:22	BET	86-73-7		
Indeno (1, 2, 3-cd) pyrene	ND	ug/l	10.	06/01/05 05:22	BET	193-39-5		
Naphthalene	ND	ug/l	10.	06/01/05 05:22	BET	91-20-3		
Phenanthrene	ND	ug/l	10.	06/01/05 05:22	BET	85-01-8		
Pyrene	ND	ug/l	10.	06/01/05 05:22	BET	129-00-0		
Nitrobenzene-d5 (S)	55	%		06/01/05 05:22	BET	4165-60-0		
2-Fluorobiphenyl (S)	43	%		06/01/05 05:22	BET	321-60-8		
Terphenyl-d14 (S)	44	%		06/01/05 05:22	BET	1718-51-0		
Date Extracted	05/31/05			05/31/05				

Date: 06/13/05

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**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9295080  
 Client Project ID: Laural Bay/05-504

Lab Sample No: 925669830 Project Sample Number: 9295080-009 Date Collected: 05/23/05 12:15  
 Client Sample ID: 01TMW03 Matrix: Water Date Received: 05/24/05 09:15

Parameters      Results      Units      Report Limit      Analyzed      By      CAS No.      Qual      RegLmt

**GC Semivolatiles**

EDB and DBCP in Water		Method: EPA 8011						
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	05/27/05	17:22	JEM	106-93-4	
1,2-Dibromo-3-chloropropane	ND	ug/l	0.050	05/27/05	17:22	JEM	96-12-8	
1,2,3-Trichloropropane	ND	ug/l	0.050	05/27/05	17:22	JEM	96-18-4	
1-Chloro-2-bromopropane (S)	101	%		05/27/05	17:22	JEM	301-79-56	

**GC/MS Volatiles**

GC/MS VOCs by 8260, low level		Method: EPA 8260						
Benzene	ND	ug/l	1.0	05/29/05	01:01	MSF	71-43-2	
Ethylbenzene	ND	ug/l	1.0	05/29/05	01:01	MSF	100-41-4	
Methyl-tert-butyl ether	ND	ug/l	1.0	05/29/05	01:01	MSF	1634-04-4	
Naphthalene	ND	ug/l	1.0	05/29/05	01:01	MSF	91-20-3	
Toluene	ND	ug/l	1.0	05/29/05	01:01	MSF	108-88-3	
m&p-Xylene	ND	ug/l	2.0	05/29/05	01:01	MSF		
o-Xylene	ND	ug/l	1.0	05/29/05	01:01	MSF	95-47-6	
Toluene-d8 (S)	98	%		05/29/05	01:01	MSF	2037-26-5	
4-Bromofluorobenzene (S)	94	%		05/29/05	01:01	MSF	460-00-4	
Dibromofluoromethane (S)	98	%		05/29/05	01:01	MSF	1868-53-7	
1,2-Dichloroethane-d4 (S)	100	%		05/29/05	01:01	MSF	17060-07-0	

Date: 06/13/05

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**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9295080  
 Client Project ID: Laural Bay/05-504

Lab Sample No: 925669848      Project Sample Number: 9295080-010      Date Collected: 05/23/05 12:30  
 Client Sample ID: 01TMW04      Matrix: Water      Date Received: 05/24/05 09:15

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
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**Metals**

Dissolved Metals, Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Lead, Dissolved	0.035	mg/l	0.0050	06/03/05 03:42	ARH	7439-92-1		
Date Digested	05/27/05 12:00			05/27/05 12:00				

**Wet Chemistry**

Iron, Ferrous	Method: SM 3500-Fe D#4							
Iron, Ferrous	ND	mg/l	0.50	05/25/05 03:10	BMF		1	
48 Hour NO3 / NO2 / NOX	Method: EPA 353.2							
Nitrate as N	ND	mg/l	0.10	05/24/05 22:38	JDA1			
Oxygen, Dissolved	Method: EPA 360.1							
Oxygen, Dissolved	4.6	mg/l	1.0	05/31/05 11:00	TMR	7782-44-7	1	

**GC/MS Semivolatiles**

Semivolatile Organics	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Prep/Method: EPA 3510 / EPA 8270								
Acenaphthene	ND	ug/l	10.	06/01/05 03:39	BET	83-32-9		
Acenaphthylene	ND	ug/l	10.	06/01/05 03:39	BET	208-96-8		
Anthracene	ND	ug/l	10.	06/01/05 03:39	BET	120-12-7		
Benzo (a) anthracene	ND	ug/l	10.	06/01/05 03:39	BET	56-55-3		
Benzo (a) pyrene	ND	ug/l	10.	06/01/05 03:39	BET	50-32-8		
Benzo (b) fluoranthene	ND	ug/l	10.	06/01/05 03:39	BET	205-99-2		
Benzo (g, h, i) perylene	ND	ug/l	10.	06/01/05 03:39	BET	191-24-2		
Benzo (k) fluoranthene	ND	ug/l	10.	06/01/05 03:39	BET	207-08-9		
Chrysene	ND	ug/l	10.	06/01/05 03:39	BET	218-01-9		
Dibenz (a, h) anthracene	ND	ug/l	10.	06/01/05 03:39	BET	53-70-3		
Fluoranthene	ND	ug/l	10.	06/01/05 03:39	BET	206-44-0		
Fluorene	ND	ug/l	10.	06/01/05 03:39	BET	86-73-7		
Indeno (1, 2, 3-cd) pyrene	ND	ug/l	10.	06/01/05 03:39	BET	193-39-5		
Naphthalene	ND	ug/l	10.	06/01/05 03:39	BET	91-20-3		
Phenanthrene	ND	ug/l	10.	06/01/05 03:39	BET	85-01-8		
Pyrene	ND	ug/l	10.	06/01/05 03:39	BET	129-00-0		
Nitrobenzene-d5 (S)	71	%		06/01/05 03:39	BET	4165-60-0		
2-Fluorobiphenyl (S)	53	%		06/01/05 03:39	BET	321-60-8		
Terphenyl-d14 (S)	32	%		06/01/05 03:39	BET	1718-51-0		
Date Extracted	05/31/05			05/31/05				

Date: 06/13/05

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 Fax: 704.875.9091

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 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9295080  
 Client Project ID: Laural Bay/05-504

Lab Sample No: 925669848      Project Sample Number: 9295080-010      Date Collected: 05/23/05 12:30  
 Client Sample ID: 01TMW04      Matrix: Water      Date Received: 05/24/05 09:15

Parameters      Results      Units      Report Limit      Analyzed      By      CAS No.      Qual      RegLmt

**GC Semivolatiles**

EDB and DBCP in Water		Method: EPA 8011						
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	05/27/05 17:43	JEM	106-93-4		
1,2-Dibromo-3-chloropropane	ND	ug/l	0.050	05/27/05 17:43	JEM	96-12-8		
1,2,3-Trichloropropane	ND	ug/l	0.050	05/27/05 17:43	JEM	96-18-4		
1-Chloro-2-bromopropane (S)	95	%		05/27/05 17:43	JEM	301-79-56		

**GC/MS Volatiles**

GC/MS VOCs by 8260, low level		Method: EPA 8260						
Benzene	ND	ug/l	1.0	05/29/05 01:27	MSF	71-43-2		
Ethylbenzene	ND	ug/l	1.0	05/29/05 01:27	MSF	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	1.0	05/29/05 01:27	MSF	1634-04-4		
Naphthalene	ND	ug/l	1.0	05/29/05 01:27	MSF	91-20-3		
Toluene	ND	ug/l	1.0	05/29/05 01:27	MSF	108-88-3		
m&p-Xylene	ND	ug/l	2.0	05/29/05 01:27	MSF			
o-Xylene	ND	ug/l	1.0	05/29/05 01:27	MSF	95-47-6		
Toluene-d8 (S)	101	%		05/29/05 01:27	MSF	2037-26-5		
4-Bromofluorobenzene (S)	91	%		05/29/05 01:27	MSF	460-00-4		
Dibromofluoromethane (S)	100	%		05/29/05 01:27	MSF	1868-53-7		
1,2-Dichloroethane-d4 (S)	99	%		05/29/05 01:27	MSF	17060-07-0		

Date: 06/13/05

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Asheville Certification IDs  
 NC Wastewater 40  
 NC Drinking Water 37712  
 SC Environmental 99030  
 FL NELAP E87648

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 NC Wastewater 12  
 NC Drinking Water 37706  
 SC 99006  
 FL NELAP E87627



**Pace Analytical Services, Inc.**  
 9800 Kincey Avenue, Suite 100  
 Huntersville, NC 28078  
 Phone: 704.875.9092  
 Fax: 704.875.9091

**Pace Analytical Services, Inc.**  
 2225 Riverside Drive  
 Asheville, NC 28804  
 Phone: 828.254.7176  
 Fax: 828.252.4618

Lab Project Number: 9295080  
 Client Project ID: Laural Bay/05-504

Lab Sample No: 925669855      Project Sample Number: 9295080-011      Date Collected: 05/23/05 12:45  
 Client Sample ID: 01TMW05      Matrix: Water      Date Received: 05/24/05 09:15

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
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**Metals**

Dissolved Metals, Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Lead, Dissolved	0.0074	mg/l	0.0050	06/03/05 03:54	ARH	7439-92-1		
Date Digested	05/27/05 12:00			05/27/05 12:00				

**Wet Chemistry**

Iron, Ferrous	Method: SM 3500-Fe D#4							
Iron, Ferrous	ND	mg/l	0.50	05/25/05 03:10	BMF		1	
48 Hour NO3 / NO2 / NOX	Method: EPA 353.2							
Nitrate as N	ND	mg/l	0.10	05/24/05 22:38		JDA1		
Oxygen, Dissolved	Method: EPA 360.1							
Oxygen, Dissolved	7.5	mg/l	1.0	05/31/05 11:00	TMR	7782-44-7	1	

**GC/MS Semivolatiles**

Semivolatile Organics	Prep/Method: EPA 3510 / EPA 8270							
Acenaphthene	ND	ug/l	10.	06/01/05 04:13	BET	83-32-9		
Acenaphthylene	ND	ug/l	10.	06/01/05 04:13	BET	208-96-8		
Anthracene	ND	ug/l	10.	06/01/05 04:13	BET	120-12-7		
Benzo (a) anthracene	ND	ug/l	10.	06/01/05 04:13	BET	56-55-3		
Benzo (a) pyrene	ND	ug/l	10.	06/01/05 04:13	BET	50-32-8		
Benzo (b) fluoranthene	ND	ug/l	10.	06/01/05 04:13	BET	205-99-2		
Benzo (g, h, i) perylene	ND	ug/l	10.	06/01/05 04:13	BET	191-24-2		
Benzo (k) fluoranthene	ND	ug/l	10.	06/01/05 04:13	BET	207-08-9		
Chrysene	ND	ug/l	10.	06/01/05 04:13	BET	218-01-9		
Dibenz (a, h) anthracene	ND	ug/l	10.	06/01/05 04:13	BET	53-70-3		
Fluoranthene	ND	ug/l	10.	06/01/05 04:13	BET	206-44-0		
Fluorene	ND	ug/l	10.	06/01/05 04:13	BET	86-73-7		
Indeno (1, 2, 3-cd) pyrene	ND	ug/l	10.	06/01/05 04:13	BET	193-39-5		
Naphthalene	ND	ug/l	10.	06/01/05 04:13	BET	91-20-3		
Phenanthrene	ND	ug/l	10.	06/01/05 04:13	BET	85-01-8		
Pyrene	ND	ug/l	10.	06/01/05 04:13	BET	129-00-0		
Nitrobenzene-d5 (S)	70	%		06/01/05 04:13	BET	4165-60-0		
2-Fluorobiphenyl (S)	50	%		06/01/05 04:13	BET	321-60-8		
Terphenyl-d14 (S)	39	%		06/01/05 04:13	BET	1718-51-0		
Date Extracted	05/31/05			05/31/05				

Date: 06/13/05

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Lab Project Number: 9295080  
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Lab Sample No: 925669855      Project Sample Number: 9295080-011      Date Collected: 05/23/05 12:45  
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Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
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**GC Semivolatiles**

EDB and DBCP in Water		Method: EPA 8011						
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	05/27/05 18:04	JEM	106-93-4		
1,2-Dibromo-3-chloropropane	ND	ug/l	0.050	05/27/05 18:04	JEM	96-12-8		
1,2,3-Trichloropropane	ND	ug/l	0.050	05/27/05 18:04	JEM	96-18-4		
1-Chloro-2-bromopropane (S)	94	%		05/27/05 18:04	JEM	301-79-56		

**GC/MS Volatiles**

GC/MS VOCs by 8260, low level		Method: EPA 8260						
Benzene	ND	ug/l	1.0	05/29/05 06:42	MSF	71-43-2		
Ethylbenzene	ND	ug/l	1.0	05/29/05 06:42	MSF	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	1.0	05/29/05 06:42	MSF	1634-04-4		
Naphthalene	ND	ug/l	1.0	05/29/05 06:42	MSF	91-20-3		
Toluene	ND	ug/l	1.0	05/29/05 06:42	MSF	108-88-3		
m&p-Xylene	ND	ug/l	2.0	05/29/05 06:42	MSF			
o-Xylene	ND	ug/l	1.0	05/29/05 06:42	MSF	95-47-6		
Toluene-d8 (S)	97	%		05/29/05 06:42	MSF	2037-26-5		
4-Bromofluorobenzene (S)	92	%		05/29/05 06:42	MSF	460-00-4		
Dibromofluoromethane (S)	103	%		05/29/05 06:42	MSF	1868-53-7		
1,2-Dichloroethane-d4 (S)	100	%		05/29/05 06:42	MSF	17060-07-0		

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**Appendix E**  
**Regulatory Correspondence**

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L. Michael Blackmon  
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2 December 2004

United States Marine Corps Air Station  
Attention: S-4 NREAO (A.G. Howard)  
P.O. Box 55001  
Beaufort, SC 29904-5001

Re: MCAS – Laurel Bay Housing – Laurel Bay Circle Unit # 1  
**Site ID # 02768**  
Tank Closure Report received 29 November 2004  
Beaufort County

Dear Ms. Howard:

The purpose of this letter is to verify a release of fuel oil at the referenced facility. According to information received by the Department, the source of the release is from past onsite use of fuel oil USTs. To date, initial activities by the facility have included tank & soil removal, soil sampling, and collection of a groundwater sample. Based on the information contained in the closure report, a violation of the South Carolina Pollution Control Act has occurred in that there has been an unauthorized release of petroleum to the environment. Further, the data indicates that a violation of the South Carolina Water Classification and Standards has occurred in that Class GB Groundwater Standards have been exceeded.

Assessment and remediation activities in the vicinity of Laurel Bay Circle Unit # 1 indicate that Naphthalene remains in soils in excess of established RBSL limits. In addition, groundwater sampling conducted in this area indicates that Naphthalene also exceeds the RBSL for groundwater. Therefore, additional assessment or remedial measures are required for Laurel Bay Circle Unit # 1.

Please submit a proposal to conduct the necessary assessment and/or remedial measures at this site no later than 29 April 2005. Should you have any questions, please contact me at 803-898-3553 (office phone), 803-898-2893 (fax) or [bishopma@dhec.sc.gov](mailto:bishopma@dhec.sc.gov).

Sincerely,

Michael Bishop, Hydrogeologist  
Groundwater Quality Section  
Bureau of Water

cc: Low Country District EQC  
Matt Tetrault – BLWM  
Mike Danielsen – BLWM  
Commander NAVFACENCOM Southern Division, Attn: Code ES24 (Gabriel Magwood), P.O. Box 190010, North  
Charleston, SC 29419-9010  
Technical File

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C. Earl Hunter, Commissioner

*Promoting and protecting the health of the public and the environment.*  
27 October 2005

BOARD:  
Henry C. Scott  
Paul C. Aughtry, III  
Glenn A. McCall  
Coleman F. Buckhouse, MD

United States Marine Corps Air Station  
Attention: S-4 NREAO (A.G. Howard)  
P.O. Box 55001  
Beaufort, SC 29904-5001

Re: MCAS – Laurel Bay Circle #'s 10, 9, 8, 7, and 1  
**Site ID #'s 02696, 02770, 02771, 02769, and 02768**  
Tier II Assessment Report received 11 October 2005  
**No Further Action**  
Beaufort County

Dear Ms. Howard:

The Department has reviewed the referenced assessment report. As submitted, the report documents current and historical efforts to monitor soil and groundwater for hydrocarbon contamination at the subject site. Based on this review, it appears that identified contamination at this site is below established maximum contaminant levels.

Based on the information and analytical data submitted, the Department recognizes that MCAS has adequately addressed the known environmental contamination identified on the property to date in accordance with the approved scope of work. Consequently, no further investigation is required at this time. Please note, this statement pertains only to the portion of the site addressed in the referenced report and does not apply to other areas of the site and/or any other potential regulatory violations. Further, the Department retains the right to request further investigation if deemed necessary.

Should you have any questions, please contact me at 803-898-3553 (office phone), 803-898-2893 (fax) or [bishopma@dhec.sc.gov](mailto:bishopma@dhec.sc.gov).

Sincerely,

Michael A. Bishop, Hydrogeologist  
Groundwater Quality Section  
Bureau of Water

B. Thomas Knight, Manager  
Groundwater Quality Section  
Bureau of Water

cc: Region 8 District EQC  
Commander NAVFACENCOM Southern Division, Attn: Code ES24 (Gabriel Magwood), P.O. Box 190010, North  
Charleston, SC 29419-9010  
Technical File