

**SUMMARY REPORT  
61 BAY CIRCLE (FORMERLY 8 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:**



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**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 61 Bay Circle (Formerly 8 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

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 61 Bay Circle (Formerly 8 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 – 8 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

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*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 3, 2004, three 280 gallon heating oil USTs were removed from the front grassed area adjacent to the house at 61 Bay Circle (Formerly 8 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 3'6" bgs (Tank 1), 3'6" bgs (Tank 2) and 4'6" bgs (Tank 3). Delineation soil samples were collected prior to excavation.

A groundwater sample was collected from the base of the excavation, following the UST removal at 61 Bay Circle (Formerly 8 Bay Circle). Further details are provided in the *SCDHEC UST Assessment Report – 8 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 61 Bay Circle (Formerly 8 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 61 Bay Circle (Formerly 8 Bay Circle). SCDHEC's request letter is provided in Appendix E.

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

In May 2005, four soil borings were advanced at 61 Bay Circle (Formerly 8 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 61 Bay Circle (Formerly 8 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 four soil borings were converted into temporary monitoring wells and then sampled at 61 Bay Circle (Formerly 8 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 61 Bay Circle (Formerly 8 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 61 Bay Circle (Formerly 8 Bay Circle). This NFA determination was obtained in a letter dated October 27, 2005. SCDHEC's NFA letter is provided in Appendix E.

## **4.0 REFERENCES**

Marine Corps Air Station Beaufort, 2004. *South Carolina Department of Health and Environmental Control (SCDHEC) Underground Storage Tank Assessment Report – 8 Bay Circle, Laurel Bay Military Housing Area, September 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**  
**61 Bay Circle (Formerly 8 Bay Circle)**  
**Laurel Bay Military Housing Area**  
**Marine Corps Air Station Beaufort**  
**Beaufort, South Carolina**

Constituent	SCDHEC RBSLs <sup>(1)</sup>	Results					
		Sample Collected 07/12/04 and 07/13/04					
		08SB01 07/12/04	08SB02 07/12/04	08SB03 07/12/04	08SB04 07/13/04	08SB05 07/13/04	07SB06 07/13/04
<b>Volatile Organic Compounds Analyzed by EPA Method 8260B (mg/kg)</b>							
Benzene	0.003	ND	ND	ND	ND	ND	ND
Ethylbenzene	1.551	ND	ND	ND	<b>0.140</b>	ND	ND
Naphthalene	0.047	ND	ND	<b>0.011</b>	<b>0.450</b>	ND	ND
Toluene	0.627	ND	ND	ND	ND	ND	ND
Xylenes, Total	13.01	ND	ND	ND	<b>0.046</b>	ND	ND
<b>Semivolatile Organic Compounds Analyzed by EPA Method 8270C (mg/kg)</b>							
Benzo(a)anthracene	0.066	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	0.066	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	0.066	ND	ND	ND	ND	ND	ND
Chrysene	0.066	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	0.066	ND	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 3.1 (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**  
**61 Bay Circle (Formerly 8 Bay Circle)**  
**Laurel Bay Military Housing Area**  
**Marine Corps Air Station Beaufort**  
**Beaufort, South Carolina**

Constituent	SCDHEC RBSLs <sup>(1)</sup>	Results Sample Collected 08/04/04
<b>Volatile Organic Compounds Analyzed by EPA Method 8260B (µg/L)</b>		
Benzene	5	ND
Ethylbenzene	700	<b>3.2</b>
Naphthalene	25	<b>93</b>
Toluene	1,000	ND
Xylenes, Total	10,000	ND
<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 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

JE - Johnson & Ettinger

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**  
**61 Bay Circle (Formerly 8 Bay Circle)**  
**Laurel Bay Military Housing Area**  
**Marine Corps Air Station Beaufort**  
**Beaufort, South Carolina**

Constituent	SCDHEC RBSLs <sup>(1)</sup>	Results Sample Collected 05/19/05 and 05/20/05			
		010SB07 05/19/05	010SB08 05/19/05	010SB09 05/19/05	010SB13 05/20/05
Volatile Organic Compounds Analyzed by EPA Method 8260B (mg/kg)					
Benzene	0.007	ND	ND	ND	ND
Ethylbenzene	1.15	ND	ND	ND	ND
Naphthalene	0.036	0.0032	ND	ND	ND
Toluene	1.45	ND	ND	ND	ND
Xylenes, Total	14.5	ND	ND	ND	ND
Semivolatile Organic Compounds Analyzed by EPA Method 8270C (mg/kg)					
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 C.

RBSL - Risk-Based Screening Level

SCDHEC - South Carolina Department Of Health and Environmental Control

**Table 3**  
**Laboratory Analytical Results - Soil - Tier 2 Assessment**  
**61 Bay Circle (Formerly 8 Bay Circle)**  
**Laurel Bay Military Housing Area**  
**Marine Corps Air Station Beaufort**  
**Beaufort, South Carolina**

Constituent	SCDHEC RBSLs <sup>(1)</sup>	Results Sample Collected 05/19/05 and 05/20/05			
		010SB07 05/19/05	010SB08 05/19/05	010SB09 05/19/05	010SB13 05/20/05
Volatile Organic Compounds Analyzed by EPA Method 8260B (mg/kg)					
Benzene	0.007	ND	ND	ND	ND
Ethylbenzene	1.15	ND	ND	ND	ND
Naphthalene	0.036	0.0032	ND	ND	ND
Toluene	1.45	ND	ND	ND	ND
Xylenes, Total	14.5	ND	ND	ND	ND
Semivolatile Organic Compounds Analyzed by EPA Method 8270C (mg/kg)					
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 C.

RBSL - Risk-Based Screening Level

SCDHEC - South Carolina Department Of Health and Environmental Control

**Table 4**  
**Laboratory Analytical Results - Groundwater - Tier 2 Assessment**  
**61 Bay Circle (Formerly 8 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 05/20/05 and 05/23/05			
			10TMW07 05/23/05	10TMW08 05/23/05	10TMW09 05/20/05	10TMW13 05/23/05
Volatile Organic Compounds Analyzed by EPA Method 8260B (µg/L)						
Benzene	5	16.24	ND	ND	ND	ND
Ethylbenzene	700	45.95	ND	ND	ND	ND
Naphthalene	25	29.33	ND	ND	ND	ND
Toluene	1,000	105,445	ND	ND	ND	ND
Xylenes, Total	10,000	2,133	ND	ND	ND	ND
Semivolatile Organic Compounds Analyzed by EPA Method 8270D (µg/L)						
Benzo(a)anthracene	10	NA	ND	ND	ND	ND
Benzo(b)fluoranthene	10	NA	ND	ND	ND	ND
Benzo(k)fluoranthene	10	NA	ND	ND	ND	ND
Chrysene	10	NA	ND	ND	ND	ND
Dibenz(a,h)anthracene	10	NA	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.

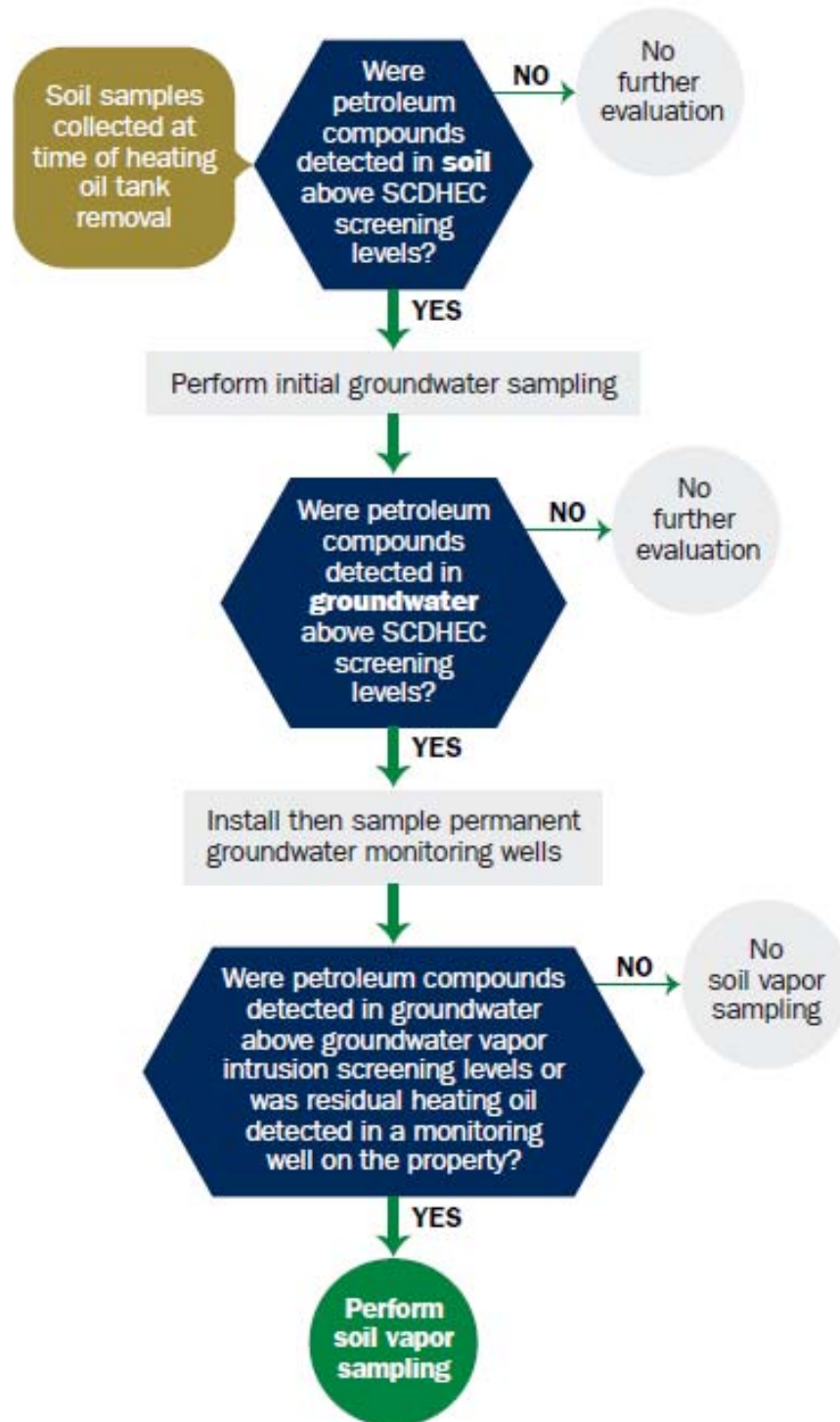
RBSL - Risk-Based Screening Level

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**

02771

## ASSESSMENT REPORT

LAUREL BAY HOUSING AREA, # 8-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.  
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Mt. Pleasant SC 29464

RECEIVED  
NOV 29 2004  
Water Monitoring Assessment & Protection Division

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

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

September 2004  
ADVENT 04-515

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### **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

Date Received \_\_\_\_\_  
Site Use Only \_\_\_\_\_

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

**II. SITE IDENTIFICATION AND LOCATION**

Permit I.D. # \_\_\_\_\_  
Laural Bay Housing- MCAS Beaufort, SC  
Facility Name or Company Site Identifier  
8 Laural Bay Circle  
Street Address or State Road (as applicable)  
Beaufort Beaufort  
City County

**III. CLOSURE INFORMATION**

August 2, 2004 August 6, 2004 Three (3)  
Closure Started Closure Completed Number of USTs Closed  
ADVENT Environmental, Inc  
Consultant UST Removal Contractor

**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	heating oil			
280 Gal	280 Gal	280 Gal			
> 40	> 40	> 40			
steel	steel	steel			
N/A	N/A	N/A			
3.5 ft	3.5 ft	4.5 ft			
no	no	no			
no	no	no			
re-moval	re-moval	re-moval			
8/3/04	8/3/04	8/3/04			
yes	yes	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 sent to Beaufort County Landfill for recycling.

- N. Method of disposal for any liquid petroleum, sludges, or waste waters removed from the USTs (attach disposal manifests)  
All oily water found in tanks number 1 and 2 were removed by a vaccum truck.

Tank number 3 was full of sand.

- O. If any corrosion, pitting, or holes were observed, describe the location and extent for each UST  
All three USTs had visual corrosion and pitting located on the body of the tanks (See photos)

## 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	copper			
3 '	3'	3'			
1	1	1			
S	S	S			
yes	yes	yes			
no	no	no			
no	no	no			
> 40 years	> 40 Years	> 40 years			

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

none

## VII. BRIEF SITE DESCRIPTION AND HISTORY

Site is used for military housing. The structure ( 8 Laruel Bay Circle) was built

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

storage tanks were used to heat 8 Laurel Bay Circle. There are no records

available confirming date the tanks were last used.

## 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.)      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> <p>Note: Ground water was removed at 6 ft in excavation from ust 2</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 #
08SB01		Soil	sand	0-2'	7-12-04/1400	BRC	2227
08SB02		Soil	sand	0-2'	7-12-04/1415	BRC	228
08SB03		Soil	sand	4-6'	7-12-04/1508	BRC	127
08SB04		Soil	sand	4-6'	7-12-04/1600	BRC	428
08SB05		Soil	sand	2-4'	7-13-04/0905	BRC	42
08SB06		Soil	sand	4-6'	7-13-04/0930	BRC	94.0
08GW01		Water	sand	4-6'	8-3-04/1330	BRC	

\* 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 Bailers and stored at 4 C using ice.

Methods: Soil: BTEX-8260; Naphthalene 8260; PAH 8270

Methods Water: BTEX-8260; Naphthalene-8260; PAH-8270; MtBE-8260

All samples were collected prior to excavation. Samples were collected in two foot intervals down to ground-water.

Each interval was screened with an OVA, the interval with the highest reading from each boring was sent to a certified laboratory to be analyzed. The results were used to delineate the excavation.

## 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. 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



Laural Bay #8 Pre- Excavation



Laural Bay #8 Vacuum Services



Laural Bay #8 Port Hole



Laural Bay #8 Top of Tank



Laural Bay #8 Tank with corrosion and pitting



Laural Bay #8 Tank No. 1



Laural Bay #8 Tank No. 2



Laural Bay #8 Tank No. 3

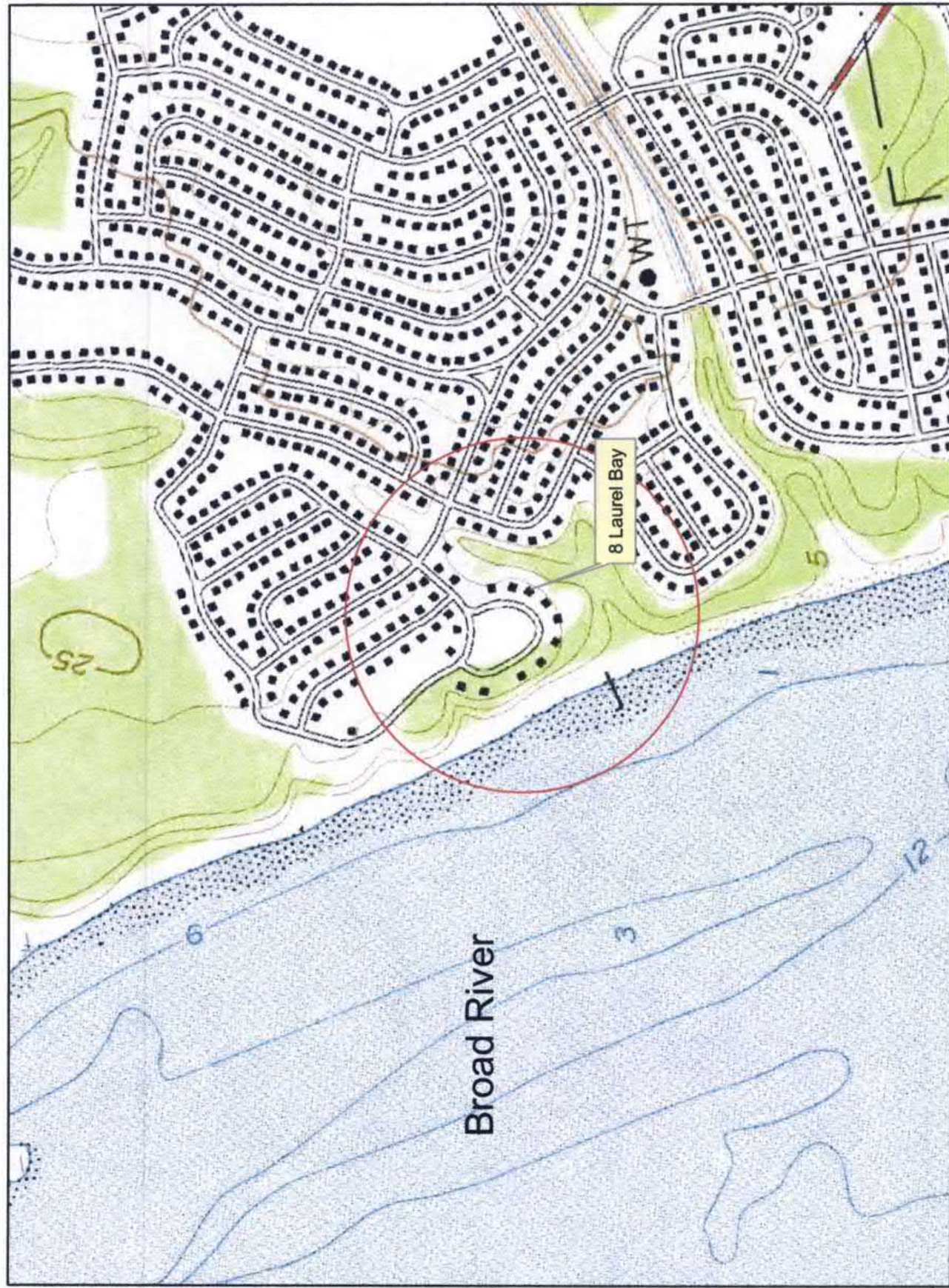


Laural Bay #8 Post Excavation



Laural Bay #8 Post Excavation

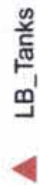
# 8 Laurel Bay MCAS, Beaufort, SC



1,000 ft radius

0 250 500 1,000 Feet

## Legend



LB\_Tanks

LB\_Buildings

# Laurel Bay #8

065801		7/13/2004	
Constituents		Result	RBSL Clay Rich Soils
Volatile Organic Compounds		Method 8260	(ug/kg)
Benzene		ND	3
Toluene		ND	627
Ethylbenzene		ND	1551
Xylenes		ND	13010
Napthalene		ND	47
Semi-Volatile Organic Compounds		Method 8270	(ug/kg)
Benzofluoranthene		ND	66
Benzo[a]anthracene		ND	66
Benzo[b]fluoranthene		ND	66
Benzo[k]fluoranthene		ND	66
Chrysene		ND	66
Dibenz[a,h]anthracene		ND	66

065802		7/13/2004	
Constituents		Result	RBSL Clay Rich Soils
Volatile Organic Compounds		Method 8260	(ug/kg)
Benzene		ND	3
Toluene		ND	627
Ethylbenzene		ND	1551
Xylenes		ND	13010
Napthalene		ND	47
Semi-Volatile Organic Compounds		Method 8270	(ug/kg)
Benzofluoranthene		ND	66
Benzo[a]anthracene		ND	66
Benzo[b]fluoranthene		ND	66
Benzo[k]fluoranthene		ND	66
Chrysene		ND	66
Dibenz[a,h]anthracene		ND	66

065803		8/6/2004	
Constituents		Result	RBSL Clay Rich Soils
Volatile Organic Compounds		Method 8260	(ug/L)
Benzene		1000	1000
Toluene		1000	1000
Ethylbenzene		1000	1000
Xylenes		1000	1000
Napthalene		25	40
Semi-Volatile Organic Compounds		Method 8270	(ug/kg)
Benzofluoranthene		10	10
Benzo[a]anthracene		10	10
Benzo[b]fluoranthene		10	10
Benzo[k]fluoranthene		10	10
Chrysene		10	10
Dibenz[a,h]anthracene		10	10
Total PAHs		25	25

065803		7/13/2004	
Constituents		Result	RBSL Clay Rich Soils
Volatile Organic Compounds		Method 8260	(ug/kg)
Benzene		ND	3
Toluene		ND	627
Ethylbenzene		ND	1551
Xylenes		ND	13010
Napthalene		11.0	47
Semi-Volatile Organic Compounds		Method 8270	(ug/kg)
Benzofluoranthene		ND	66
Benzo[a]anthracene		ND	66
Benzo[b]fluoranthene		ND	66
Benzo[k]fluoranthene		ND	66
Chrysene		ND	66
Dibenz[a,h]anthracene		ND	66

065805		7/13/2004	
Constituents		Result	RBSL Clay Rich Soils
Volatile Organic Compounds		Method 8260	(ug/kg)
Benzene		ND	3
Toluene		ND	627
Ethylbenzene		ND	1551
Xylenes		ND	13010
Napthalene		ND	47
Semi-Volatile Organic Compounds		Method 8270	(ug/kg)
Benzofluoranthene		ND	66
Benzo[a]anthracene		ND	66
Benzo[b]fluoranthene		ND	66
Benzo[k]fluoranthene		ND	66
Chrysene		ND	66
Dibenz[a,h]anthracene		ND	66

065806		7/13/2004	
Constituents		Result	RBSL Clay Rich Soils
Volatile Organic Compounds		Method 8260	(ug/kg)
Benzene		ND	3
Toluene		ND	627
Ethylbenzene		ND	1551
Xylenes		ND	13010
Napthalene		ND	47
Semi-Volatile Organic Compounds		Method 8270	(ug/kg)
Benzofluoranthene		ND	66
Benzo[a]anthracene		ND	66
Benzo[b]fluoranthene		ND	66
Benzo[k]fluoranthene		ND	66
Chrysene		ND	66
Dibenz[a,h]anthracene		ND	66

065804		7/13/2004	
Constituents		Result	RBSL Clay Rich Soils
Volatile Organic Compounds		Method 8260	(ug/kg)
Benzene		ND	3
Toluene		ND	627
Ethylbenzene		ND	1551
Xylenes		46	13010
Napthalene		496.8	47
Semi-Volatile Organic Compounds		Method 8270	(ug/kg)
Benzofluoranthene		ND	66
Benzo[a]anthracene		ND	66
Benzo[b]fluoranthene		ND	66
Benzo[k]fluoranthene		ND	66
Chrysene		ND	66
Dibenz[a,h]anthracene		ND	66

Excavation Boundary

Tank

Tank

Tank



Concentrations of  
Constituents of Concern  
Detected at Soil Borings

8 Laurel Bay Circle  
Marine Corps Air Station  
Beaufort, SC 29904

Prepared by:  
ADVENT Environmental, Inc.  
August 13, 2004

09/01/2004

12:04

GLOBAL ENVIRONMENTAL ASSURANCE → 18433881891

NO. 505 0003



(L2#8)

OAKRIDGE LANDFILL  
A WASTE MANAGEMENT COMPANY

## SPECIAL WASTE MANIFEST

Approval # VB 3878  
Expiration 06/25/04 05:00

Generator: MCAS BEAUFORT

MAILING ADDRESS: Commanding Officer  
ATTN: WREAO  
MCAS  
PO BOX 55001  
Beaufort SC 29901

Account Number: 490-335

Location/Address: HIGHWAY 21 S BEAUFORT SC (07)

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: 2Date: 8/6/04Driver's Signature: [Signature]

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

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOL/UST REMOVAL

Ticket Number: 287005Tonnage: 12.87Received By: [Signature]Date: 8/6/042183 HWY 78, (POB 145), DORCHESTER, SC 29437  
TEL: 843-563-2607, FAX: 843-563-4158

07/07/2004 11:49 FAX 1843563337



(LAB# 9)

OAKRIDGE LANDFILL  
WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST

Approval # VB 3878  
Expiration 06/25/05 *we*

Generator: MCAS BEAUFORT *ADDRESS: Commanding Office*

Account Number: 490-335

*ATTN: NREAS  
MCAS  
PO Box 55001  
Beaufort SC 29901*

Location/Address: HIGHWAY 21 S BEAUFORT SC (07)

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: *8-7-04*

Driver's Signature: *[Signature]*

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

Disposal Site: Oakridge Landfill DWP 130

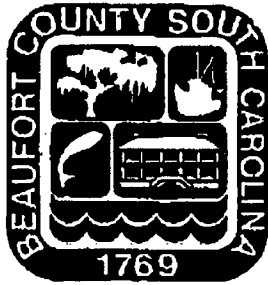
Description of Waste: SOL/UST REMOVAL

Ticket Number: *287533*

Tonnage: *11.37*

Received By: *[Signature]*

Date: *8/11*



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.

A handwritten signature in cursive script that reads "James S. Minor, Jr.".

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





**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:

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A handwritten signature in cursive script that reads "James S. Minor, Jr.".

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:

Local Bus # 1 (2) @ 250 salient rail  
Local Bus # 2 (3) @ 250 salient rail

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

<sup>scrap metal</sup>  
I certify that the above ~~tasks~~ 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  
Durrell Hylton (843) 812-9864

# US Water Recovery

Non-Hazardous Wastewater Manifest		Number: <u>481</u>																																						
1. Generator's EPA ID# (if applicable):		Waste ID Number:																																						
2. Generator's Name and Mailing Address: <del>Advent Environmental, Inc.</del> 408 Wando Park Blvd. Suite 500 <del>Wt. Pleasant, SC 29464</del> <i>Communications Officer, SMCAS, AUSA</i>		Phone (843) 228-7370 PO #: <i>29904</i>																																						
3. Agent of Generator and Mailing Address: Sani-Tech Environment, LLC P O Box 71619 Charleston, SC 29415		Phone (843) 744-0405 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#: <u>SCR000005363</u>																																								
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) 797-2126																																						
		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:																																						
		Tank Number: <u>3</u>																																						
8. U.S. DOT Description	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">No.</th> <th rowspan="2">Container Type</th> <th rowspan="2">Unit</th> <th rowspan="2">Quantity</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>* Non-Hazardous, non-regulated waste water</td> <td>01</td> <td>TT</td> <td>GAL</td> <td>700</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		No.	Container Type	Unit	Quantity					* Non-Hazardous, non-regulated waste water	01	TT	GAL	700																									
No.	Container Type	Unit					Quantity																																	
* 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 listing 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: <u>W.C. DeLoach</u>		Signature: <u>[Signature]</u> Date: <u>8-3-04</u>																																						
10. Transporter Acknowledgement of Receipt of Materials Printed/Typed Name: <u>John Reedy</u>		Signature: <u>[Signature]</u> Date:																																						
11. Discrepancy Indication space:																																								
12. Facility Owner or Operator: Certification of Receipt of Materials Printed/Typed Name: <u>Mark B. B. B.</u>		Signature: <u>[Signature]</u> Date: <u>8/3/04</u>																																						

White - Facility    Yellow - Transporter    Pink - Generator

# SOIL CONSULTANTS, INC.



# SOIL CONSULTANTS, INC.

FORM 80

TITLE

M C A S Beaufort L-Box 8 + 1

DATE

8-4-04

PROJECT OR JOB NO.

04-1088

INITIALS

RJ

NOT TO SCALE

D.R. Va

B. Reh

2  
Boysenble

1  
Boysenble

10  
20

Boy Circle

8  
Boysenble

10  
20

9  
Boysenble

Table 1: Summary of Soil Analytical Data  
Housing 8 Laurel Bay MCAS Beaufort

Soil Results

Constituents	08SEB01 7/12/2004		08SEB02 7/12/2004		08SEB03 7/12/2004		08SEB04 7/12/2004		08SEB05 7/12/2004		08SEB06 7/12/2004	
	Result	RBSL Clay Rich Soils	Result	RBSL Clay Rich Soils	Result	RBSL Clay Rich Soils	Result	RBSL Clay Rich Soils	Result	RBSL Clay Rich Soils	Result	RBSL Clay Rich Soils
<b>Volatile Organic Compounds</b>												
Method 8260	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Benzene	ND	3	ND	3	ND	3	ND	3	ND	3	ND	3
Toluene	ND	627	ND	627	ND	627	ND	627	ND	627	ND	627
Ethylbenzene	ND	1551	ND	1551	ND	1551	ND	1551	ND	1551	ND	1551
Xylenes	ND	13010	ND	13010	ND	13010	ND	13010	ND	13010	ND	13010
Naphthalene	ND	47	ND	47	11.0	47	450.0	47	ND	47	ND	47
<b>Semi-Volatile Organic Compounds</b>												
Method 8270	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Benzo(a)anthracene	ND	66	ND	66	ND	66	ND	66	ND	66	ND	66
Benzo(b)fluoranthene	ND	66	ND	66	ND	66	ND	66	ND	66	ND	66
Benzo(k)fluoranthene	ND	66	ND	66	ND	66	ND	66	ND	66	ND	66
Chrysene	ND	66	ND	66	ND	66	ND	66	ND	66	ND	66
Dibenz(a,h)anthracene	ND	66	ND	66	ND	66	ND	66	ND	66	ND	66

Ground-water Results

Constituents	08GW01 8/4/2004	
	Result	RBSL Clay Rich Soils
<b>Volatile Organic Compounds</b>		
Method 8260	(ug/L)	(ug/L)
Benzene	ND	5
Toluene	ND	1000
Ethylbenzene	3.2	700
Xylenes	ND	10000
Naphthalene	93	25
MIBE	ND	40
<b>Semi-Volatile Organic Compounds</b>		
Method 8270	(ug/kg)	(ug/kg)
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 PAHs	ND	25

ND= Not Detected/ Below the RBSLs

RBSL= Risk Based Screening Levels

ug/L = microgram per Liter

ug/kg= Microgram per Kilogram





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

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

Lab Sample No: 924467830 Project Sample Number: 9271562-007 Date Collected: 07/12/04 14:00  
Client Sample ID: 088B01 Matrix: Soil Date Received: 07/14/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	Reg/Lmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	19.3	%			1.0 07/15/04 10:44	TSE			

#### GC/MS Semivolatiles

Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	Reg/Lmt
Benzo(k)fluoranthene	ND	ug/kg	820			2.5 07/16/04 21:19	BET	207-08-9		
Benzo(b)fluoranthene	ND	ug/kg	820			2.5 07/16/04 21:19	BET	205-99-2		
Benzo(a)anthracene	ND	ug/kg	820			2.5 07/16/04 21:19	BET	56-55-3		
Chrysene	ND	ug/kg	820			2.5 07/16/04 21:19	BET	218-01-9		
Dibenz(a,h)anthracene	ND	ug/kg	820			2.5 07/16/04 21:19	BET	53-70-3		
Nitrobenzene-d5 (S)	23	%				1.0 07/16/04 21:19	BET	4165-60-0		
2-Fluorobiphenyl (S)	25	%				1.0 07/16/04 21:19	BET	321-60-8		
Terphenyl-d14 (S)	65	%				1.0 07/16/04 21:19	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	Analyzed	By	CAS No.	Qual	Reg/Lmt
Benzene	ND	ug/kg	3.0			0.6 07/20/04 15:44	MSF	71-43-2		
Ethylbenzene	ND	ug/kg	3.0			0.6 07/20/04 15:44	MSF	100-41-4		
Naphthalene	ND	ug/kg	3.0			0.6 07/20/04 15:44	MSF	91-20-3		
Toluene	ND	ug/kg	3.0			0.6 07/20/04 15:44	MSF	108-88-3		
m,p-Xylene	ND	ug/kg	6.1			0.6 07/20/04 15:44	MSF			
o-Xylene	ND	ug/kg	3.0			0.6 07/20/04 15:44	MSF	95-47-6		
Toluene-d8 (S)	94	%				1.0 07/20/04 15:44	MSF	2037-26-5		
4-Bromofluorobenzene (S)	100	%				1.0 07/20/04 15:44	MSF	460-00-4		
Dibromofluoromethane (S)	95	%				1.0 07/20/04 15:44	MSF	1868-53-7		
1,2-Dichloroethane-d4 (S)	93	%				1.0 07/20/04 15:44	MSF	17060-07-0		

Date: 07/22/04

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

854981

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## Section B

Required Client Information: Section A

Company: **ADVENT ENV**

Address: **498 Lando Pl**

City: **San Jose**

State: **CA**

Zip: **95128**

Phone: **408 990 9900**

Fax: **408 990 9900**

Project Name: **ADVENT ENV.**

Project Number: **04-515**

Project ID: **04-515**

To Be Completed by Pace Analytical and Client

Section C

Client Information (Check quote/contract):

Requested Due Date: **7/12/05**

Requested Analysis: **9271542**

Project Manager: **1534**

Profile #: **15**

Turn around time less than 14 days subject to laboratory and contractual obligations and they result in a Rush Turnaround Surcharge.

Turn Around Time (TAT) in calendar days.

ITEM #	DATE	TIME	START	END	DATE	TIME	SAMPLE TYPE	MATRIX CODE	Valid Matrix Codes	CODE	PRESERVATIVES	UNPRESERVED	H2SO4	HNO3	HCl	NaOH	Na2SO3	Methanol	Other	Remarks / Lab ID
1	09/5/05	1			7/12/05	0945			DRINKING WATER	DW										924967032
2	09/5/05	2			1015				GROUNDWATER	GW										924967040
3	09/5/05	3			1105				SURFACE WATER	SW										924967057
4	09/5/05	4			1130				PRODUCT	PL										924967075
5	09/5/05	5			1145				SOIL	SL										924967022
6	09/5/05	6			1200				WASTE	WP										924967030
7	08/5/05	7			1400				OTHER	OT										924967040
8	08/5/05	8			1445															924967055
9	08/5/05	9			1500															924967063
10	08/5/05	10			1600															924967071
11	08/5/05	11			0905															924967089
12	08/5/05	12			0915															

REGULATORY AGENCY

☐ NC ☐ SC ☐ GA ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ Other ☐ UST ☐ RCRA ☐ Other

SAMPLE NOTES

Temp in °C: **1.3**

Received on Ice: **DN**

Sealed Cooler: **DN**

Samples Intact: **DN**

Additional Comments:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: **ERIC MILLER**

SIGNATURE of SAMPLER: *[Signature]*

DATE Signed: **7/14/05**

SEE REVERSE SIDE FOR INSTR...



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

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

Lab Sample No: 924467848  
Client Sample ID: 088B02

Project Sample Number: 9271562-008  
Matrix: Soil

Date Collected: 07/12/04 14:15  
Date Received: 07/14/04 09:45

Parameters	Results	Units	Report Limit	DF	Analysed	By	CAS No.	Qual	RegInt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	14.4	%			1.0	07/15/04 10:44	TSE		
<b>GC/MS Semivolatiles</b>									
Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270								
Benzo(k) fluoranthene	ND	ug/kg	390		1.2	07/16/04 21:58	BET	207-08-9	
Benzo(b) fluoranthene	ND	ug/kg	390		1.2	07/16/04 21:58	BET	205-99-2	
Benzo(a) anthracene	ND	ug/kg	390		1.2	07/16/04 21:58	BET	56-55-3	
Chrysene	ND	ug/kg	390		1.2	07/16/04 21:58	BET	218-01-9	
Dibenz(a,h) anthracene	ND	ug/kg	390		1.2	07/16/04 21:58	BET	53-70-3	
Nitrobenzene-d5 (S)	24	%			1.0	07/16/04 21:58	BET	4165-60-0	
2-Fluorobiphenyl (S)	27	%			1.0	07/16/04 21:58	BET	321-60-8	
Terphenyl-d14 (S)	64	%			1.0	07/16/04 21:58	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	2.0		0.4	07/17/04 07:10	RMS	71-43-2	
Ethylbenzene	ND	ug/kg	2.0		0.4	07/17/04 07:10	RMS	100-41-4	
Naphthalene	ND	ug/kg	2.0		0.4	07/17/04 07:10	RMS	91-20-3	
Toluene	ND	ug/kg	2.0		0.4	07/17/04 07:10	RMS	108-88-3	
m,p-Xylene	ND	ug/kg	3.9		0.4	07/17/04 07:10	RMS	95-47-6	
o-Xylene	ND	ug/kg	2.0		0.4	07/17/04 07:10	RMS	2037-26-5	
Toluene-d8 (S)	97	%			1.0	07/17/04 07:10	RMS	460-00-4	
4-Bromofluorobenzene (S)	92	%			1.0	07/17/04 07:10	RMS	1868-53-7	
Dibromofluoromethane (S)	89	%			1.0	07/17/04 07:10	RMS	17060-07-0	
1,2-Dichloroethane-d4 (S)	82	%							

Date: 07/22/04

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9800 Kincey 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: 924467855  
Client Sample ID: 08SB03

Project Sample Number: 9271562-009  
Matrix: Soil

Date Collected: 07/12/04 15:00  
Date Received: 07/14/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	18.7	%			1.0	07/15/04 10:45	TSR		

#### GC/MS Semivolatiles

Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Benzo(k)fluoranthene	ND	ug/kg	410		1.2	07/16/04 22:36	BET	207-08-9		
Benzo(b)fluoranthene	ND	ug/kg	410		1.2	07/16/04 22:36	BET	205-99-2		
Benzo(a)anthracene	ND	ug/kg	410		1.2	07/16/04 22:36	BET	56-55-3		
Chrysene	ND	ug/kg	410		1.2	07/16/04 22:36	BET	218-01-9		
Dibenz(a,h)anthracene	ND	ug/kg	410		1.2	07/16/04 22:36	BET	53-70-3		
Nitrobenzene-d5 (S)	29	%			1.0	07/16/04 22:36	BET	4165-60-0		
2-Fluorobiphenyl (S)	41	%			1.0	07/16/04 22:36	BET	321-60-8		
Terphenyl-d14 (S)	63	%			1.0	07/16/04 22:36	BET	1718-51-0		
Data 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	Analyzed	By	CAS No.	Qual	RegLmt
Benzene	ND	ug/kg	2.8		0.6	07/17/04 07:27	RMS	71-43-2		
Ethylbenzene	ND	ug/kg	2.8		0.6	07/17/04 07:27	RMS	100-41-4		
Naphthalene	11.	ug/kg	2.8		0.6	07/17/04 07:27	RMS	91-20-3	1	
Toluene	ND	ug/kg	2.8		0.6	07/17/04 07:27	RMS	108-88-3		
m,p-Xylene	ND	ug/kg	5.7		0.6	07/17/04 07:27	RMS	95-47-6		
o-Xylene	ND	ug/kg	2.8		0.6	07/17/04 07:27	RMS	2037-26-5		
Toluene-d8 (S)	96	%			1.0	07/17/04 07:27	RMS	460-00-4		
4-Bromofluorobenzene (S)	86	%			1.0	07/17/04 07:27	RMS	1868-53-7		
Dibromofluoromethane (S)	89	%			1.0	07/17/04 07:27	RMS	17060-07-0		
1,2-Dichloroethane-d4 (S)	72	%								

Date: 07/22/04

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Pace Analytical Services, Inc.  
9600 Kinsey Avenue, Suite 100  
Huntersville, NC 28078  
Phone: 704.875.9092  
Fax: 704.875.9091

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

Lab Sample No: 924467863  
Client Sample ID: 08SB04

Project Sample Number: 9271562-010  
Matrix: Soil

Date Collected: 07/12/04 16:00  
Date Received: 07/14/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
<b>Wet Chemistry</b>									
Percent Moisture	Method: % Moisture								
Percent Moisture	16.6	%			1.0	07/15/04 10:45	TSE		

#### GC/MS Semivolatiles

Prep/Method: EPA 3545 / EPA 8270	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Semivolatile Organics	ND	ug/kg	400		1.2	07/16/04 23:14	BET	207-08-9	
Benzo (k) fluoranthene	ND	ug/kg	400		1.2	07/16/04 23:14	BET	205-99-2	
Benzo (b) fluoranthene	ND	ug/kg	400		1.2	07/16/04 23:14	BET	56-55-3	
Benzo (a) anthracene	ND	ug/kg	400		1.2	07/16/04 23:14	BET	218-01-9	
Chrysene	ND	ug/kg	400		1.2	07/16/04 23:14	BET	53-70-3	
Dibenz (a,h) anthracene	ND	ug/kg	400		1.2	07/16/04 23:14	BET	4165-60-0	
Nitrobenzene-d5 (S)	61	%			1.0	07/16/04 23:14	BET	321-60-8	
2-Fluorobiphenyl (S)	52	%			1.0	07/16/04 23:14	BET	1718-51-0	
Terphenyl-d14 (S)	61	%							
Date Extracted	07/15/04								

#### GC/MS Volatiles

GC/MS VOCs 5035/8260 low level	Method: EPA 8260	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Benzene	ND	ug/kg	2.7		0.5	07/17/04 07:45	RWS	71-43-2		
Ethylbenzene	140	ug/kg	2.7		0.5	07/17/04 07:45	RWS	100-41-4	2	
Naphthalene	450	ug/kg	2.7		0.5	07/17/04 07:45	RWS	91-20-3	1,2	
Toluene	ND	ug/kg	2.7		0.5	07/17/04 07:45	RWS	108-88-3		
m,p-Xylene	46.	ug/kg	5.4		0.5	07/17/04 07:45	RWS	95-47-6		
o-Xylene	ND	ug/kg	2.7		0.5	07/17/04 07:45	RWS	2037-26-5		
Toluene-d8 (S)	97	%			1.0	07/17/04 07:45	RWS	460-00-4		
4-Bromofluorobenzene (S)	87	%			1.0	07/17/04 07:45	RWS	1868-53-7		
Dibromofluoromethane (S)	101	%			1.0	07/17/04 07:45	RWS	17060-07-0		
1,2-Dichloroethane-d4 (S)	92	%								

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Phone: 704.875.9092  
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Lab Project Number: 9271562  
Client Project ID: 04-515

Lab Sample No: 924467871  
Client Sample ID: 08SB05

Project Sample Number: 9271562-011  
Matrix: Soil

Date Collected: 07/13/04 09:05  
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				1.0	07/15/04 10:46	TSE		
Percent Moisture	9.6	%							

#### GC/MS Semivolatiles

Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270								
Benzo(k)fluoranthene	ND	ug/kg	370		1.1	07/16/04 23:53	BET	207-08-9	
Benzo(b)fluoranthene	ND	ug/kg	370		1.1	07/16/04 23:53	BET	205-99-2	
Benzo(a)anthracene	ND	ug/kg	370		1.1	07/16/04 23:53	BET	56-55-3	
Chrysene	ND	ug/kg	370		1.1	07/16/04 23:53	BET	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	370		1.1	07/16/04 23:53	BET	53-70-3	
Nitrobenzene-d5 (S)	38	%			1.0	07/16/04 23:53	BET	4165-60-0	
2-Fluorobiphenyl (S)	39	%			1.0	07/16/04 23:53	BET	321-60-8	
Terphenyl-d14 (S)	64	%			1.0	07/16/04 23:53	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	3.8		0.8	07/20/04 16:19	MSF	71-43-2	
Ethylbenzene	ND	ug/kg	3.8		0.8	07/20/04 16:19	MSF	100-41-4	
Naphthalene	ND	ug/kg	3.8		0.8	07/20/04 16:19	MSF	91-20-3	
Toluene	ND	ug/kg	3.8		0.8	07/20/04 16:19	MSF	108-88-3	
m,p-Xylene	ND	ug/kg	7.7		0.8	07/20/04 16:19	MSF		
o-Xylene	ND	ug/kg	3.8		0.8	07/20/04 16:19	MSF	95-47-6	
Toluene-d8 (S)	98	%			1.0	07/20/04 16:19	MSF	2037-26-5	
4-Bromofluorobenzene (S)	94	%			1.0	07/20/04 16:19	MSF	460-00-4	
Dibromofluoromethane (S)	85	%			1.0	07/20/04 16:19	MSF	1868-53-7	
1,2-Dichloroethane-d4 (S)	75	%			1.0	07/20/04 16:19	MSF	17060-07-0	

Date: 07/22/04

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

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

Lab Sample No: 924467889  
Client Sample ID: 08SB06

Project Sample Number: 9271562-012  
Matrix: Soil

Date Collected: 07/13/04 09:30  
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				1.0	07/15/04 10:46	TSE		
Percent Moisture	12.8	%							

#### GC/MS Semivolatiles

Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	Req/Lmt
Benzo(k)fluoranthene	ND	ug/kg	380		1.1	07/17/04 00:31	BET	207-08-9		
Benzo(b)fluoranthene	ND	ug/kg	380		1.1	07/17/04 00:31	BET	205-99-2		
Benzo(a)anthracene	ND	ug/kg	380		1.1	07/17/04 00:31	BET	56-55-3		
Chrysene	ND	ug/kg	380		1.1	07/17/04 00:31	BET	218-01-9		
Dibenx(a,h)anthracene	ND	ug/kg	380		1.1	07/17/04 00:31	BET	53-70-3		
Nitrobenzene-d5 (S)	30	%			1.0	07/17/04 00:31	BET	4165-60-0		
2-Fluorobiphenyl (S)	33	%			1.0	07/17/04 00:31	BET	321-60-8		
Terphenyl-d14 (S)	60	%			1.0	07/17/04 00:31	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	Analyzed	By	CAS No.	Qual	Req/Lmt
Benzene	ND	ug/kg	2.6		0.5	07/17/04 08:19	RMS	71-43-2		
Ethylbenzene	ND	ug/kg	2.6		0.5	07/17/04 08:19	RMS	100-41-4		
Naphthalene	ND	ug/kg	2.6		0.5	07/17/04 08:19	RMS	91-20-3		
Toluene	ND	ug/kg	2.6		0.5	07/17/04 08:19	RMS	108-88-3		
m,p-Xylene	ND	ug/kg	5.1		0.5	07/17/04 08:19	RMS	95-47-6		
o-Xylene	ND	ug/kg	2.6		0.5	07/17/04 08:19	RMS	2037-26-5		
Toluene-d8 (S)	99	%			1.0	07/17/04 08:19	RMS	460-00-4		
4-Bromofluorobenzene (S)	89	%			1.0	07/17/04 08:19	RMS	1868-53-7		
Dibromofluoromethane (S)	88	%			1.0	07/17/04 08:19	RMS	17060-07-0		
1,2-Dichloroethane-d4 (S)	75	%								

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SC Environmental 99030  
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**Appendix C**  
**Laboratory Analytical Reports – Soil – Tier 2 Assessment**



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

Lab Project Number: 9294936  
Client Project ID: LaurelBay Tier-II/04-504

Lab Sample No: 925659781      Project Sample Number: 9294936-007      Date Collected: 05/19/05 17:00  
Client Sample ID: LB08SB-07      Matrix: Soil      Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
<b>Wet Chemistry</b>								
Percent Moisture	Method: % Moisture							
Percent Moisture	19.0	%		05/23/05 09:07	TNS			

**GC/MS Semivolatiles**

Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270							
Acenaphthene	ND	ug/kg	410	05/28/05 10:57	BET	83-32-9		
Acenaphthylene	ND	ug/kg	410	05/28/05 10:57	BET	208-96-8		
Anthracene	ND	ug/kg	410	05/28/05 10:57	BET	120-12-7		
Benzo (a) anthracene	ND	ug/kg	410	05/28/05 10:57	BET	56-55-3		
Benzo (a) pyrene	ND	ug/kg	410	05/28/05 10:57	BET	50-32-8		
Benzo (b) fluoranthene	ND	ug/kg	410	05/28/05 10:57	BET	205-99-2		
Benzo (g,h,i) perylene	ND	ug/kg	410	05/28/05 10:57	BET	191-24-2		
Benzo (k) fluoranthene	ND	ug/kg	410	05/28/05 10:57	BET	207-08-9		
Chrysene	ND	ug/kg	410	05/28/05 10:57	BET	218-01-9		
Dibenz (a,h) anthracene	ND	ug/kg	410	05/28/05 10:57	BET	53-70-3		
Fluoranthene	ND	ug/kg	410	05/28/05 10:57	BET	206-44-0		
Fluorene	ND	ug/kg	410	05/28/05 10:57	BET	86-73-7		
Indeno (1,2,3-cd) pyrene	ND	ug/kg	410	05/28/05 10:57	BET	193-39-5		
Naphthalene	ND	ug/kg	410	05/28/05 10:57	BET	91-20-3		
Phenanthrene	ND	ug/kg	410	05/28/05 10:57	BET	85-01-8		
Pyrene	ND	ug/kg	410	05/28/05 10:57	BET	129-00-0		
Nitrobenzene-d5 (S)	60	%		05/28/05 10:57	BET	4165-60-0		
2-Fluorobiphenyl (S)	52	%		05/28/05 10:57	BET	321-60-8		
Terphenyl-d14 (S)	67	%		05/28/05 10:57	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	110	mg/kg	6.2	05/26/05 13:14	KBS	68334-30-5		
n-Pentacosane (S)	60	%		05/26/05 13:14	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	3.2	05/27/05 01:17	RWS	71-43-2		
Ethylbenzene	ND	ug/kg	3.2	05/27/05 01:17	RWS	100-41-4		
Methyl-tert-butyl ether	ND	ug/kg	3.2	05/27/05 01:17	RWS	1634-04-4		
Naphthalene	3.2	ug/kg	3.2	05/27/05 01:17	RWS	91-20-3	1	

Date: 06/08/05

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Phone: 828.254.7176  
Fax: 828.252.4618

Lab Project Number: 9294936  
Client Project ID: LaurelBay Tier-II/04-504

Lab Sample No: 925659781      Project Sample Number: 9294936-007      Date Collected: 05/19/05 17:00  
Client Sample ID: LB08SB-07      Matrix: Soil      Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Toluene	ND	ug/kg	3.2	05/27/05 01:17	RWS	108-88-3		
m&p-Xylene	ND	ug/kg	6.3	05/27/05 01:17	RWS			
o-Xylene	ND	ug/kg	3.2	05/27/05 01:17	RWS	95-47-6		
Toluene-d8 (S)	119	%		05/27/05 01:17	RWS	2037-26-5	2	
4-Bromofluorobenzene (S)	90	%		05/27/05 01:17	RWS	460-00-4		
Dibromofluoromethane (S)	112	%		05/27/05 01:17	RWS	1868-53-7		
1,2-Dichloroethane-d4 (S)	138	%		05/27/05 01:17	RWS	17060-07-0		

Date: 06/08/05

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Lab Project Number: 9294936

Client Project ID: LaurelBay Tier-II/04-504

Lab Sample No: 925659799  
Client Sample ID: LB08SB-08

Project Sample Number: 9294936-008  
Matrix: Soil

Date Collected: 05/19/05 17:30  
Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	Reg/Lmt
<b>Wet Chemistry</b>								
Percent Moisture	Method: % Moisture							
Percent Moisture	17.6	%		05/23/05 09:07	TNS			

#### GC/MS Semivolatiles

Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270						
Acenaphthene	ND	ug/kg	400	05/28/05 11:32	BET	83-32-9	
Acenaphthylene	ND	ug/kg	400	05/28/05 11:32	BET	208-96-8	
Anthracene	ND	ug/kg	400	05/28/05 11:32	BET	120-12-7	
Benzo (a) anthracene	ND	ug/kg	400	05/28/05 11:32	BET	56-55-3	
Benzo (a) pyrene	ND	ug/kg	400	05/28/05 11:32	BET	50-32-8	
Benzo (b) fluoranthene	ND	ug/kg	400	05/28/05 11:32	BET	205-99-2	
Benzo (g,h,i) perylene	ND	ug/kg	400	05/28/05 11:32	BET	191-24-2	
Benzo (k) fluoranthene	ND	ug/kg	400	05/28/05 11:32	BET	207-08-9	
Chrysene	ND	ug/kg	400	05/28/05 11:32	BET	218-01-9	
Dibenz (a,h) anthracene	ND	ug/kg	400	05/28/05 11:32	BET	53-70-3	
Fluoranthene	ND	ug/kg	400	05/28/05 11:32	BET	206-44-0	
Fluorene	ND	ug/kg	400	05/28/05 11:32	BET	86-73-7	
Indeno (1,2,3-cd) pyrene	ND	ug/kg	400	05/28/05 11:32	BET	193-39-5	
Naphthalene	ND	ug/kg	400	05/28/05 11:32	BET	91-20-3	
Phenanthrene	ND	ug/kg	400	05/28/05 11:32	BET	85-01-8	
Pyrene	ND	ug/kg	400	05/28/05 11:32	BET	129-00-0	
Nitrobenzene-d5 (S)	36	%		05/28/05 11:32	BET	4165-60-0	
2-Fluorobiphenyl (S)	35	%		05/28/05 11:32	BET	321-60-8	
Terphenyl-d14 (S)	71	%		05/28/05 11:32	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 19:13	KBS	68334-30-5	
n-Pentacosane (S)	56	%		05/27/05 19:13	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	2.4	05/27/05 01:35	RWS	71-43-2	
Ethylbenzene	ND	ug/kg	2.4	05/27/05 01:35	RWS	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	2.4	05/27/05 01:35	RWS	1634-04-4	
Naphthalene	ND	ug/kg	2.4	05/27/05 01:35	RWS	91-20-3	

Date: 06/08/05

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Lab Project Number: 9294936

Client Project ID: LaurelBay Tier-II/04-504

Lab Sample No: 925659799

Project Sample Number: 9294936-008

Date Collected: 05/19/05 17:30

Client Sample ID: LB08SB-08

Matrix: Soil

Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Toluene	ND	ug/kg	2.4	05/27/05 01:35	RWS	108-88-3		
m&p-Xylene	ND	ug/kg	4.7	05/27/05 01:35	RWS			
o-Xylene	ND	ug/kg	2.4	05/27/05 01:35	RWS	95-47-6		
Toluene-d8 (S)	97	%		05/27/05 01:35	RWS	2037-26-5		
4-Bromofluorobenzene (S)	93	%		05/27/05 01:35	RWS	460-00-4		
Dibromofluoromethane (S)	90	%		05/27/05 01:35	RWS	1868-53-7		
1,2-Dichloroethane-d4 (S)	88	%		05/27/05 01:35	RWS	17060-07-0		

Date: 06/08/05

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Lab Project Number: 9294936  
Client Project ID: LaurelBay Tier-II/04-504

Lab Sample No: 925659807      Project Sample Number: 9294936-009      Date Collected: 05/19/05 18:00  
Client Sample ID: LB08SB-09      Matrix: Soil      Date Received: 05/21/05 09:10

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

Percent Moisture	Method: % Moisture							
Percent Moisture	15.8	%		05/23/05 09:07	TNS			

**GC/MS Semivolatiles**

Semivolatile Organics	Prep/Method: EPA 3545 / EPA 8270							
Acenaphthene	ND	ug/kg	390	05/28/05 12:07	BET	83-32-9		
Acenaphthylene	ND	ug/kg	390	05/28/05 12:07	BET	208-96-8		
Anthracene	ND	ug/kg	390	05/28/05 12:07	BET	120-12-7		
Benzo(a)anthracene	ND	ug/kg	390	05/28/05 12:07	BET	56-55-3		
Benzo(a)pyrene	ND	ug/kg	390	05/28/05 12:07	BET	50-32-8		
Benzo(b)fluoranthene	ND	ug/kg	390	05/28/05 12:07	BET	205-99-2		
Benzo(g,h,i)perylene	ND	ug/kg	390	05/28/05 12:07	BET	191-24-2		
Benzo(k)fluoranthene	ND	ug/kg	390	05/28/05 12:07	BET	207-08-9		
Chrysene	ND	ug/kg	390	05/28/05 12:07	BET	218-01-9		
Dibenz(a,h)anthracene	ND	ug/kg	390	05/28/05 12:07	BET	53-70-3		
Fluoranthene	ND	ug/kg	390	05/28/05 12:07	BET	206-44-0		
Fluorene	ND	ug/kg	390	05/28/05 12:07	BET	86-73-7		
Indeno(1,2,3-cd)pyrene	ND	ug/kg	390	05/28/05 12:07	BET	193-39-5		
Naphthalene	ND	ug/kg	390	05/28/05 12:07	BET	91-20-3		
Phenanthrene	ND	ug/kg	390	05/28/05 12:07	BET	85-01-8		
Pyrene	ND	ug/kg	390	05/28/05 12:07	BET	129-00-0		
Nitrobenzene-d5 (S)	38	%		05/28/05 12:07	BET	4165-60-0		
2-Fluorobiphenyl (S)	42	%		05/28/05 12:07	BET	321-60-8		
Terphenyl-d14 (S)	68	%		05/28/05 12:07	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 19:43	KBS	68334-30-5		
n-Pentacosane (S)	59	%		05/27/05 19:43	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	2.5	05/27/05 01:52	RWS	71-43-2		
Ethylbenzene	ND	ug/kg	2.5	05/27/05 01:52	RWS	100-41-4		
Methyl-tert-butyl ether	ND	ug/kg	2.5	05/27/05 01:52	RWS	1634-04-4		
Naphthalene	ND	ug/kg	2.5	05/27/05 01:52	RWS	91-20-3		

Date: 06/08/05

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Lab Project Number: 9294936

Client Project ID: LaurelBay Tier-II/04-504

Lab Sample No: 925659807

Client Sample ID: LB088B-09

Project Sample Number: 9294936-009

Matrix: Soil

Date Collected: 05/19/05 18:00

Date Received: 05/21/05 09:10

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Toluene	ND	ug/kg	2.5	05/27/05 01:52	RWS	108-88-3		
m&p-Xylene	ND	ug/kg	5.0	05/27/05 01:52	RWS			
o-Xylene	ND	ug/kg	2.5	05/27/05 01:52	RWS	95-47-6		
Toluene-d8 (S)	98	%		05/27/05 01:52	RWS	2037-26-5		
4-Bromofluorobenzene (S)	93	%		05/27/05 01:52	RWS	460-00-4		
Dibromofluoromethane (S)	91	%		05/27/05 01:52	RWS	1868-53-7		
1,2-Dichloroethane-d4 (S)	84	%		05/27/05 01:52	RWS	17060-07-0		

Date: 06/08/05

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Lab Project Number: 9294935

Client Project ID: LaurelBay Tier-II/05-504

Lab Sample No: 925659716  
Client Sample ID: 010SB13

Project Sample Number: 9294935-004  
Matrix: Soil

Date Collected: 05/20/05 14:55  
Date Received: 05/21/05 09:10

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

Percent Moisture	Method: % Moisture							
Percent Moisture	23.5	%		05/23/05 09:27	TNS			

#### GC/MS Semivolatiles

##### Semivolatile Organics

Prep/Method: EPA 3545 / EPA 8270

Acenaphthene	ND	ug/kg	430	05/28/05 19:00	BET	83-32-9		
Acenaphthylene	ND	ug/kg	430	05/28/05 19:00	BET	208-96-8		
Anthracene	ND	ug/kg	430	05/28/05 19:00	BET	120-12-7		
Benzo (a) anthracene	ND	ug/kg	430	05/28/05 19:00	BET	56-55-3		
Benzo (a) pyrene	ND	ug/kg	430	05/28/05 19:00	BET	50-32-8		
Benzo (b) fluoranthene	ND	ug/kg	430	05/28/05 19:00	BET	205-99-2		
Benzo (g,h,i) perylene	ND	ug/kg	430	05/28/05 19:00	BET	191-24-2		
Benzo (k) fluoranthene	ND	ug/kg	430	05/28/05 19:00	BET	207-08-9		
Chrysene	ND	ug/kg	430	05/28/05 19:00	BET	218-01-9		
Dibenz (a,h) anthracene	ND	ug/kg	430	05/28/05 19:00	BET	53-70-3		
Fluoranthene	ND	ug/kg	430	05/28/05 19:00	BET	206-44-0		
Fluorene	ND	ug/kg	430	05/28/05 19:00	BET	86-73-7		
Indeno (1,2,3-cd) pyrene	ND	ug/kg	430	05/28/05 19:00	BET	193-39-5		
Naphthalene	ND	ug/kg	430	05/28/05 19:00	BET	91-20-3		
Phenanthrene	ND	ug/kg	430	05/28/05 19:00	BET	85-01-8		
Pyrene	ND	ug/kg	430	05/28/05 19:00	BET	129-00-0		
Nitrobenzene-d5 (S)	60	%		05/28/05 19:00	BET	4165-60-0		
2-Fluorobiphenyl (S)	52	%		05/28/05 19:00	BET	321-60-8		
Terphenyl-d14 (S)	63	%		05/28/05 19:00	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	6.5	05/27/05 21:43	KBS	68334-30-5		
n-Pentacosane (S)	67	%		05/27/05 21:43	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 05:18	RWS	71-43-2		
Ethylbenzene	ND	ug/kg	2.7	05/27/05 05:18	RWS	100-41-4		
Naphthalene	ND	ug/kg	2.7	05/27/05 05:18	RWS	91-20-3		
Toluene	ND	ug/kg	2.7	05/27/05 05:18	RWS	108-88-3		

Date: 06/07/05

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Lab Project Number: 9294935  
Client Project ID: LaurelBay Tier-II/05-504

Lab Sample No: 925659716      Project Sample Number: 9294935-004      Date Collected: 05/20/05 14:55  
Client Sample ID: 010SB13      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 05:18	RWS			
o-Xylene	ND	ug/kg	2.7	05/27/05 05:18	RWS	95-47-6		
Toluene-d8 (S)	100	%		05/27/05 05:18	RWS	2037-26-5		
4-Bromofluorobenzene (S)	91	%		05/27/05 05:18	RWS	460-00-4		
Dibromofluoromethane (S)	84	%		05/27/05 05:18	RWS	1868-53-7		
1,2-Dichloroethane-d4 (S)	70	%		05/27/05 05:18	RWS	17060-07-0		

Date: 06/07/05

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



**Pace Analytical Services, Inc.**  
9800 Kincey Avenue, Suite 100  
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Phone: 704.875.9092  
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**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: 925669756      Project Sample Number: 9295080-001      Date Collected: 05/23/05 09:15  
Client Sample ID: 10TMW07      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 03:02	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	3.2	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	9.4	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.	05/31/05 20:56	BET	83-32-9		
Acenaphthylene	ND	ug/l	10.	05/31/05 20:56	BET	208-96-8		
Anthracene	ND	ug/l	10.	05/31/05 20:56	BET	120-12-7		
Benzo (a) anthracene	ND	ug/l	10.	05/31/05 20:56	BET	56-55-3		
Benzo (a) pyrene	ND	ug/l	10.	05/31/05 20:56	BET	50-32-8		
Benzo (b) fluoranthene	ND	ug/l	10.	05/31/05 20:56	BET	205-99-2		
Benzo (g,h,i) perylene	ND	ug/l	10.	05/31/05 20:56	BET	191-24-2		
Benzo (k) fluoranthene	ND	ug/l	10.	05/31/05 20:56	BET	207-08-9		
Chrysene	ND	ug/l	10.	05/31/05 20:56	BET	218-01-9		
Dibenz (a,h) anthracene	ND	ug/l	10.	05/31/05 20:56	BET	53-70-3		
Fluoranthene	ND	ug/l	10.	05/31/05 20:56	BET	206-44-0		
Fluorene	ND	ug/l	10.	05/31/05 20:56	BET	86-73-7		
Indeno (1,2,3-cd) pyrene	ND	ug/l	10.	05/31/05 20:56	BET	193-39-5		
Naphthalene	ND	ug/l	10.	05/31/05 20:56	BET	91-20-3		
Phenanthrene	ND	ug/l	10.	05/31/05 20:56	BET	85-01-8		
Pyrene	ND	ug/l	10.	05/31/05 20:56	BET	129-00-0		
Nitrobenzene-d5 (S)	61	%		05/31/05 20:56	BET	4165-60-0		
2-Fluorobiphenyl (S)	52	%		05/31/05 20:56	BET	321-60-8		
Terphenyl-d14 (S)	60	%		05/31/05 20:56	BET	1718-51-0		
Date Extracted	05/31/05			05/31/05				

Date: 06/13/05

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Fax: 828.252.4618

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

Lab Sample No: 925669756      Project Sample Number: 9295080-001      Date Collected: 05/23/05 09:15  
Client Sample ID: 10TMW07      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	05/25/05 22:11	JEM	106-93-4		
1,2-Dibromo-3-chloropropane	ND	ug/l	0.050	05/25/05 22:11	JEM	96-12-8		
1,2,3-Trichloropropane	ND	ug/l	0.050	05/25/05 22:11	JEM	96-18-4		
1-Chloro-2-bromopropane (S)	98	%		05/25/05 22:11	JEM	301-79-56		

**GC/MS Volatiles**

GC/MS VOCs by 8260, low level		Method: EPA 8260						
Benzene	ND	ug/l	1.0	05/28/05 11:05	MSF	71-43-2		
Ethylbenzene	ND	ug/l	1.0	05/28/05 11:05	MSF	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	1.0	05/28/05 11:05	MSF	1634-04-4		
Naphthalene	ND	ug/l	1.0	05/28/05 11:05	MSF	91-20-3		
Toluene	ND	ug/l	1.0	05/28/05 11:05	MSF	108-88-3		
m&p-Xylene	ND	ug/l	2.0	05/28/05 11:05	MSF			
o-Xylene	ND	ug/l	1.0	05/28/05 11:05	MSF	95-47-6		
Toluene-d8 (S)	99	%		05/28/05 11:05	MSF	2037-26-5		
4-Bromofluorobenzene (S)	94	%		05/28/05 11:05	MSF	460-00-4		
Dibromofluoromethane (S)	102	%		05/28/05 11:05	MSF	1868-53-7		
1,2-Dichloroethane-d4 (S)	97	%		05/28/05 11:05	MSF	17060-07-0		

Date: 06/13/05

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Fax: 828.252.4618

Lab Project Number: 9294933  
Client Project ID: Laurel Bay

Lab Sample No: 925659567 Project Sample Number: 9294933-007 Date Collected: 05/20/05 00:00  
Client Sample ID: 010SB08 Matrix: Water Date Received: 05/21/05 09:10

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	05/28/05 03:20	ALV	7439-92-1		
Date Digested	05/23/05 06:00			05/23/05 06:00				

#### Wet Chemistry

Iron, Ferrous	Method: SM 3500-Fe D#4							
Iron, Ferrous	2.4	mg/l	0.50	05/21/05 14:20	TCM		1	
48 Hour NO3 / NO2 / NOX	Method: EPA 353.2							
Nitrate as N	ND	mg/l	0.10	05/21/05 14:07	ARH			
Oxygen, Dissolved	Method: EPA 360.1							
Oxygen, Dissolved	7.4	mg/l	1.0	05/24/05 13:20	TMR	7782-44-7	1	

#### GC/MS Semivolatiles

Semivolatile Organics	Prep/Method: EPA 3510 / EPA 8270							
Acenaphthene	ND	ug/l	10.	05/31/05 19:47	BET	83-32-9		
Acenaphthylene	ND	ug/l	10.	05/31/05 19:47	BET	208-96-8		
Anthracene	ND	ug/l	10.	05/31/05 19:47	BET	120-12-7		
Benzo(a)anthracene	ND	ug/l	10.	05/31/05 19:47	BET	56-55-3		
Benzo(a)pyrene	ND	ug/l	10.	05/31/05 19:47	BET	50-32-8		
Benzo(b)fluoranthene	ND	ug/l	10.	05/31/05 19:47	BET	205-99-2		
Benzo(g,h,i)perylene	ND	ug/l	10.	05/31/05 19:47	BET	191-24-2		
Benzo(k)fluoranthene	ND	ug/l	10.	05/31/05 19:47	BET	207-08-9		
Chrysene	ND	ug/l	10.	05/31/05 19:47	BET	218-01-9		
Dibenz(a,h)anthracene	ND	ug/l	10.	05/31/05 19:47	BET	53-70-3		
Fluoranthene	ND	ug/l	10.	05/31/05 19:47	BET	206-44-0		
Fluorene	ND	ug/l	10.	05/31/05 19:47	BET	86-73-7		
Indeno(1,2,3-cd)pyrene	ND	ug/l	10.	05/31/05 19:47	BET	193-39-5		
Naphthalene	ND	ug/l	10.	05/31/05 19:47	BET	91-20-3		
Phenanthrene	ND	ug/l	10.	05/31/05 19:47	BET	85-01-8		
Pyrene	ND	ug/l	10.	05/31/05 19:47	BET	129-00-0		
Nitrobenzene-d5 (S)	61	%		05/31/05 19:47	BET	4165-60-0		
2-Fluorobiphenyl (S)	44	%		05/31/05 19:47	BET	321-60-8		
Terphenyl-d14 (S)	49	%		05/31/05 19:47	BET	1718-51-0		
Date Extracted	05/27/05			05/27/05				

Date: 06/08/05

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Phone: 828.254.7176  
Fax: 828.252.4618

Lab Project Number: 9294933  
Client Project ID: Laurel Bay

Lab Sample No: 925659567 Project Sample Number: 9294933-007 Date Collected: 05/20/05 00:00  
Client Sample ID: 010SB08 Matrix: Water Date Received: 05/21/05 09:10

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 05/23/05 19:04 JEM 106-93-4  
1,2-Dibromo-3-chloropropane ND ug/l 0.050 05/23/05 19:04 JEM 96-12-8  
1,2,3-Trichloropropane ND ug/l 0.050 05/23/05 19:04 JEM 96-18-4  
1-Chloro-2-bromopropane (S) 98 % 05/23/05 19:04 JEM 301-79-56

GC/MS Volatiles

GC/MS VOCs by 8260, low level Method: EPA 8260  
Benzene ND ug/l 1.0 05/27/05 07:07 BCK 71-43-2  
Ethylbenzene ND ug/l 1.0 05/27/05 07:07 BCK 100-41-4  
Methyl-tert-butyl ether ND ug/l 1.0 05/27/05 07:07 BCK 1634-04-4  
Naphthalene ND ug/l 1.0 05/27/05 07:07 BCK 91-20-3  
Toluene ND ug/l 1.0 05/27/05 07:07 BCK 108-88-3  
m&p-Xylene ND ug/l 2.0 05/27/05 07:07 BCK  
o-Xylene ND ug/l 1.0 05/27/05 07:07 BCK 95-47-6  
Toluene-d8 (S) 97 % 05/27/05 07:07 BCK 2037-26-5  
4-Bromofluorobenzene (S) 99 % 05/27/05 07:07 BCK 460-00-4  
Dibromofluoromethane (S) 96 % 05/27/05 07:07 BCK 1868-53-7  
1,2-Dichloroethane-d4 (S) 89 % 05/27/05 07:07 BCK 17060-07-0

Date: 06/08/05

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Phone: 828.254.7176  
Fax: 828.252.4618

Lab Project Number: 9294933  
Client Project ID: Laurel Bay

Lab Sample No: 925659575 Project Sample Number: 9294933-008 Date Collected: 05/20/05 00:00  
Client Sample ID: 10TMW-09 Matrix: Water Date Received: 05/21/05 09:10

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	05/28/05 03:25	ALV	7439-92-1		
Date Digested	05/23/05 06:00			05/23/05 06:00				

Wet Chemistry

Iron, Ferrous	Method: SM 3500-Fe D#4							
Iron, Ferrous	3.0	mg/l	0.50	05/21/05 14:20	TCM		1	
48 Hour NO3 / NO2 / NOX	Method: EPA 353.2							
Nitrate as N	ND	mg/l	0.10	05/21/05 14:07	ARH			
Oxygen, Dissolved	Method: EPA 360.1							
Oxygen, Dissolved	6.1	mg/l	1.0	05/24/05 13:20	TMR	7782-44-7	1	

GC/MS Semivolatiles

Semivolatile Organics	Prep/Method: EPA 3510 / EPA 8270							
Acenaphthene	ND	ug/l	10.	05/31/05 20:21	BET	83-32-9		
Acenaphthylene	ND	ug/l	10.	05/31/05 20:21	BET	208-96-8		
Anthracene	ND	ug/l	10.	05/31/05 20:21	BET	120-12-7		
Benzo(a)anthracene	ND	ug/l	10.	05/31/05 20:21	BET	56-55-3		
Benzo(a)pyrene	ND	ug/l	10.	05/31/05 20:21	BET	50-32-8		
Benzo(b)fluoranthene	ND	ug/l	10.	05/31/05 20:21	BET	205-99-2		
Benzo(g,h,i)perylene	ND	ug/l	10.	05/31/05 20:21	BET	191-24-2		
Benzo(k)fluoranthene	ND	ug/l	10.	05/31/05 20:21	BET	207-08-9		
Chrysene	ND	ug/l	10.	05/31/05 20:21	BET	218-01-9		
Dibenz(a,h)anthracene	ND	ug/l	10.	05/31/05 20:21	BET	53-70-3		
Fluoranthene	ND	ug/l	10.	05/31/05 20:21	BET	206-44-0		
Fluorene	ND	ug/l	10.	05/31/05 20:21	BET	86-73-7		
Indeno(1,2,3-cd)pyrene	ND	ug/l	10.	05/31/05 20:21	BET	193-39-5		
Naphthalene	ND	ug/l	10.	05/31/05 20:21	BET	91-20-3		
Phenanthrene	ND	ug/l	10.	05/31/05 20:21	BET	85-01-8		
Pyrene	ND	ug/l	10.	05/31/05 20:21	BET	129-00-0		
Nitrobenzene-d5 (S)	52	%		05/31/05 20:21	BET	4165-60-0		
2-Fluorobiphenyl (S)	39	%		05/31/05 20:21	BET	321-60-8		
Terphenyl-d14 (S)	56	%		05/31/05 20:21	BET	1718-51-0		
Date Extracted	05/31/05			05/31/05				

Date: 06/08/05

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Phone: 828.254.7176  
Fax: 828.252.4618

Lab Project Number: 9294933  
Client Project ID: Laurel Bay

Lab Sample No: 925659575 Project Sample Number: 9294933-008 Date Collected: 05/20/05 00:00  
Client Sample ID: 10TMW-09 Matrix: Water Date Received: 05/21/05 09:10

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	05/25/05 16:34	JEM	106-93-4		
1,2-Dibromo-3-chloropropane	ND	ug/l	0.050	05/25/05 16:34	JEM	96-12-8		
1,2,3-Trichloropropane	ND	ug/l	0.050	05/25/05 16:34	JEM	96-18-4		
1-Chloro-2-bromopropane (S)	97	%		05/25/05 16:34	JEM	301-79-56		

GC/MS Volatiles

GC/MS VOCs by 8260, low level	Method: EPA 8260							
Benzene	ND	ug/l	1.0	05/27/05 07:33	BCK	71-43-2		
Ethylbenzene	ND	ug/l	1.0	05/27/05 07:33	BCK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	1.0	05/27/05 07:33	BCK	1634-04-4		
Naphthalene	ND	ug/l	1.0	05/27/05 07:33	BCK	91-20-3		
Toluene	ND	ug/l	1.0	05/27/05 07:33	BCK	108-88-3		
m&p-Xylene	ND	ug/l	2.0	05/27/05 07:33	BCK			
o-Xylene	ND	ug/l	1.0	05/27/05 07:33	BCK	95-47-6		
Toluene-d8 (S)	96	%		05/27/05 07:33	BCK	2037-26-5		
4-Bromofluorobenzene (S)	100	%		05/27/05 07:33	BCK	460-00-4		
Dibromofluoromethane (S)	94	%		05/27/05 07:33	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	87	%		05/27/05 07:33	BCK	17060-07-0		

Date: 06/08/05

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

Lab Sample No: 925669798      Project Sample Number: 9295080-005      Date Collected: 05/23/05 10:50  
Client Sample ID: 10TMW13      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 03:22	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	2.2	mg/l	0.50	05/25/05 03:10	BMF		1	

48 Hour NO3 / NO2 / NOX	Method: EPA 353.2							
Nitrate as N	0.10	mg/l	0.10	05/24/05 22:38	JDA1			

Oxygen, Dissolved	Method: EPA 360.1							
Oxygen, Dissolved	8.6	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.	05/31/05 23:13	BET	83-32-9		
Acenaphthylene	ND	ug/l	11.	05/31/05 23:13	BET	208-96-8		
Anthracene	ND	ug/l	11.	05/31/05 23:13	BET	120-12-7		
Benzo (a) anthracene	ND	ug/l	11.	05/31/05 23:13	BET	56-55-3		
Benzo (a) pyrene	ND	ug/l	11.	05/31/05 23:13	BET	50-32-8		
Benzo (b) fluoranthene	ND	ug/l	11.	05/31/05 23:13	BET	205-99-2		
Benzo (g,h,i) perylene	ND	ug/l	11.	05/31/05 23:13	BET	191-24-2		
Benzo (k) fluoranthene	ND	ug/l	11.	05/31/05 23:13	BET	207-08-9		
Chrysene	ND	ug/l	11.	05/31/05 23:13	BET	218-01-9		
Dibenz (a,h) anthracene	ND	ug/l	11.	05/31/05 23:13	BET	53-70-3		
Fluoranthene	ND	ug/l	11.	05/31/05 23:13	BET	206-44-0		
Fluorene	ND	ug/l	11.	05/31/05 23:13	BET	86-73-7		
Indeno (1,2,3-cd) pyrene	ND	ug/l	11.	05/31/05 23:13	BET	193-39-5		
Naphthalene	ND	ug/l	11.	05/31/05 23:13	BET	91-20-3		
Phenanthrene	ND	ug/l	11.	05/31/05 23:13	BET	85-01-8		
Pyrene	ND	ug/l	11.	05/31/05 23:13	BET	129-00-0		
Nitrobenzene-d5 (S)	65	%		05/31/05 23:13	BET	4165-60-0		
2-Fluorobiphenyl (S)	38	%		05/31/05 23:13	BET	321-60-8		
Terphenyl-d14 (S)	37	%		05/31/05 23:13	BET	1718-51-0		
Date Extracted	05/31/05			05/31/05				

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 Kinney 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: Loral Bay/05-504

Lab Sample No: 925669798      Project Sample Number: 9295080-005      Date Collected: 05/23/05 10:50  
Client Sample ID: 10TMW13      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 15:58	JEM	106-93-4		
1,2-Dibromo-3-chloropropane	ND	ug/l	0.050	05/27/05 15:58	JEM	96-12-8		
1,2,3-Trichloropropane	ND	ug/l	0.050	05/27/05 15:58	JEM	96-18-4		
1-Chloro-2-bromopropane (S)	116	%		05/27/05 15:58	JEM	301-79-56		

**GC/MS Volatiles**

GC/MS VOCs by 8260, low level		Method: EPA 8260						
Benzene	ND	ug/l	1.0	05/28/05 23:16	MSF	71-43-2		
Ethylbenzene	ND	ug/l	1.0	05/28/05 23:16	MSF	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	1.0	05/28/05 23:16	MSF	1634-04-4		
Naphthalene	ND	ug/l	1.0	05/28/05 23:16	MSF	91-20-3		
Toluene	ND	ug/l	1.0	05/28/05 23:16	MSF	108-88-3		
m&p-Xylene	ND	ug/l	2.0	05/28/05 23:16	MSF			
o-Xylene	ND	ug/l	1.0	05/28/05 23:16	MSF	95-47-6		
Toluene-d8 (S)	99	%		05/28/05 23:16	MSF	2037-26-5		
4-Bromofluorobenzene (S)	91	%		05/28/05 23:16	MSF	460-00-4		
Dibromofluoromethane (S)	105	%		05/28/05 23:16	MSF	1868-53-7		
1,2-Dichloroethane-d4 (S)	104	%		05/28/05 23:16	MSF	17060-07-0		

Date: 06/13/05

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NC Drinking Water 37712  
SC Environmental 99030  
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NC Drinking Water 37706  
SC 99006  
FL NELAP E87627

## **Appendix E**

### **Regulatory Correspondence**

BOARD:  
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Secretary



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L. Michael Blackmon  
  
Coleman F. Buckhouse, MD

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 # 8  
**Site ID # 02771**  
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 # 8 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 # 8.

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 Daniels – BLWM  
Commander NAVFACENGCOM Southern Division, Attn: Code ES24 (Gabriel Magwood), P.O. Box 190010, North Charleston, SC 29419-9010  
Technical File

BOARD:  
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C. Earl Hunter, Commissioner

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

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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 NAVFACENGCOM Southern Division, Attn: Code ES24 (Gabriel Magwood), P.O. Box 190010, North  
Charleston, SC 29419-9010  
Technical File