SUMMARY REPORT
41 BOBWHITE DRIVE (FORMERLY 1002 BOBWHITE DRIVE)
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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Prepared by:

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

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

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List of Acronyms

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

1.0 INTRODUCTION

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

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

This report summarizes the results the environmental investigation activities associated with the storage of home heating oil and the potential release of petroleum constituents at the referenced property. Based on the results of the investigation, a No Further Action (NFA) determination has been made by the South Carolina Department of Health and Environmental Control (SCDHEC) for 41 Bobwhite Drive (Formerly 1002 Bobwhite Drive). 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.

1.2 UST Removal and Assessment Process

During the UST removal process, a soil sample was collected from beneath 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 hydrocarbon (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.

The results of the soil sampling at each former UST location were used to determine if a potential for groundwater contamination exists (i.e., soil results greater than RBSLs) and subsequently to select properties for follow-up initial groundwater assessment (IGWA) sampling. The results of the 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. A multi-media investigation selection process tree, applicable to the LBMH UST investigations, is presented as Appendix A.

2.0 SAMPLING ACTIVITIES AND RESULTS

The following section presents the sampling activities and associated results for 41 Bobwhite Drive (Formerly 1002 Bobwhite Drive). Details regarding the soil investigation at this site are provided in the *SCDHEC UST Assessment Report – 1002 Bobwhite Drive* (MCAS Beaufort, 2007). The UST Assessment Report is provided in Appendix B. Details regarding the IGWA sampling activities at this site are provided in the *Investigation of Ground Water at Leaking Heating Oil UST Sites Report* (Resolution Consultants, 2008). The laboratory report that includes the pertinent IGWA analytical results for this site is presented in Appendix C.

2.1 UST Removal and Soil Sampling

On April 11, 2006, a single 280 gallon heating oil UST was removed from the front of the house at 41 Bobwhite Drive (Formerly 1002 Bobwhite Drive). The former UST location is indicated in the figure of the UST Assessment Report (Appendix B). The UST was removed, cleaned, and shipped offsite for recycling. There was no visual evidence (i.e., staining or sheen) of

petroleum impact at the time of the UST removal. According to the UST Assessment Report (Appendix B), the depth to the base of the UST was 7' bgs and a single soil sample was collected from that depth. The sample was collected from the fill port side of the former UST to represent a worst case scenario.

Following UST removal, a soil sample was collected from the base of the excavation 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 Soil Analytical Results

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

The soil sample results were submitted by MCAS Beaufort to SCDHEC utilizing SCDHEC's UST Assessment Report form (Appendix B). The results of the soil 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 results collected from 41 Bobwhite Drive (Formerly 1002 Bobwhite Drive) were greater than the SCDHEC RBSLs, which indicated further investigation was required. In a letter dated November 2, 2007, SCDHEC requested an IGWA for 41 Bobwhite Drive (Formerly 1002 Bobwhite Drive) to determine if the groundwater was impacted by petroleum COPCs. SCDHEC's request letter is provided in Appendix D.

2.3 Groundwater Sampling

On July 28, 2008, a temporary monitoring well was installed at 41 Bobwhite Drive (Formerly 1002 Bobwhite Drive), in accordance with the South Carolina Well Standards and Regulations (R.61-71.H-I, updated June 24, 2016). In order to provide data that can be used to determine whether COPCs are migrating to underlying groundwater, the monitoring well was placed in the same general location as the former heating oil UST. The former UST location is indicated in the figure of the UST Assessment Report (Appendix B). Further details are provided in the *Investigation of Ground Water at Leaking Heating Oil UST Sites Report* (Resolution Consultants, 2008).

The sampling strategy for this phase of the investigation required a one-time sampling event of the temporarily installed monitoring well. Following well installation and development, groundwater samples were collected using low-flow methods and shipped to an offsite laboratory for analysis of the petroleum COPCs. Upon completion of groundwater sampling, the temporary well was abandoned in accordance with the South Carolina Well Standards and Regulations R.61-71 (SCDHEC, 2016). Field forms are provided in the *Investigation of Ground Water at Leaking Heating Oil UST Sites Report* (Resolution Consultants, 2008).

2.4 Groundwater Analytical Results

A summary of the laboratory analytical results and SCDHEC RBSLs is presented in Table 2. A copy of the laboratory analytical data report is included in Appendix C.

The groundwater results collected from 41 Bobwhite Drive (Formerly 1002 Bobwhite Drive) were less than the SCDHEC RBSLs and the site specific groundwater VISLs (Table 2), 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, SCDHEC made the determination that NFA was required for 41 Bobwhite Drive (Formerly 1002 Bobwhite Drive). This NFA determination was obtained in a letter dated November 25, 2008. SCDHEC's NFA letter is provided in Appendix D.

4.0 REFERENCES

Marine Corps Air Station Beaufort, 2007. *South Carolina Department of Health and Environmental Control (SCDHEC) Underground Storage Tank Assessment Report – 1002 Bobwhite Drive, Laurel Bay Military Housing Area*, August 2007.

Resolution Consultants, 2008. *Investigation of Ground Water at Leaking Heating Oil UST Sites Report for Laurel Bay Military Housing Area, Multiple Properties, Laurel Bay Military Housing Area, Marine Corps Air Station Beaufort, Beaufort, South Carolina*, November 2008.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
41 Bobwhite Drive (Formerly 1002 Bobwhite Drive)
Laurel Bay Military Housing Area
Marine Corps Air Station Beaufort
Beaufort, South Carolina

Constituent	SCDHEC RBSLs [(1)]	Results Sample Collected 04/11/06
Volatile Organic Compounds Analyzed by EPA Method 8260B (mg/kg)		
Benzene	0.003	ND
Ethylbenzene	1.15	ND
Naphthalene	0.036	ND
Toluene	0.627	ND
Xylenes, Total	13.01	ND
Semivolatile Organic Compounds Analyzed by EPA Method 8270D (mg/kg)		
Benzo(a)anthracene	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Chrysene	0.66	ND
Dibenz(a,h)anthracene	0.66	ND

Notes:

[(1)] South Carolina Risk-Based Screening Levels from the Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 1.0 and 1.1 (SCDHEC, May 2001 and SCDHEC, February 2011) and the Underground Storage Tank Assessment Guidelines (SCDHEC, February 2006).

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
41 Bobwhite Drive (Formerly 1002 Bobwhite Drive)
Laurel Bay Military Housing Area
Marine Corps Air Station Beaufort
Beaufort, South Carolina

Constituent	SCDHEC RBSLs [1]	Site-Specific Groundwater VISLs (µg/L)[2]	Results Sample Collected 07/28/08
Volatile Organic Compounds Analyzed by EPA Method 8260B (µg/L)			
Benzene	5	16.24	ND
Ethylbenzene	700	45.95	ND
Naphthalene	25	29.33	ND
Toluene	1000	105,445	ND
Xylenes, Total	10,000	2,133	ND
Semivolatile Organic Compounds Analyzed by EPA Method 8270D (µg/L)			
Benzo(a)anthracene	10	NA	ND
Benzo(b)fluoranthene	10	NA	ND
Benzo(k)fluoranthene	10	NA	ND
Chrysene	10	NA	ND
Dibenz(a,h)anthracene	10	NA	ND

Notes:

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

[2] 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 $1x10^{-6}$, 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 C.

RBSL - Risk-Based Screening Level

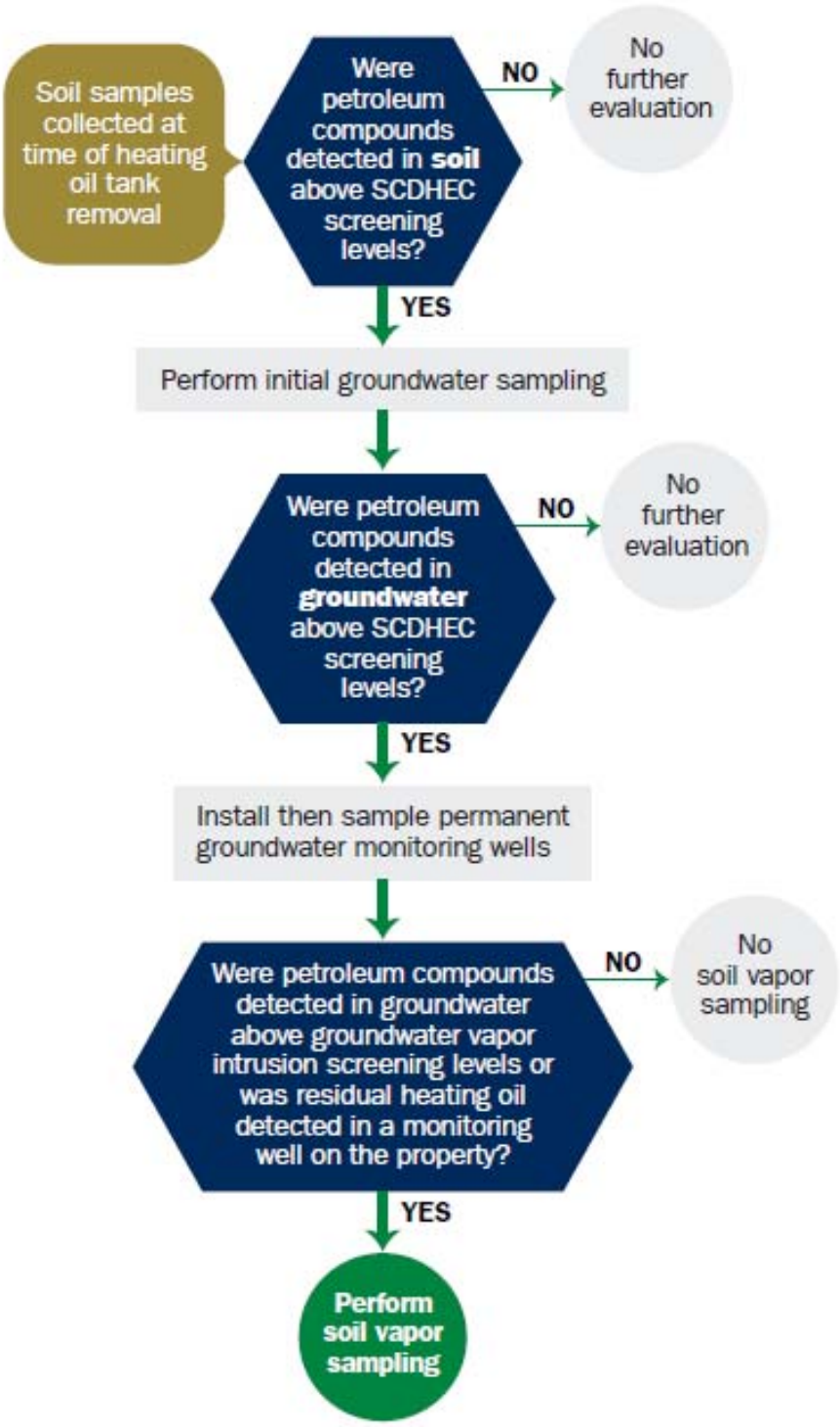
SCDHEC - South Carolina Department Of Health and Environmental Control

µg/L - micrograms per liter

VISL - Vapor Intrusion Screening Level

Appendix A
Multi-Media Selection Process for LBMH

CDM - AECOM
Multimedia Joint Venture



Appendix A - Multi-Media Selection Process for LBMH

Appendix B
UST Assessment Report

CDM - AECOM
Multimedia Joint Venture

1002 DoG White

Attachment 1
South Carolina Department of Health and Environmental Control (SCDHEC)
Underground Storage Tank (UST) Assessment Report

Date Received	State Use Only

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

RECEIVED
AUG 15 2007
Water Monitoring, Assessment & Protection Division

I. OWNERSHIP OF UST (S)

Beaufort Military Complex Family Housing
Owner Name (Corporation, Individual, Public Agency, Other)

1510 Laurel Bay Blvd.
Mailing Address

Beaufort	SC	29906
City	State	Zip Code

843	379-3305	Kyle Broadfoot
Area Code	Telephone Number	Contact Person

II. SITE IDENTIFICATION AND LOCATION

N/A
Permit I.D. #

Actus Lend Lease Construction
Facility Name or Company Site Identifier

1510 Laurel Bay Blvd.
Street Address or State Road (as applicable)

Beaufort, SC	29906	Beaufort
City	ZIP	County

Attachment 2

III. INSURANCE INFORMATION

Insurance Statement

The petroleum release reported to DHEC on N/A at Permit ID # may qualify to receive state monies to pay for appropriate site rehabilitation activities. Before participation is allowed in the State Clean-up fund, written confirmation of the existence or non-existence of an environmental insurance policy is required. **This section must be completed.**

Is there now, or has there ever been an insurance policy or other financial mechanism that covers this UST release? **YES**____ **NO**_____ (check one)

If you answered **YES** to the above question, please complete the following information:

My policy provider is:_____
The policy deductible is: _____
The policy limit is: _____

If you have this type of insurance, please include a copy of the policy with this report.

And

I **do/do not** (circle one) wish to participate in the Superb Program.

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.

_____
Name (Type or print.)

_____
Signature

To be completed by Notary Public:

Sworn before me this _____ day of_____, 20___.

_____
(Name)

Notary Public for the state of_____.
Please affix State seal if you are commissioned outside South Carolina

V. UST INFORMATION

	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6
A. Product...(ex. Gas, Kerosene).....	#2 DIESEL					
B. Capacity..(ex. 1k, 2k)..... (APPROX)	350g.					
C. Age.....						
D. Construction Material..(ex. Steel, FRP).....	steel					
E. Month/Year of Last Use.....						
F. Depth (ft.) To Base of Tank.....						
G. Spill Prevention Equipment Y/N.....	N					
H. Overfill Prevention Equipment Y/N.....	N					
I. Method of Closure (Removed)/Filled.....	Removed					
J. Date Tanks Removed/Filled.....	4/11/01					
K. Visible Corrosion or Pitting Y/N.....	✓					
L. Visible Holes Y/N.....	✓					

M. Method of disposal for any USTs removed from the ground (attach disposal manifests)

Recycling - Scrap Steel

N. Method of disposal for any liquid petroleum, sludges, or wastewaters removed from the USTs (attach disposal manifests)

O. If any corrosion, pitting, or holes were observed, describe the location and extent for each UST

VI. PIPING INFORMATION

	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6
A. Construction Material..(ex. Steel, FRP).....	Steel					
B. Distance from UST to Dispenser.....	N/A					
C. Number of Dispensers.....	-0-					
D. Type of System Pressure or Suction.....	Electric Pump					
E. Was Piping Removed from the Ground? Y/N	N					
F. Visible Corrosion or Pitting Y/N.....	N					
G. Visible Holes Y/N.....						
H. Age.....						

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

VII. BRIEF SITE DESCRIPTION AND HISTORY

Home Heating Oil Tank - Residential

VIII. SITE CONDITIONS

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

IX. SAMPLE INFORMATION

A. SCDHEC Lab Certification Number DW: 84009002

B.

Sample #	Location	Sample Type (Soil/Water)	Soil Type (Sand/Clay)	Depth*	Date/Time of Collection	Collected by	OVA #
1		S				A. MANUCY	ND
2		S				A. MANUCY	ND
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

* = Depth Below the Surrounding Land Surface

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.

EPA Method 8260 B Volatile Organic Compounds
- Preservative: 2 ea Sodium Bisulfate 1 ea
EPA Method 8270 Poly Aromatic Hydrocarbons
- No Preservative

One (1) Sidewall And One (1) Bottom Sample were secured from tank excavation Samples were stored and shipped in an insulated cooler w/ ice.

XI. RECEPTORS

	Yes	No
A. Are there any lakes, ponds, streams, or wetlands located within 1000 feet of the UST system? If yes, indicate type of receptor, distance, and direction on site map.		
B. Are there any public, private, or irrigation water supply wells within 1000 feet of the UST system? If yes, indicate type of well, distance, and direction on site map.		✓
C. Are there any underground structures (e.g., basements) Located within 100 feet of the UST system? If yes, indicate type of structure, distance, and direction on site map.		✓
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? If yes, indicate the type of utility, distance, and direction on the site map.		✓
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? If yes, indicate the area of contaminated soil on the site map.		✓

SUMMARY OF ANALYSIS RESULTS N/A

Enter the soil analytical data for each soil boring for all COC in the table below and on the following page.

CoC	SB-1	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8
Benzene								
Toluene								
Ethylbenzene								
Xylenes								
Naphthalene								
Benzo(a)anthracene								
Benzo(b)flouranthene								
Benzo(k)flouranthene								
Chrysene								
Dibenz(a,h)anthracene								
TPH (EPA 3550)								

CoC	SB-9	SB-10	SB-11	SB-12	SB-13	SB-14	SB-15	SB-16
Benzene								
Toluene								
Ethylbenzene								
Xylenes								
Naphthalene								
Benzo(a)anthracene								
Benzo(b)flouranthene								
Benzo(k)flouranthene								
Chrysene								
Dibenz(a,h)anthracene								
TPH (EPA 3550)								

SUMMARY OF ANALYSIS RESULTS (cont'd) N/A

Enter the ground water analytical data for each sample for all CoC in the table below. If free product is present, indicate the measured thickness to the nearest 0.01 feet.

CoC	RBSL (µg/l)	W-1	W-2	W -3	W -4
Free Product Thickness	None				
Benzene	5				
Toluene	1,000				
Ethylbenzene	700				
Xylenes	10,000				
Total BTEX	N/A				
MTBE	40				
Naphthalene	25				
Benzo(a)anthracene	10				
Benzo(b)flouranthene	10				
Benzo(k)flouranthene	10				
Chrysene	10				
Dibenz(a,h)anthracene	10				
EDB	.05				
1,2-DCA	.05				
Lead	Site specific				

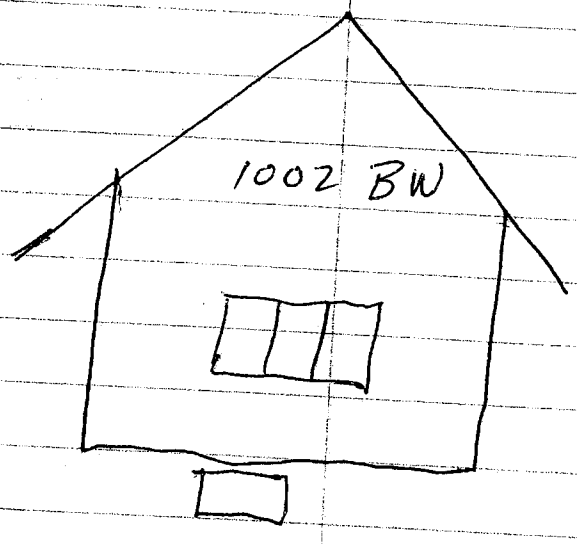
ANALYTICAL RESULTS

You must submit the laboratory report and chain-of-custody form for the samples. These samples must be analyzed by a South Carolina certified laboratory.

(Attach Certified Analytical Results and Chain-of-Custody Here)
(Please see Form #4)

1002 BoBwhite

WALL TO CENTER of TANK 4'
End of WALL TO CENTER 15'
SIZE of hole 6' X 10'
dEPTh of SAMPLE 7'



TestAmerica
ANALYTICAL TESTING CORPORATION
4310 East Anderson Road Orlando, FL 32812 * 800-851-2560 * Fax 407-856-0886

Client: EPG
PO BOX 1096
MT PLEASANT, SC 29465
Attn: JOHN MAHONEY

Work Order: OPD0249
Project: LAUREL BAY
Project Number: [none]

Sampled: 04/11/06
Received: 04/18/06

LABORATORY REPORT

Sample ID: 1002 BW - Lab Number: OPD0249-01 - Matrix: Solid/Soil

CAS #	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
General Chemistry Parameters											
NA	**% Solids**	**89.6**	Q	%.	0.100	0.100	1	04/21/06 17:30	MLM	EPA 160.3	6D24017
Volatile Organic Compounds by EPA Method 8260B											
71-43-2	Benzene	2.54	U	ug/kg dry	2.54	5.83	1	04/19/06 12:25	JLS	EPA 8260B	6D20038
100-41-4	Ethylbenzene	2.65	U	ug/kg dry	2.65	5.83	1	04/19/06 12:25	JLS	EPA 8260B	6D20038
91-20-3	Naphthalene	2.43	U	ug/kg dry	2.43	5.83	1	04/19/06 12:25	JLS	EPA 8260B	6D20038
108-88-3	Toluene	2.72	U	ug/kg dry	2.72	5.83	1	04/19/06 12:25	JLS	EPA 8260B	6D20038
1330-20-7	Xylenes, total	5.40	U	ug/kg dry	5.40	5.83	1	04/19/06 12:25	JLS	EPA 8260B	6D20038
Surrogate: 1,2-Dichloroethane-d4 (71-140%)		*109 %*									
Surrogate: 4-Bromofluorobenzene (69-116%)		*79 %*									
Surrogate: Dibromofluoromethane (90-116%)		*103 %*									
Surrogate: Toluene-d8 (80-117%)		*88 %*									
Polynuclear Aromatic Hydrocarbons by EPA Method 8270											
83-32-9	Acenaphthene	82.6	J4,U	ug/kg dry	82.6	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
208-96-8	Acenaphthylene	109	U	ug/kg dry	109	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
120-12-7	Anthracene	59.4	U	ug/kg dry	59.4	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
56-55-3	Benzo (a) anthracene	20.2	U	ug/kg dry	20.2	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
205-99-2	Benzo (b) fluoranthene	19.6	J4,U	ug/kg dry	19.6	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
207-08-9	Benzo (k) fluoranthene	19.6	J4,U	ug/kg dry	19.6	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
191-24-2	Benzo (g,h,i) perylene	19.3	U	ug/kg dry	19.3	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
50-32-8	Benzo (a) pyrene	22.9	U	ug/kg dry	22.9	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
90-12-0	**1-Methylnaphthalene**	**2270**	J4	ug/kg dry	93.6	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
218-01-9	Chrysene	22.3	U	ug/kg dry	22.3	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
53-70-3	Dibenz (a,h) anthracene	24.5	U	ug/kg dry	24.5	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
206-44-0	Fluoranthene	26.8	U	ug/kg dry	26.8	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
86-73-7	Fluorene	72.9	U	ug/kg dry	72.9	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
193-39-5	Indeno (1,2,3-cd) pyrene	24.1	U	ug/kg dry	24.1	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
91-57-6	**2-Methylnaphthalene**	**2890**	J4	ug/kg dry	79.5	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
91-20-3	**Naphthalene**	**3210**	J4	ug/kg dry	74.8	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
85-01-8	Phenanthrene	44.0	J4,U	ug/kg dry	44.0	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
129-00-0	Pyrene	37.9	U	ug/kg dry	37.9	186	1	04/20/06 22:34	LCS	EPA 8270C	6D20028
Surrogate: 2,4,6-Tribromophenol (10-147%)		*	J1, U								
Surrogate: 2-Fluorobiphenyl (26-138%)		*	J1, U								
Surrogate: 2-Fluorophenol (25-129%)		*62 %*									
Surrogate: Nitrobenzene-d5 (26-136%)		*63 %*									
Surrogate: Phenol-d5 (10-94%)		*68 %*									
Surrogate: Terphenyl-d14 (46-158%)		*23 %*	J1								

ANALYTICAL TESTING CORPORATION
4310 East Anderson Road Orlando, FL 32812 * 800-851-2560 * Fax 407-856-0886

Client: EPG
PO BOX 1096
MT PLEASANT, SC 29465
Attn: JOHN MAHONEY

Work Order: OPD0249
Project: LAUREL BAY
Project Number: [none]

Sampled: 04/11/06
Received: 04/18/06

SAMPLE EXTRACTION DATA

Parameter	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Method
Polynuclear Aromatic Hydrocarbons by EPA Method 8270	OPD0249-01	30.0 g	1.0 mL	04/20/2006	CBS	EPA 3545 MS

TestAmerica Analytical - Orlando
Shali Brown
Project Manager

DPD0249

TestAmerica
ANALYTICAL TESTING CORPORATION

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: EPG Client #: 2411
Address: P.O. Box 1096
City/State/Zip Code: Mt. Pleasant, SC 29465
Project Manager: John Mahoney
Telephone Number: 843.881.0407 Fax: 843.881.7766
Sampler Name: (Print Name) Al Marney
Sampler Signature: _____

Project Name: Ouimette
Project #: _____
Site/Location ID: _____ State: _____
Report To: _____
Invoice To: _____
Quote #: _____ PO#: _____

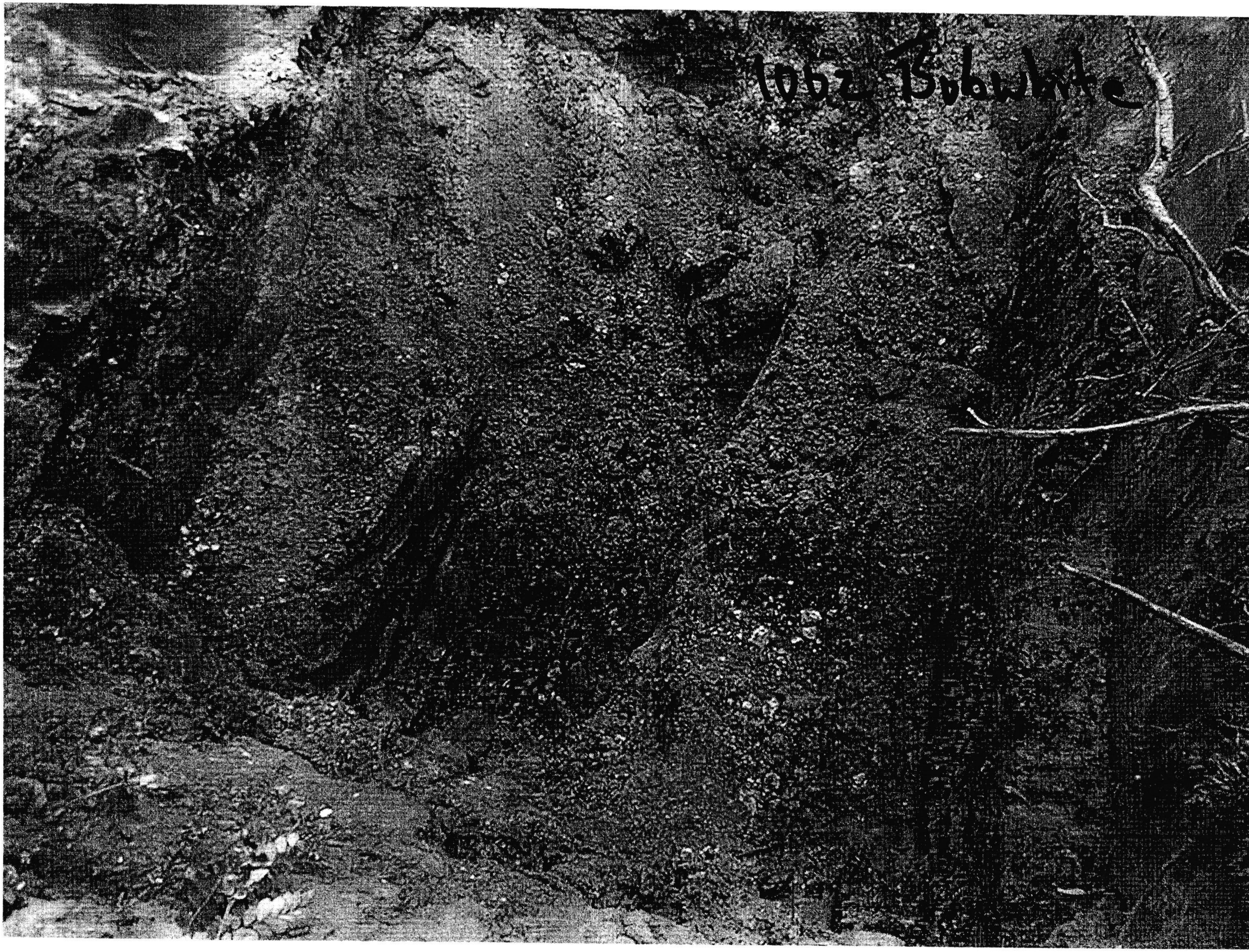
TAT: X Standard; ___ Rush (surcharges may apply)
Date Needed: _____
Fax Results: Y N

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) Na_2SO_4	Analyze For: BTEX + Naph	PAH	QC Deliverables: None / X Level 2 (Batch QC) / Level 3 / Level 4 / Other: _____	REMARKS
1002 BW	4.11	10:17	G							1	2	2	X	X		01

Special Instructions:

LABORATORY COMMENTS:
Init Lab Temp: 5.2
Rec Lab Temp:
Custody Seals: Y N N/A
Bottles Supplied by Test America: Y N
8569 3464 47
Method of Shipment: FedEx to TA-Nashville Orlando

	Date	Time		Date	Time
Relinquished By: A Marney	4.14.06	12:01	Received By:	4.14.06	1201
Relinquished By:	4.14.06	1730	Received By:	4-18	9:45
Relinquished By:	Date:	Time:	Received By:	Date:	Time:


1062 Bobwhite

Appendix C
Laboratory Analytical Report - Groundwater

CDM - AECOM
Multimedia Joint Venture

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: LAUREL BAY SAMPLING 7/28/08
Pace Project No.: 9224472

Sample: 1019 FOX GLOVE A **Lab ID: 9224472017** Collected: 07/28/08 12:25 Received: 07/30/08 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM SPE	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3535							
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.21	1	08/03/08 00:00	08/12/08 15:35	193-39-5	
1-Methylnaphthalene	ND	ug/L	2.1	1	08/03/08 00:00	08/12/08 15:35	90-12-0	
2-Methylnaphthalene	ND	ug/L	2.1	1	08/03/08 00:00	08/12/08 15:35	91-57-6	
Naphthalene	ND	ug/L	1.6	1	08/03/08 00:00	08/12/08 15:35	91-20-3	
Phenanthrene	ND	ug/L	0.21	1	08/03/08 00:00	08/12/08 15:35	85-01-8	
Pyrene	ND	ug/L	0.10	1	08/03/08 00:00	08/12/08 15:35	129-00-0	
Nitrobenzene-d5 (S)	55	%	50-150	1	08/03/08 00:00	08/12/08 15:35	4165-60-0	
2-Fluorobiphenyl (S)	72	%	50-150	1	08/03/08 00:00	08/12/08 15:35	321-60-8	
Terphenyl-d14 (S)	66	%	50-150	1	08/03/08 00:00	08/12/08 15:35	1718-51-0	
8260 MSV Low Level	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		08/02/08 00:05	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		08/02/08 00:05	100-41-4	
Naphthalene	ND	ug/L	1.0	1		08/02/08 00:05	91-20-3	
Toluene	ND	ug/L	1.0	1		08/02/08 00:05	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		08/02/08 00:05	1330-20-7	
o-Xylene	ND	ug/L	1.0	1		08/02/08 00:05	95-47-6	
4-Bromofluorobenzene (S)	97	%	87-109	1		08/02/08 00:05	460-00-4	
Dibromofluoromethane (S)	96	%	85-115	1		08/02/08 00:05	1868-53-7	
1,2-Dichloroethane-d4 (S)	99	%	79-120	1		08/02/08 00:05	17060-07-0	
Toluene-d8 (S)	99	%	70-120	1		08/02/08 00:05	2037-26-5	

Sample: 1002 BOBWHITE A **Lab ID: 9224472018** Collected: 07/28/08 14:00 Received: 07/30/08 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM SPE	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3535							
Acenaphthene	ND	ug/L	2.0	1	08/03/08 00:00	08/12/08 15:59	83-32-9	
Acenaphthylene	ND	ug/L	1.5	1	08/03/08 00:00	08/12/08 15:59	208-96-8	
Anthracene	ND	ug/L	0.050	1	08/03/08 00:00	08/12/08 15:59	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.10	1	08/03/08 00:00	08/12/08 15:59	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.20	1	08/03/08 00:00	08/12/08 15:59	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.30	1	08/03/08 00:00	08/12/08 15:59	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.20	1	08/03/08 00:00	08/12/08 15:59	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.20	1	08/03/08 00:00	08/12/08 15:59	207-08-9	
Chrysene	ND	ug/L	0.10	1	08/03/08 00:00	08/12/08 15:59	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.20	1	08/03/08 00:00	08/12/08 15:59	53-70-3	
Fluoranthene	ND	ug/L	0.30	1	08/03/08 00:00	08/12/08 15:59	206-44-0	
Fluorene	ND	ug/L	0.31	1	08/03/08 00:00	08/12/08 15:59	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.20	1	08/03/08 00:00	08/12/08 15:59	193-39-5	
1-Methylnaphthalene	ND	ug/L	2.0	1	08/03/08 00:00	08/12/08 15:59	90-12-0	
2-Methylnaphthalene	ND	ug/L	2.0	1	08/03/08 00:00	08/12/08 15:59	91-57-6	
Naphthalene	ND	ug/L	1.5	1	08/03/08 00:00	08/12/08 15:59	91-20-3	
Phenanthrene	ND	ug/L	0.20	1	08/03/08 00:00	08/12/08 15:59	85-01-8	
Pyrene	ND	ug/L	0.10	1	08/03/08 00:00	08/12/08 15:59	129-00-0	

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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: LAUREL BAY SAMPLING 7/28/08
Pace Project No.: 9224472

Sample: 1002 BOBWHITE A **Lab ID: 9224472018** Collected: 07/28/08 14:00 Received: 07/30/08 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM SPE	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3535							
Nitrobenzene-d5 (S)	52	%	50-150	1	08/03/08 00:00	08/12/08 15:59	4165-60-0	
2-Fluorobiphenyl (S)	50	%	50-150	1	08/03/08 00:00	08/12/08 15:59	321-60-8	
Terphenyl-d14 (S)	53	%	50-150	1	08/03/08 00:00	08/12/08 15:59	1718-51-0	
8260 MSV Low Level	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		08/02/08 00:29	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		08/02/08 00:29	100-41-4	
Naphthalene	ND	ug/L	1.0	1		08/02/08 00:29	91-20-3	
Toluene	ND	ug/L	1.0	1		08/02/08 00:29	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		08/02/08 00:29	1330-20-7	
o-Xylene	ND	ug/L	1.0	1		08/02/08 00:29	95-47-6	
4-Bromofluorobenzene (S)	96	%	87-109	1		08/02/08 00:29	460-00-4	
Dibromofluoromethane (S)	97	%	85-115	1		08/02/08 00:29	1868-53-7	
1,2-Dichloroethane-d4 (S)	99	%	79-120	1		08/02/08 00:29	17060-07-0	
Toluene-d8 (S)	98	%	70-120	1		08/02/08 00:29	2037-26-5	

Sample: 1100 IRIS A **Lab ID: 9224472019** Collected: 07/28/08 15:00 Received: 07/30/08 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM SPE	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3535							
Acenaphthene	ND	ug/L	2.0	1	08/03/08 00:00	08/12/08 16:23	83-32-9	
Acenaphthylene	ND	ug/L	1.5	1	08/03/08 00:00	08/12/08 16:23	208-96-8	
Anthracene	**0.72**	ug/L	0.050	1	08/03/08 00:00	08/12/08 16:23	120-12-7	
Benzo(a)anthracene	**0.49**	ug/L	0.10	1	08/03/08 00:00	08/12/08 16:23	56-55-3	
Benzo(a)pyrene	**0.74**	ug/L	0.20	1	08/03/08 00:00	08/12/08 16:23	50-32-8	
Benzo(b)fluoranthene	**0.78**	ug/L	0.30	1	08/03/08 00:00	08/12/08 16:23	205-99-2	
Benzo(g,h,i)perylene	**0.56**	ug/L	0.20	1	08/03/08 00:00	08/12/08 16:23	191-24-2	
Benzo(k)fluoranthene	**0.77**	ug/L	0.20	1	08/03/08 00:00	08/12/08 16:23	207-08-9	
Chrysene	**0.49**	ug/L	0.10	1	08/03/08 00:00	08/12/08 16:23	218-01-9	
Dibenz(a,h)anthracene	**0.69**	ug/L	0.20	1	08/03/08 00:00	08/12/08 16:23	53-70-3	
Fluoranthene	**0.53**	ug/L	0.30	1	08/03/08 00:00	08/12/08 16:23	206-44-0	
Fluorene	**0.72**	ug/L	0.31	1	08/03/08 00:00	08/12/08 16:23	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.66**	ug/L	0.20	1	08/03/08 00:00	08/12/08 16:23	193-39-5	
1-Methylnaphthalene	ND	ug/L	2.0	1	08/03/08 00:00	08/12/08 16:23	90-12-0	
2-Methylnaphthalene	ND	ug/L	2.0	1	08/03/08 00:00	08/12/08 16:23	91-57-6	
Naphthalene	ND	ug/L	1.5	1	08/03/08 00:00	08/12/08 16:23	91-20-3	
Phenanthrene	**0.92**	ug/L	0.20	1	08/03/08 00:00	08/12/08 16:23	85-01-8	
Pyrene	**0.37**	ug/L	0.10	1	08/03/08 00:00	08/12/08 16:23	129-00-0	
Nitrobenzene-d5 (S)	50	%	50-150	1	08/03/08 00:00	08/12/08 16:23	4165-60-0	
2-Fluorobiphenyl (S)	63	%	50-150	1	08/03/08 00:00	08/12/08 16:23	321-60-8	
Terphenyl-d14 (S)	66	%	50-150	1	08/03/08 00:00	08/12/08 16:23	1718-51-0	
8260 MSV Low Level	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		08/02/08 00:53	71-43-2	

Appendix D
Regulatory Correspondence

CDM - AECOM
Multimedia Joint Venture

D H E C

PROMOTE PROTECT PROSPER

2 November 2007

Beaufort Military Complex Family Housing
ATTN: Kyle Broadfoot
1510 Laurel Bay Blvd.
Beaufort, SC 29906

Re: MCAS – Laurel Bay Housing – 1002 Bob White
Site ID # 03743
UST Closure Reports received 15 August 2007
Beaufort County

Dear Mr. Broadfoot:

The purpose of this letter is to verify a release of fuel oil at the referenced residence. 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 removal and soil sampling. Based on the information contained in the closure report, a potential violation of the South Carolina Pollution Control Act has occurred in that there has been an unauthorized release of petroleum to the environment.

Additional assessment activities are required for this site. Specifically the Department requests that a groundwater sampling proposal be generated for this site.

Please submit a groundwater sampling proposal to conduct the necessary assessment and/or remedial measures at this site no later than 29 February 2007. Should you have any questions, please contact me at 803-898-3553 (office phone), 803-898-2893 (fax) or bishopma@dhec.sc.gov.

Sincerely,

Michael Bishop, Hydrogeologist
Groundwater Quality Section
Bureau of Water

cc: Region 8 District EQC
United States Marine Corps Air Station, Commanding Officer, Attention: S-4 NREAO (William Drawdy), P.O. Box 55001, Beaufort, SC 29904-5001
Technical File

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

25 November 2008

Commanding Officer
ATTN: S-4 NREAO (Craig Ehde)
MCAS
PO Box 55001
Beaufort, SC 29904-5001

Re: MCAS – Laurel Bay Housing – 1002 Bobwhite
Site ID # 03743
Groundwater Sampling Results received 6 November 2008
Beaufort County

Dear Mr. Ehde:

Per the Department's request, a groundwater sample was collected from the referenced site. The groundwater results were reported as non-detect. 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 803-896-4179 (office phone), 803-896-6245 (fax) or cookejt@dhec.sc.gov.

Sincerely,
AST Petroleum Restoration
& Site Environmental Investigations Section
Land Revitalization Division
Bureau of Land and Waste Management
SC Dept. of Health & Environmental Control

Jan T. Cooke, Hydrogeologist

B. Thomas Knight, Manager

cc: Region 8 District EQC
Tri-Command Communities; Attn: Mr. Robert Bible; 600 Laurel Bay Road Beaufort, SC 29906
Technical File