SUMMARY REPORT
114 GARDENIA DRIVE (FORMERLY 1056 GARDENIA 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 SUMMARY REPORT
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9324 Virginia Avenue Norfolk, Virginia 23511-3095

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** 

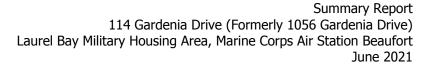


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## **List of Acronyms**

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 114 Gardenia Drive (Formerly 1056 Gardenia 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 114 Gardenia Drive (Formerly 1056 Gardenia Drive). Details regarding the soil investigation at this site are provided in the SCDHEC UST Assessment Report – 1056 Gardenia Drive (MCAS Beaufort, 2008). 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 July 27, 2007, two 280 gallon heating oil USTs were removed at 114 Gardenia Drive (Formerly 1056 Gardenia Drive). Tank 1 was removed from the north eastern portion of the front yard, adjacent to the house. Tank 2 was removed from the north western portion of the front yard area adjacent to Tank 1. The former UST locations are indicated in the figures of the



UST Assessment Report (Appendix B). The USTs were 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 depths to the bases of the USTs were 5'0" (Tank 1) and 4'4" (Tank 2) bgs and a single soil sample was collected for each at that depth. An additional soil sample was collected at the side of the excavation for each tank at a depth of 3'10" (Tank 1) and 3'4" (Tank 2) bgs. The samples were collected from the fill port side of the former USTs to represent a worst case scenario.

Following UST removal, a soil sample was collected from the base and side of each 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 locations (Tanks 1 and 2) 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 the former UST locations (Tanks 1 and 2) at 114 Gardenia Drive (Formerly 1056 Gardenia Drive) were greater than the SCDHEC RBSLs, which indicated further investigation was required. In a letter dated August 20, 2008, SCDHEC requested an IGWA be conducted at the former UST locations (Tanks 1 and 2) at 114 Gardenia Drive (Formerly 1056 Gardenia 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 29, 2008, a temporary monitoring well was installed at 114 Gardenia Drive (Formerly 1056 Gardenia 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 USTs (Tanks 1 and 2). The former UST locations are indicated in the figures 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 114 Gardenia Drive (Formerly 1056 Gardenia 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 USTs at concentrations that present a potential risk to human health and the environment.

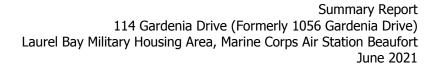
## 3.0 PROPERTY STATUS

Based on the analytical results for groundwater, SCDHEC made the determination that NFA was required for 114 Gardenia Drive (Formerly 1056 Gardenia Drive). This NFA determination was obtained in a letter dated December 17, 2008. SCDHEC's NFA letter is provided in Appendix D.

## 4.0 REFERENCES

Marine Corps Air Station Beaufort, 2008. South Carolina Department of Health and Environmental Control (SCDHEC) Underground Storage Tank Assessment Report – 1056 Gardenia Drive, Laurel Bay Military Housing Area, January 2008.

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 114 Gardenia Drive (Formerly 1056 Gardenia Drive) Laurel Bay Military Housing Area Marine Corps Air Station Beaufort Beaufort, South Carolina

	(1)		Results Samples Collected 07/27/07						
Constituent	SCDHEC RBSLs (1)	1056 Gardenia Bottom 01		1056 Gardenia Bottom 03	1056 Gardenia Side 04				
Volatile Organic Compounds Analyzed by EPA Method 8260B (mg/kg)									
Benzene	0.003	0.000317	ND	ND	ND				
Ethylbenzene	1.15	0.0241	0.00344	0.525	0.00146				
Naphthalene	0.036	0.766	0.0698	4.110	0.0149				
Toluene	0.627	0.000448	ND	ND	0.000226				
Xylenes, Total	13.01	0.00336	0.000786	0.634	0.00167				
Semivolatile Organic Compounds Ana	lyzed by EPA Method 8270D (mg/kg)								
Benzo(a)anthracene	0.66	0.471	0.0485	ND	ND				
Benzo(b)fluoranthene	0.66	0.499	ND	ND	ND				
Benzo(k)fluoranthene	0.66	0.239	ND	ND	ND				
Chrysene	0.66	0.546	0.0402	ND	ND				
Dibenz(a,h)anthracene	0.66	ND	ND	ND	ND				

#### **Notes:**

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

<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 and 1.1 (SCDHEC, May 2001 and SCDHEC, February 2011) and the Underground Storage Tank Assessment Guidelines (SCDHEC, February 2006).

#### Table 2

# Laboratory Analytical Results - Groundwater 114 Gardenia Drive (Formerly 1056 Gardenia Drive) Laurel Bay Military Housing Area Marine Corps Air Station Beaufort Beaufort, South Carolina

Constituent	SCDHEC RBSLs (1)	Site-Specific Groundwater VISLs (µg/L) <sup>(2)</sup>	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 Compound	s Analyzed by EPA Method 82	70D (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:

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

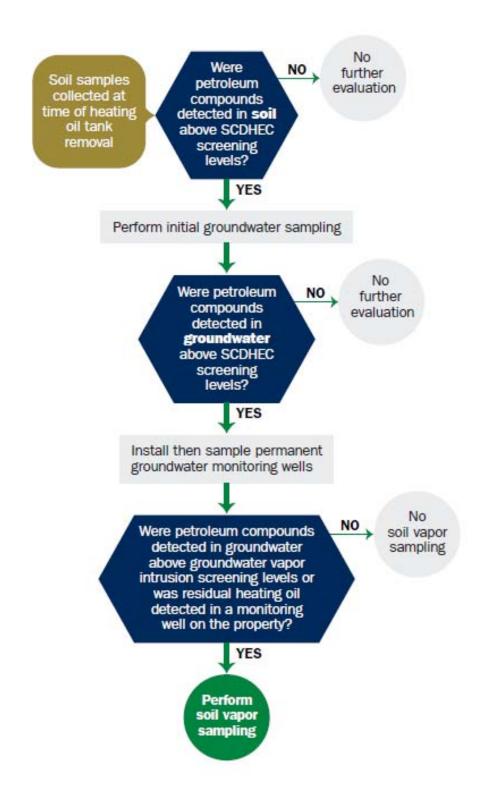
VISL - Vapor Intrusion Screening Level

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

<sup>&</sup>lt;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 1x10<sup>-6</sup>, 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.

## Appendix A Multi-Media Selection Process for LBMH





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

## Appendix B UST Assessment Report



## Attachment 1

## South Carolina Department of Health and Environmental Control (SCDHEC)

## Underground Storage Tank (UST) Assessment Report



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

I. OWNERSHIP OF UST (S)

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

1510 Lauret Bay Blyd.

Mailing Address

Beaufort SC 29906

City State Zip Code

843

Area Code Telephone Number Contact Person

II. SITE IDENTIFICATION AND LOCATION

| N/A |
| Permit I.D. # | Actus Lend Lense Construction
| Facility Name or Company Site Identifier |
| 1056 GARDENA |
| Street Address or State Road (as applicable) |
| Beanfort SC 29906 | Beanfort |
| City | ZIP | County

## III. INSURANCE INFORMATION

Insurance Statement
The petroleum release reported to DHEC on
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 JUTORMATION	·	<del></del>				<u> </u>
•		Tank 1	Tan.	Tank 3	Tank 4	Tank 5	Tank 6
· A.	Product(ex. Gas, Kerosene)	#Z DIESEL	SAME	٠.			
B.	Capacity(ex. 1k, 2k)(APPROX).	350g.	SAME				
C.	Age						
D.	Construction Material(ex. Steel, FRP)	Steel	SAME				
E.	Month/Year of Last Use						
F.	Depth (ft.) To Base of Tank	60"	52"				
G.	Spill Prevention Equipment Y/N	N	N			- +	
H.	Overfill Prevention Equipment Y/N	N	7				
I.	Method of Closure Removed Filled	Rejnoved					
J.	Date Tanks Removed/Filled		CHOVED	<del></del>			<del></del>
K.	Visible Corrosion or Pitting Y/N	7-27-07 7	-27-07			_	
L.	Visible Holes Y/N	N	У				
М.	Method of disposal for any USTs removed from the	e ground (atta	y ach dispo	sal mani	fests)		
	Recycling - Scamp Ste.	el	· · · · · · · · · · · · · · · · · · ·				
N.	Method of disposal for any liquid petroleum, sludge disposal manifests)	177	BROK	DHUR	est /	-AND	FIL
	Solidification	in to	SUBT	THE	PL	ANDI	FILL
O.	If any corrosion, pitting, or holes were observed, des	cribe the loc	ation and OPEN	extent for	or each U	IST MS	SANT

## VI. PIPI INFORMATION

•		Tank 1	Tank 2	Tank 3	Tank 4	Tank 5	Tank 6
	Construction Material(ex. Steel, FRP)	Steel	STEEL				
	Distance from UST to Dispenser	NIA	SIEEL				<u></u>
	Number of Dispensers	<u> </u>	NA				
	Type of System Pressure or Suction	-0-	0				
	Was Piping Removed from the Ground? Y/N	Electric	PUMP				
	Visible Corrosion or Pitting Y/N	N	y				
	Visible Holes Y/N	N	2				
	Age	,	. 7 .				
•	•	17	N				
					İ	İ	
	If any corrosion, pitting, or holes were observed, d  TANK Z had con  on the fill						
			•				
	VII. BRIEF SITE DESCRIPTION AND	) HISTO	RY				
	Home Heating Oil Tr	ÎNK -	Re	SIDE	NTIA	٤_	
	·		<del></del> -				<del></del>
							<del></del>
			···	•••			

## VIII. SITE CON\_\_ (IONS

	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.		メ	

## IX. SAM. \_E INFORMATION

SCDHEC Lab Certification Number DW: 8400900Z

В.

В.					· 		
Sample #	Location	Sample Type (Soil/Water)	Soil Type (Sand/Clay)	Depth*	Date/Time of Collection	Collected by	OVA#
					7-27-07	ECHEVARRY	
1	BOTTOM	5	SAND	60"	1200	AMANUS	ND
2	5012	5		46"	1200	RIMANOG	ND
3	BUTTOM	5		52"	1220		
4	21 <u>DE</u>	S	. 4	40"	1220		
5							
6							
7				!			
8							
9							
10 .							
11					·		
12							
13							
14							
15							
16		·					
17							
18							
19							
20							

<sup>\* =</sup> Depth Below the Surrounding Land Surface

## X.

## SAMPLING METHODOLOGY

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

EPA Method 8260 B Volatile ORGANIC Compounds
EPA Method 8260 B Volatile ORGANIC Compounds - Presentative: Zea Sodium Bisulfate lea
EPA METHOD 8270 Poly Aromatic Hydro CARBONS
- No Preservative
ONE (1) SIDEWALL And ONE (1) Bottom
ONE (1) SiDEWALL And ONE (1) BOHOM  SAMPLE WERE SECURED FROM TANK EXCENTION  SAMPLES WERE STORED AND Shipped IN AN  INSURATED COOLER W/ ICE -
Samples were stoned and shipped in AN
INSURATED Cooled W/ ICE.

## XI. RECEPTORS

<del></del>		Yes	No
A.	Are there any lakes, ponds, streams, or wetlands located within 1000 feet of the UST system?		Y
	If yes, indicate type of receptor, distance, and direction on site map.		
В.	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.		1
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.		1
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?		1
	If yes, indicate the area of contaminated soil on the site map.		

## SUMMARY OF ANALYSIS RESULTS

NIA

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

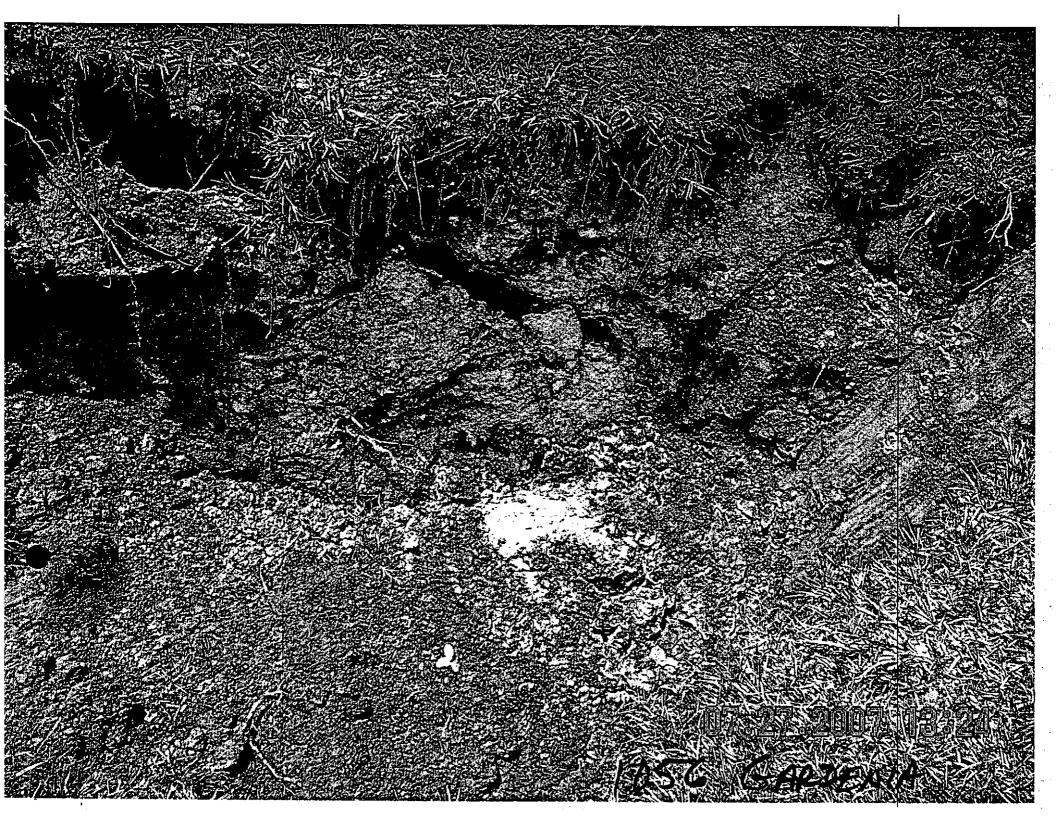
CoC	SB-1	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8
Benzene								
Toluene								
Ethylbenzene								
Xylenes								
Naphthalene							<u> </u>	
Benzo(a)anthracene								
Benzo(b)flouranthene								
Benzo(k)flouranthene								
Chrysene								
Dibenz(a,h)anthracene								
TPH (EPA 3550)								

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								
Вепzo(k)flouranthene					•			
Chrysene					·		· - <del>-</del>	
Dibenz(a,h)anthracene								
TPH (EPA 3550)								

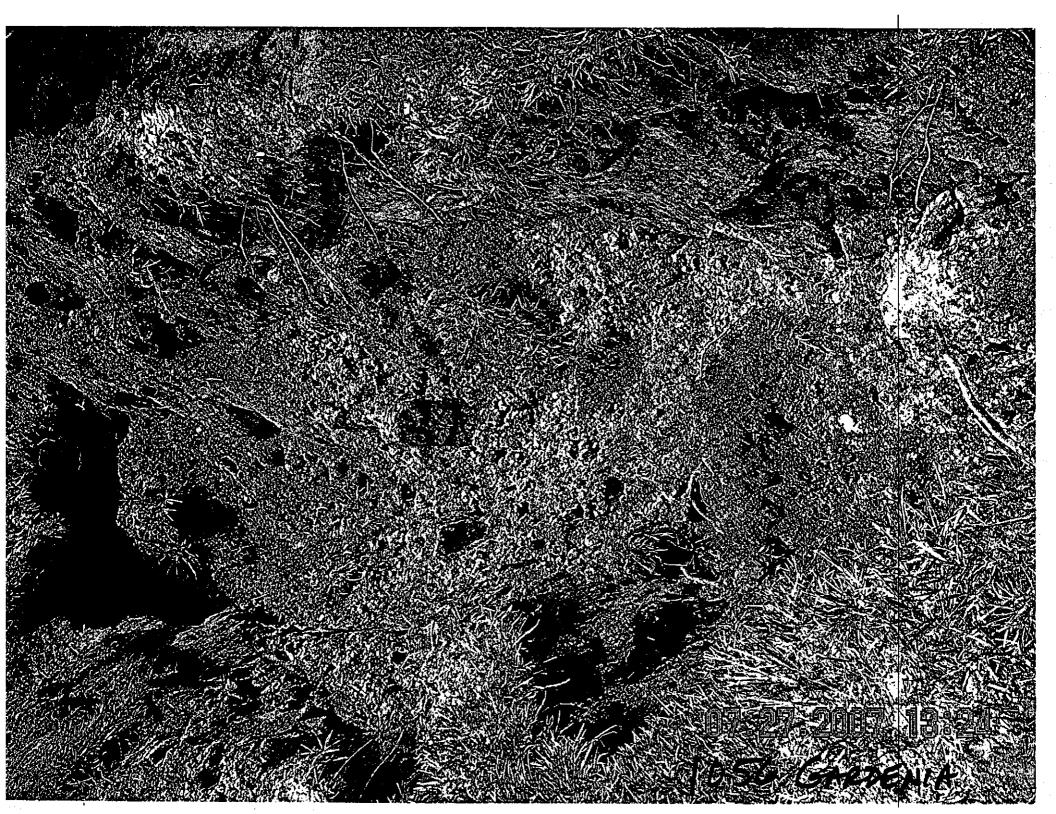


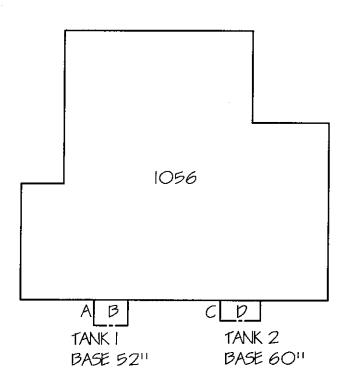
Enter the ground water analytical data for each sample for all CoC in the table below. If free product is present, indicate the measured thickness to the nearest 0.01 feet.

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)anthracen e	10				
EDB	.05				
1,2-DCA	.05				
Lead	Site specific				









## GARDENIA DRIVE

## TANK I EXCAVATION

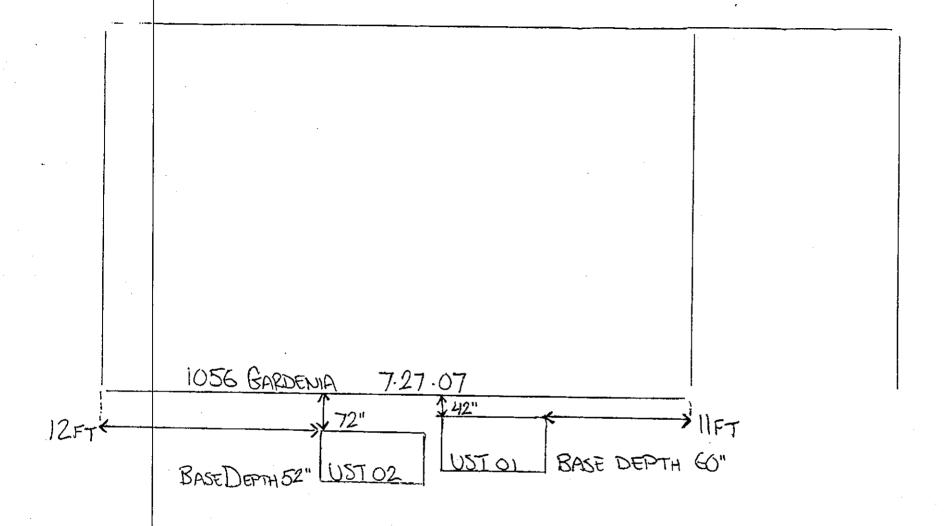
A-SOIL TEST SIDE SAMPLE @ 40" B-SOIL TEST BOTTOM SAMPLE @ 52"

## TANK 2 EXCAVATION

C-SOIL TEST SIDE SAMPLE @ 46"
D-SOIL TEST BOTTOM SAMPLE @ 60"



CUSTOMER:	SCALE:	EPG INC.
BEAUFORT MILITARY COMPLEX FAMILY HOUSING	1/16"=1'-0'	LFG ING.
ONICOON TAILET AND DATA TAIN TAO TO	SUPPLIER:	P.O. BOX 1096
SITE ADDRESS :	EPG INC.	MOUNT PLEASANT, SC 29465-1096
1056 GARDENIA DRIVE	DATE: 9/22/2007	MODINI FLEXSANI, SC 29465-1096



## 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)



PO BOX 1096

MT PLEASANT, SC 29465

Attn: JOHN MAHONEY

Work Order:

Project:

OQH0044

LAUREL BAY

Project Number: EP2362 Sampled: 07/23/07-07/27/07

Received: 08/02/07

## LABORATORY REPORT

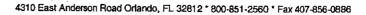
## Sample ID: 1052 GARDENA SIDE 02 - Lab Number: OQH0044-16 - Matrix: Solid/Soil

CAS#	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	Ву	Method	Batch
Polynucl	ear Aromatic Hydrocarbon	s by EPA Metl	10d 827	70 - Cont.							
50-32-8	Benzo (a) pyrene	25.1	ប	ug/kg dry	25.1	204	i	08/10/07 12:14	REM	EPA 8270C	7H06004
90-12-0	I-Methylnaphthalene	102	υ	ug/kg dry	102	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
218-01-9	Chrysene	24.4	U	ug/kg dry	24.4	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
53-70-3	Dibenz (a,h) anthracene	26.7	U	ug/kg dry	26.7	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
206-44-0	Fluoranthene	29.3	U	ug/kg dry	29.3	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
86-73-7	Fluorene	79.7	ប	ug/kg đry	79.7	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
193-39-5	Indeno (1,2,3-cd) pyrene	26.4	บ	ug/kg dry	26.4	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
91-57-6	2-Methylnaphthalene	86.8	ប	ug/kg dry	86.8	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
91-20-3	Naphthalene	81.8	U	ug/kg dry	81.8	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
85-01-8	Phenanthrene	48.0	U	ug/kg dry	48.0	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
129-00-0	Pyrene	41.4	U	ug/kg dry	41.4	204	1	08/10/07 12:14	REM	EPA 8270C	7H06004
Surrogate: 2	2-Fluorobiphenyl (24-121%)	59 %									
Surrogate: !	Nitrobenzene-d5 (19-111%)	54 %									
Surrogate: 1	Terphenyl-d14 (44-171%)	116%									

### LABORATORY REPORT

## Sample ID: 1056 GARDENA BOTTOM 01 - Lab Number: OQH0044-17 - Matrix: Solid/Soil

CAS#	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	Ву	Method	Batch
	Chemistry Parameters	<del></del>									
NA	% Solids	83.8		%.	0.100	0.100	1	08/03/07 17:20	RRP	EPA 160.3	7H03059
Volatile (	Organic Compounds by EPA	Method 8260	В								
71-43-2	Benzene	0.317		ug/kg dry	0.0922	0.252	1	08/04/07 01:15	JWT	EPA 8260B	7H03050
100-41-4	Ethylbenzene	24.1		ug/kg dry	0.107	0.252	1	08/04/07 01:15	JWT	EPA 8260B	7H03050
91-20-3	Naphthalene	766		ug/kg dry	7.20	13.0	50	08/04/07 15:06	JWT	EPA 8260B	7H03050
108-88-3	Toluene	0.448		ug/kg dry	0.218	0.252	1	08/04/07 01:15	JWT	EPA 8260B	7H03050
1330-20-7	Xylenes, total	3.36		ug/kg dry	0.131	0.252	1	08/04/07 01:15	JWT	EPA 8260B	7H03050
Surrogate: .	1,2-Dichloroethane-d4 (73-137%)	123 %									
Surrogate: .	1,2-Dichloroethane-d4 (73-137%)	103 %									
Surrogate: 4	4-Bromofluorobenzene (59-118%)	72 %									
urrogate: 4	4-Bromofluorobenzene (59-118%)	115%									
Surrogate: 1	Dibromofluoromethane (55-145%)	107 %									
Surrogate: l	Dibromofluoromethane (55-145%)	98 %									
Surrogate: T	Toluene-d8 (80-117%)	89 %									
Surrogate: T	Toluene-d8 (80-117%)	97 %									
Polynuck	ear Aromatic Hydrocarbons b	y EPA Meth	od 827	0							
3-32-9	Acenaphthene	136	I	ug/kg dry	88.3	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
208-96-8	Acenaphthylene	116	U	ug/kg dry	116	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
20-12-7	Anthracene	201		ug/kg dry	63.5	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
6-55-3	Benzo (a) anthracene	471		ug/kg dry	21.6	199	ľ	08/10/07 12:37	REM	EPA 8270C	7H06004
.05-99-2	Benzo (b) fluoranthene	499		ug/kg dry	21.0	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
07-08-9	Benzo (k) fluoranthene	239		ug/kg dry	21.0	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
91-24-2	Benzo (g,h,i) perylene	138	I	ug/kg dry	20.7	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004





Client: EPG, INC.

PO BOX 1096

MT PLEASANT, SC 29465

Attn: JOHN MAHONEY Work Order:

OQH0044

Project:

LAUREL BAY

Project Number: EP2362 Sampled: 07/23/07-07/27/07

Received: 08/02/07

### LABORATORY REPORT

## Sample ID: 1056 GARDENA BOTTOM 01 - Lab Number: OQH0044-17 - Matrix: Solid/Soil

CAS#	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	Ву	Method	Batch
Polynuci	ear Aromatic Hydrocarbon	s by EPA Meti	nod 827	70 - Cont.							
50-32-8	Benzo (a) pyrene	362		ug/kg dry	24.5	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
90-12-0	1-Methylnaphthalene	231		ug/kg dry	100	199	ì	08/10/07 12:37	REM	EPA 8270C	7H06004
218-01-9	Chrysene	546		ug/kg dry	23.8	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
53-70-3	Dibenz (a,h) anthracene	26.2	U	ug/kg dry	26.2	199	I	08/10/07 12:37	REM	EPA 8270C	7H06004
206-44-0	Fluoranthene	749		ug/kg dry	28.6	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
86-73- <b>7</b>	Fluorene	77.9	U	ug/kg dry	77.9	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
193-39-5	Indeno (1,2,3-cd) pyrene	141	ľ	ug/kg dry	25.8	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
91-57-6	2-Methylnaphthalene	84.9	U	ug/kg dry	84.9	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
91 <b>-20</b> -3	Naphthalene	80.0	U	ug/kg dry	80.0	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
35-01 <b>-</b> 8	Phenanthrene	342		ug/kg dry	47.0	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
129-00-0	Pyrene	1340		ug/kg dry	40.5	199	1	08/10/07 12:37	REM	EPA 8270C	7H06004
Surrogate: 2	-Fluorobiphenyi (24-121%)	02 %									
Surrogate: 1	Vitrobenzene-d5 (19-111%)	60 %									
Surrogate: T	Terphenyl-d14 (44-171%)	97 %							•		

#### LABORATORY REPORT

## Sample ID: 1056 GARDENA SIDE 02 - Lab Number: OQH0044-18 - Matrix: Solid/Soil

CAS#	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	Ву	Method	Batch
General	Chemistry Parameters						<del></del>	<del> </del>		<del></del>	<u>.</u>
NA	% Solids	83.8		%.	0.100	0.100	1	08/03/07 17:20	RRP	EPA 160.3	7H03059
Volatile (	Organic Compounds by EPA	Method 826	)B								
71-43-2	Benzene	0.107	U	ug/kg dry	0.107	0.293	1	08/04/07 01:31	JWT	EPA 8260B	7H03050
100-41-4	Ethylbenzene	3.44		ug/kg dry *	0.124	0.293	1	08/04/07 01:31	JWT	EPA 8260B	7H03050
)1-20-3	Naphthalene	69.8		ug/kg dry	0.162	0.293	1	08/04/07 01:31	JWT	EPA 8260B	7H03050
108-88-3	Toluene	0.253	U	ug/kg dry	0.253	0.293	I	08/04/07 01:31	JWT	EPA 8260B	7H03050
l 3 <b>30-20-</b> 7	Xylenes, total	0.786		ug/kg dry	0.152	0.293	1	08/04/07 01:31	JWT	EPA 8260B	7H03050
Surrogate: 1	1,2-Dichloroethane-d4 (73-137%)	129 %									
surrogate: 4	1-Bromofluorobenzene (59-118%)	98 %									
Surrogate: L	Dibromofluoromethane (55-145%)	105 %									
lurrogate: I	Foluene-d8 (80-117%)	= 103 % ===	TENS TENSION	water in the land of the second	a di di	anter					
Polynucle	ear Aromatic Hydrocarbons l	y EPA Meth	od 827	0							
13-32-9	Acenaphthene	88.3	· U	ug/kg dry	88.3	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
:08-96-8	Acenaphthylene	117	U	ug/kg dry	117	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
20-12-7	Anthracene	93.9	I	ug/kg dry	63.5	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
6-55-3	Benzo (a) anthracene	48.5	I	ug/kg dry	21.6	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
05-99-2	Benzo (b) fluoranthene	21.0	U	ug/kg dry	21.0	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
07-08-9	Benzo (k) fluoranthene	21.0	บ	ug/kg đry	21.0	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
91-24-2	Benzo (g,h,i) perylene	<del>20.7</del>	<del></del>	ug/kg dry	20.7	199	1-	08/10/07 12:59	REM	EPA 8270C	7H06004
0-32-8	Benzo (a) pyrene	24.5	ប	ug/kg dry	24.5	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
0-12-0	1-Methylnaphthalene	101	ſ	ug/kg dry	100	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
18-01-9	Chrysene	40.2	I	ug/kg dry	23.8	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
3-70-3	Dibenz (a,h) anthracene	26.2	ŭ	ug/kg dry	26.2	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
	· · · · · · · · · · · · · · · · · · ·										

Project Manager



PO BOX 1096

MT PLEASANT, SC 29465

Attn: JOHN MAHONEY

Work Order:

Project:

OQH0044

LAUREL BAY

Project Number: EP2362

Sampled: 07/23/07-07/27/07

Received: 08/02/07

LABORATORY REPORT

Sample ID: 1056 GARDENA SIDE 02 - Lab Number: OQH0044-18 - Matrix: Solid/Soil

CAS#	Analyte	Result	Q	Units	MDL	· PQL	Dil Factor	Analyzed Date/Time	Ву	Method	Batch
Polynucle	ear Aromatic Hydrocarbon	s by EPA Metl	nod 827	0 - Cont.					-	•••	
206-44-0	Fluoranthene	93.1	I	ug/kg dry	28.7	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
86-73-7	Fluorene	138	I	ug/kg dry	78.0	199	i	08/10/07 12:59	REM	EPA 8270C	7H06004
193-39-5	Indeno (1,2,3-cd) pyrene	25.8	U	ug/kg dry	25.8	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
91-57-6	2-Methylnaphthalene	115	I	ug/kg dry	85.0	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
91-20-3	Naphthalene	80.0	U	ug/kg dry	80.0	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
85-01-8	Phenauthrene	340		ug/kg dry	47.0	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
129-00-0	Pyrene	100	I	ug/kg dry	40.5	199	1	08/10/07 12:59	REM	EPA 8270C	7H06004
Surrogate: 2	-Fluorobiphenyl (24-121%)	71 %					-				
Surrogate: N	litrobenzene-d5 (19-111%)	<i>70 %</i>									
Surrogate: T	erphenyl-d14 (44-171%)	113 %									

## LABORATORY REPORT

Sample ID: 1056 GARDENA BOTTOM 03 - Lab Number: OQH0044-19 - Matrix: Solid/Soil

CAS#	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	Ву	Method	Batch
	Chemistry Parameters							··· <u> </u>			
NA	% Solids	81.9		<b>%</b> .	0.100	0.100	1	08/03/07 17:20	RRP	EPA 160.3	7H03059
Volatile (	Organic Compounds by EPA 1	Method 826	0B								
71-43-2	Benzene	4.36	RL2,U	ug/kg dry	4.36	11.9	50	08/04/07 13:53	JWT	EPA 8260B	7H03050
100-41-4	Ethylbenzene	525		ug/kg dry	5.03	11.9	50	08/04/07 13:53	JWT	EPA 8260B	7H03050
)1-20-3	Naphthalene	4110		ug/kg dry	6.57	11.9	50	08/04/07 13:53	JWT	EPA 8260B	7H03050
.08-88-3	Toluene	10.3	RL2,U	ug/kg dry	10.3	11.9	50	08/04/07 13:53	JWT	EPA 8260B	7H03050
330-20-7	Xylenes, total	634		ug/kg dry	6.18	11.9	50	08/04/07 13:53	JWT	EPA 8260B	7H03050
lurrogate: 1	,2-Dichloroethane-d4 (73-137%)	99 %									
urrogate: 4	-Bromofluorobenzene (59-118%)	98 %									
lurrogate: L	Dibromofluoromethane (55-145%)	97%									
'urrogate: T	oluene-d8 (80-117%)	97%									
Polynucle	ar Aromatic Hydrocarbons b	y EPA Met	hod 827	0							
3-32-9	Acenaphthene	90.3	U	ug/kg dry	90.3	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
08-96-8	Acenaphthylene	119	บ	ug/kg dry	119	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
20-12-7	Anthracene	65.0	บ	ug/kg dry	65.0	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
6-55-3	Benzo (a) anthracene	22.1	U	ug/kg dry	22.1	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
05-99-2	Benzo (b) fluoranthene	21.5	U	ug/kg dry	21.5	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
07-08-9	Benzo (k) fluoranthene	21.5	U	ug/kg dry	21.5	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
91 <b>-24</b> -2	Benzo (g,h,i) perylene	21.2	บ	ug/kg dry	21.2	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
0-32-8	Benzo (a) pyrene	25.1	บ	ug/kg dry	25.1	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
0-12-0	1-Methylnaphthalene	102	U	ug/kg dry	102	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
18-01-9	Chrysene	24.4	U	ug/kg dry	24.4	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
3-70-3	Dibenz (a,h) anthracene	26.8	U	ug/kg dry	26.8	204	1.	08/10/07 13:21	REM	EPA 8270C	7H06004
36-44-0	Fluoranthene	29.3	ប	ug/kg dry	29.3	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
5-73-7	Fluorene	79.8	ŭ	ug/kg dry	79.8	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
73-39-5	Indeno (1,2,3-cd) pyrene	26.4	ប	ug/kg dry	26.4	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
1-57-6	2-Methylnaphthalene	86.9	U	ug/kg dry	86.9	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
				333		_••	•	05.20/07 (3.21		L. A 02700	11100004



Attn:

PO BOX 1096

MT PLEASANT, SC 29465

JOHN MAHONEY

Work Order:

Project:

OQH0044

LAUREL BAY

Project Number: EP2362

Sampled: 07/23/07-07/27/07

Received: 08/02/07

### LABORATORY REPORT

Sample ID: 1056 GARDENA BOTTOM 03 - Lab Number: OQH0044-19 - Matrix: Solid/Soil

CAS#	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	Ву	Method	Batch
Polynucl	lear Aromatic Hydrocarbor	is by EPA Metl	nod 827	0 - Cont.							
91-20-3	Naphthalene	81.9	U	ug/kg dry	81.9	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
85-01-8	Phenanthrene	<b>48</b> .1	U	ug/kg dry	48.1	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
129-00-0	Pyrene	41.4	Ū	ug/kg dry	41.4	204	1	08/10/07 13:21	REM	EPA 8270C	7H06004
Surrogate:	2-Fluorobiphenyl (24-121%)	50 %									
Surrogate: I	Nitrobenzene-d5 (19-111%)	49 %			-						
Surrogate:	Terphenyl-d14 (44-171%)	82 %									

## LABORATORY REPORT

Sample ID: 1056 GARDENA SIDE 04 - Lab Number: OQH0044-20 - Matrix: Solid/Soil

CAS#	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	Ву	Method	Batch
	Chemistry Parameters										
NA	% Solids	84.6		%.	0.100	0.100	1	08/03/07 17:20	RRP	EPA 160.3	7H03059
	Organic Compounds by EPA	Method 826	0B								
71-43-2	Benzene	0.0898	ប	ug/kg dry	0.0898	0.245	1	08/04/07 02:04	JWT	EPA 8260B	7H03050
100-41-4	Ethylbenzene	1.46		ug/kg dry	0.104	0.245	1	08/04/07 02:04	JWT	EPA 8260B	7H03050
01-20-3	Naphthalene	14.9		ug/kg dry	0.136	0.245	1	08/04/07 02:04	JWT	EPA 8260B	7H03050
08-88-3	Toluene	0.226	I	ug/kg dry	0.212	0.245	1	08/04/07 02:04	JWT	EPA 8260B	7H03050
330-20-7	Xylenes, total	1.67		ug/kg dry	0.127	0.245	1	08/04/07 02:04	JWT	EPA 8260B	7H03050
urrogate: 1,	,2-Dichloroethane-d4 (73-137%)	130 %									
urrogate: 4	-Bromofluorobenzene (59-118%)	106 %									
urrogate: D	ibromofluoromethane (55-145%)	104 %									
urrogate: T	oluene-d8 (80-117%)	101 %									
	ar Aromatic Hydrocarbons l	y EPA Metl	hod 827	0							
3-32-9	Acenaphthene	87.5	U	ug/kg dry	87.5	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
08-96 <b>-</b> 8	Acenaphthylene	116	ប	ug/kg dry	116	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
20-12-7	Anthracene	63.0	U	ug/kg dry	63.0	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
6-55 <b>-</b> 3	Benzo (a) anthracene	21.4	U	ug/kg dry	21.4	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
05-99-2	Benzo (b) fluoranthene	20.8	U	ug/kg dry	20.8	198	I	08/10/07 13:44	REM	EPA 8270C	7H06004
07 <b>-</b> 08-9	Benzo (k) fluoranthene	20.8	U	ug/kg dry	20.8	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
91-24-2	Benzo (g,h,i) perylene	20.5	บ	ug/kg dry	20.5	198		08/10/07 13:44	REM	EPA 8270C	7H06004
0-32-8	Benzo (a) pyrene	24.3	ับ	ug/kg dry	24.3	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
0-12-0	I -Methylnaphthalene	99.1	IJ	ug/kg dry	99.1	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
18-01-9	Chrysene	23.6	ប	ug/kg dry	23.6	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
3-70-3	Dibenz (a,h) anthracene	25.9	U	ug/kg dry	25.9	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
6-44-0	Fluoranthene	28.4	υ	ug/kg dry	28.4	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
5-73-7	Fluorene	77.3	υ	ug/kg dry	77.3	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
3-39-5	Indeno (1,2,3-cd) pyrene	25.6	υ	ug/kg dry	25.6	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
-57-6	2-Methylnaphthalene	84.2	U	ug/kg dry	84.2	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
-20-3	Naphthalene	79.3	U	ug/kg dry	79.3	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
-01-8	Phenanthrene	111	I	ug/kg dry	46.6	198		08/10/07 13:44	REM	EPA 8270C	7H06004
9-00-0	Pyrene	40.1	Ü	ug/kg dry	40.I	198	1	08/10/07 13:44	REM	EPA 8270C	7H06004
irrogate: 2-i	Fluorobiphenyl (24-121%)	64 %		5 0 7		- <del></del>	-	23.20.07. 23.77	- 444144	2.1102700	12100004

Enid Ortiz For Shali Brown Project Manager



Attn:

CAS#

PO BOX 1096

MT PLEASANT, SC 29465 JOHN MAHONEY

Work Order:

Project:

OQH0044

LAUREL BAY

Project Number: EP2362

Sampled: 07/23/07-07/27/07

Received: 08/02/07

## LABORATORY REPORT

Sample ID: 1056 GARDENA SIDE 04 - Lab Number: OQH0044-20 - Matrix: Solid/Soil

Analyte

Result

Q Units MDL

Dil PQL Factor

Dif

Analyzed Date/Time

Analyzed

Ву Method Batch

Polynuclear Aromatic Hydrocarbons by EPA Method 8270 - Cont.

Surrogate: Nitrobenzene-d5 (19-111%)

67%

45 %

110 %

Surrogate: Terphenyl-d14 (44-171%)

95 %

LABORATORY REPORT

Sample ID: 1036 IRIS BOTTOM 01 - Lab Number: OQH0044-21 - Matrix: Solid/Soil

CAS#	Analyte	Result	Q	Units	MDL	PQL	Factor	Analyzed Date/Time	Ву	Method	Batch
General	Chemistry Parameters										<u> </u>
NA	% Solids	86.6	Q	<b>%</b> .	0.100	0.100	1	08/02/07 17:45	RRP	EPA 160.3	7H02039
	Organic Compounds by EPA	Method 826	0B								
71-43-2	Benzene	13.1		ug/kg dry	4.63	12.6	50	08/04/07 14:13	JWT	EPA 8260B	7H03050
100-41-4	Ethylbenzene	1510		ug/kg dry	5.35	12.6	50	08/04/07 14:13	JWT	EPA 8260B	7H03050
91-20-3	Naphthalene	10600		ug/kg dry	69.8	126	500	08/04/07 15:58	JWT	EPA 8260B	7H03050
108-88-3	Toluene	38.9		ug/kg dry	10.9	12.6	50	08/04/07 14:13	JWT	EPA 8260B	7H03050
1330-20-7	Xylenes, total	5560		ug/kg dry	6.56	12.6	50	08/04/07 14:13	JWT	EPA 8260B	7H03050
Surrogate:	1,2-Dichloroethane-d4 (73-137%)	107 %						•			•
_	4-Bromofluorobenzene (59-118%)	96 %					٠,				
	Dibromofluoromethane (55-145%)	99 %								Ē	
_	Toluene-d8 (80-117%)	96 %									
Polynucl	ear Aromatic Hydrocarbons l		hod 82'								
33-32-9	Acenaphthene	2500	J4	ug/kg dry	85.5	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
108-96-8	Acenaphthylene	113	J4,U	ug/kg dry	113	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
. 20-12-7	Anthracene	1390	J4	ug/kg dry	61.5	1 <b>9</b> 3	1	08/09/07 01:29	REM	EPA 8270C	7H06005
16-55-3	Benzo (a) anthracene	1930	J4	ug/kg dry	20.9	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
:05-99-2	Benzo (b) fluoranthene	1170		ug/kg dry	20.3	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
:07-08-9	Benzo (k) fluoranthene	501		ug/kg dry	20.3	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
91-24-2	Benzo (g,h,i) perylene	185	1	ug/kg dry	20.0	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
0-32-8	Benzo (a) pyrene	603		ug/kg dry	23.7	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
0-12-0	1-Methylnaphthalene	17700	J4	ug/kg dry	9 <b>6</b> 8	1930	10	08/10/07 04:33	REM	EPA 8270C	7H06005
18-01-9	Chrysene	1810	J4	ug/kg dry	23.1	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
	— Dibenz (a,h) anthracene	= 83.1====	and I are	= ug/kg dry	25.3	193 = -	1 ==	08/09/07 01:29	REM	EPA 8270C	7H06005
06-44-0	Fluoranthene	3590		ug/kg dry	27.7	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
6-73-7	Fluorene	2880	<b>J4</b>	ug/kg dry	75.5	193	I	08/09/07 01:29	REM	EPA 8270C	7H06005
93-39-5	Indeno (1,2,3-cd) pyrene	204		ug/kg dry	25.0	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
1-57-6	2-Methylnaphthalene	23600	<b>J</b> 4	ug/kg dry	822	1930	10	08/10/07 04:33	REM	EPA 8270C	7H06005
1-20-3	Naphthalene	485		ug/kg dry	77.4	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
5-01-8	Phenanthrene	6710	J4	ug/kg dry	45.5	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
29-00-0	Pyrene	3420		ug/kg dry	39.2	193	1	08/09/07 01:29	REM	EPA 8270C	7H06005
urrogate: 2	-Fluorobiphenyl (24-121%)	51 %									
										-	

urrogate: Nitrobenzene-d5 (19-111%) urrogate: Terphenyl-d14 (44-171%)

# Test/America

DOHOUNG page 154
To assist us in using the proper analytical methods is this work being conducted for regulatory purposes?

Rush (surcharges may apply)  Date Needed:  Fax Results: Y N  Barrier Maria Mar																						
Client Name	<u>{</u> 5					Cli	ent#:	2	41				•				-					_
Address:											_	Project I	Vame:	سأ	AUT	ker '	BA	, ·				
Project Manager:	HN M	<u> 1940'</u>	NEY		, •						– s		_	B4					State	ļ <del></del>		
	_				Fax:						<del></del>		•			i,			0.0.0	Ì———	·	
Sampler Name: (Print Name)	ris E	CHEV	ARRIG	<del>/</del>			-						-			<del></del>		<del></del>	<del></del>			-
Sampler Signature:	Mr. Vist	BU					<del></del>			<del></del>	_		-	-		<del></del>	<del></del>	DO:	м.		,	_
	4.7		Matrix	Preser	vation &	# of (	Contai	nere			5			o Cor				_ PG	F			_
Rush (surcharges may apply)		Composite	- Drinking Water or S - Sow/Solid						/	TO THE				# F Gr.	<del>/                                    </del>	/i.	//	7 /	7/	QC Della None Seven (Batcl	e el 2 7 QC)	3
AMPLE ID	Time Sampled	G = Grab, C =	SL - Skidge DW GW - Groundwate WW - Wastewate	HNO <sub>3</sub> HCI	NeoH	Methanol	Vone	Other (Specify)	/d	7.	W THE		/. ,	/.						Leve Other:	14	
						1	2	2								1	1	<del> </del>	†	INCHAR!	.5	١,
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Testamerica
ANALYTICAL TESTING CORPORATION
CIIENT Name

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

ANALYTICAL TESTING CORP		$\overline{}$															Com	pliance	Monito	oring	•	• • •	
Client Name	<u> </u>	Ś_							. (	Client	#:	24								_			
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City/State/Zip Code:														_	ſ	Project #	E	F 25	<u>マン</u>	١١٥		<del></del> -	
Project Manager:	المرك	<u> Me</u>	tOH	JE,	7							· ·		<del>-</del>		ation ID					<del></del>	Stat	
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Sampler Signature:					<del></del>					•						Quote #				···········			·
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AT  _ Standard  _ Rush (surcharges may apply)  Ite Needed:	נד	10	Composite		- Drinking Water x S - Soll/Solid r Specify Other								[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]	ZZZO J	<i>T</i> /		ze For		T <sub>e</sub> /	7	1	7	QC Deliverable None Level 2 (Batch QC) Level 3
MPLE ID	Data Sampted	Time Sampled	G = Grab, C =	Field Filtered	SL - Sludge DW GW - Grountwate WW - Wastewate	HNO3	HCi	NeOH	H <sub>2</sub> SO,	Methanol	Other (Specify)	l	31	N T									Level 4 Other:
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Page 3 of 3 Test/America To assist us in using the proper analytical methods is this work being conducted for regulatory purposes? Compliance Monitoring \_\_\_\_\_ Client#: 241) Client Name Project Name: LAUREL BAY Address: City/State/Zip Code: WHO MAHONEY Project Manager: Site/Location ID: State: Telephone Number: Report To: HRK ECHEVARRIA Sampler Name: (Print Name) Invoice To: Sampler Signature: Quote #: PO#: Matrix Preservation & # of Containers Analyze For: Standard QC Deliverables Rush (surcharges may apply) None Level 2 Date Needed: (Batch QC) Level 3 Fax Results: Y N Level 4 Other: SAMPLE ID REMARKS 1812 FUTTOM 01 1-2307 Special instructions: LABORATORY COMMENTS: Init Lab Temp: Rec Lab Temp: Custody Seals: Y Bottles Supplied by Test America: Received By Relinquished By: Time: Received By Date: Method of Shipment: Time:

# Appendix C Laboratory Analytical Report - Groundwater





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**

LAUREL BAY SAMPLING 7/28/08

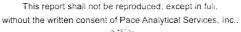
Pace Project No.: 9224472

Sample: 1061 GARDENIA A	Lab ID: 922	4472005	Collected: 07/28/0	8 11:00	Received: 07	7/30/08 17:00 M	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Anaiyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Meti	nod: EPA 82	60					
Ethylbenzene	ND ug	/L	1.0	1		08/01/08 07:04	100-41-4	
Naphthalene	ND ug		1.0	1		08/01/08 07:04		
Toluene	ND ug		1.0	1		08/01/08 07:04		
m&p-Xylene	ND ug		2.0	1		08/01/08 07:04		
o-Xylene	ND ug		1.0	1		08/01/08 07:04		
4-Bromofluorobenzene (S)	93 %	-	87-109	1		08/01/08 07:04		
Dibromofluoromethane (S)	105 %		85-115	1		08/01/08 07:04		
1,2-Dichloroethane-d4 (S)	105 %		79-120	1		08/01/08 07:04		
Toluene-d8 (S)	101 %		70-120	1		08/01/08 07:04		
Sample: 1056 GARDENIA A	Lab ID: 922	4472006	Collected: 07/28/0	8 11:15	Received: 07	7/30/08 17:00 M	latrix: Water	<u>.</u>
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
3270 MSSV PAH by SIM SPE 3510	Analytical Met	nod: EPA 82	70 by SIM Preparati	on Meth	nod: EPA 3510			-
Acenaphthene	ND ug	А	2.0	1	07/31/08 00:00	08/12/08 07:28	83-32-9	
Acenaphthylene	ND ug		1.5	1		08/12/08 07:28		
Anthracene	ND ug		0.050	1		08/12/08 07:28		
Benzo(a)anthracene	ND ug		0.10	1		08/12/08 07:28		
Benzo(a)pyrene	ND ug		0.20	1		08/12/08 07:28		
Benzo(b)fluoranthene	ND ug		0.30	1		08/12/08 07:28		
Benzo(g,h,i)perylene	ND ug		0.20	1		08/12/08 07:28		
Benzo(k)fluoranthene	ND ug		0.20	1		08/12/08 07:28		
Chrysene	ND ug		0.10	1		08/12/08 07:28		
Dibenz(a,h)anthracene	ND ug		0.20	1		08/12/08 07:28		
Fluoranthene	ND ug		0.30	1		08/12/08 07:28		
Fluorene	ND ug		0.31	1		08/12/08 07:28		
ndeno(1,2,3-cd)pyrene	ND ug		0.20	1		08/12/08 07:28		
1-Methylnaphthalene	ND ug		2.0	1		08/12/08 07:28		
2-Methylnaphthalene	ND ug		2.0	1		08/12/08 07:28		
Naphthalene	ND ug		1.5	1		08/12/08 07:28		
Phenanthrene	ND ug		0.20	1		08/12/08 07:28		
Pyrene	ND ug		0.10	1		08/12/08 07:28		
Nitrobenzene-d5 (S)	39 %	<i>,</i> <b>–</b>	50-150	1		08/12/08 07:28		1g
2-Fluorobiphenyl (S)	51 %		50-150	1		08/12/08 07:28		'9
Terphenyl-d14 (S)	70 %		50-150	1		08/12/08 07:28		
3260 MSV Low Level	Analytical Meth	nod: EPA 82			01701700 00.00	00/12/00 01:20		
Benzene	ND ug		1.0	1		08/01/08 07:28	71-43-2	
Ethylbenzene	ND ug		1.0	1		08/01/08 07:28		
Naphthalene	ND ug		1.0	1		08/01/08 07:28		
Toluene	ND ug		1.0	1		08/01/08 07:28		
m&p-Xylene	ND ug		2.0	1		08/01/08 07:28		
o-Xylene	ND ug		1.0	1		08/01/08 07:28		
4-Bromofluorobenzene (S)	ind ug	r ===	: 0	1		00/0 1/00 01.20	00.41-0	

Date: 08/13/2008 05:36 PM

REPORT OF LABORATORY ANALYSIS

Page 9 of 38







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: 1056 GARDENIA A	Lab ID: 922	4472006	Collected: 07/28/0	8 11:15	Received: 07	//30/08 17:00	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Met	nod: EPA 8	260					
Dibromofluoromethane (S)	103 %		85-115	1		08/01/08 07:28	1868-53-7	
1,2-Dichloroethane-d4 (S)	102 %		79-120	1		08/01/08 07:28	17060-07-0	
Toluene-d8 (S)	101 %		70-120	1		08/01/08 07:28	2037-26-5	
Sample: 1065 GARDENIA A	Lab ID: 922	4472007	Collected: 07/28/0	08 11:25	Received: 07	7/30/08 17:00 I	Matrix: Water	·
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM SPE 3510	Analytical Met	nod: EPA 8	270 by SIM Preparat	ion Meth	od: EPA 3510			
Acenaphthene	ND ug	/L	2.0	1	07/31/08 00:00	08/12/08 07:52	83-32-9	
Acenaphthylene	ND ug		1.5	1		08/12/08 07:52		
Anthracene	<b>0.12</b> ug		0.050	1	07/31/08 00:00	08/12/08 07:52	120-12-7	
Benzo(a)anthracene	ND ug		0.10	1	07/31/08 00:00	08/12/08 07:52	56-55-3	
Benzo(a)pyrene	ND ug	/L	0.20	1	07/31/08 00:00	08/12/08 07:52	50-32-8	
Benzo(b)fluoranthene	ND ug		0.30	1		08/12/08 07:52		
Benzo(g,h,i)perylene	ND ug		0.20	1		08/12/08 07:52		
Benzo(k)fluoranthene	ND ug		0.20	1		08/12/08 07:52		
Chrysene	ND ug		0.10	1		08/12/08 07:52		
Dibenz(a,h)anthracene	ND ug		0.20	1		08/12/08 07:52		
Fluoranthene	ND ug		0.30	1		08/12/08 07:52		
Fluorene	<b>0.95</b> ug		0.31	1		08/12/08 07:52		
Indeno(1,2,3-cd)pyrene	ND ug		0.20	1		08/12/08 07:52		
1-Methylnaphthalene	ND ug		2.0	1		08/12/08 07:52		
2-Methylnaphthalene	<b>10.8</b> ug		2.0	1		08/12/08 07:52		
Naphthalene	3.4 ug		1.5	1		08/12/08 07:52		
Phenanthrene	1.4 ug		0.20	1		08/12/08 07:52		
Pyrene	0.12 ug		0.10	1		08/12/08 07:52		
Nitrobenzene-d5 (S)	59 %	, .	50-150	1		08/12/08 07:52		
2-Fluorobiphenyl (S)	58 %		50-150	1		08/12/08 07:52		
Terphenyl-d14 (S)	62 %		50-150	1		08/12/08 07:52		
8260 MSV Low Level	Analytical Meth	nod: EPA 82	260					
Benzene	ND ug	/L	1.0	1		08/01/08 20:07	71-43-2	
Ethylbenzene	ND ug	/L	1.0	1		08/01/08 20:07	100-41-4	
Naphthalene	<b>5.7</b> ug		1.0	1		08/01/08 20:07	91-20-3	
Toluene	ND ug		1.0	1		08/01/08 20:07	108-88-3	
m&p-Xylene	ND ug		2.0	1		08/01/08 20:07	1330-20-7	
o-Xylene	ND ug		1.0	1		08/01/08 20:07		
4-Bromofluorobenzene (S)	95 %		87-109	1		08/01/08 20:07		
Dibromofluoromethane (S)	98 %		85-115	1		08/01/08 20:07		
1,2-Dichloroethane-d4 (S)	100 %		79-120	1		08/01/08 20:07		
Toluene-d8 (S)	99 %		70-120	1		08/01/08 20:07		

Date: 08/13/2008 05:36 PM

**REPORT OF LABORATORY ANALYSIS** 

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# Appendix D Regulatory Correspondence



BOARD: Paul C. Aughtry, III Chairman Edwin H. Cooper, III

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Coleman E. Buckhouse, MD

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment

20 August 2008

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

Re:

MCAS - Laurel Bay Housing - 1056 Gardenia

Site ID # 04012

UST Closure Reports received 31 January 2008

**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 sample be collected from this site. Please note, the Department approved a groundwater sampling proposal for Laurel Bay submitted by MCAS under separate cover dated 16 June 2008.

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 (via pdf)

MCAS, Commanding Officer, Attention: S-4 NREAO (William Drawdy) (via pdf)

Technical File (via pdf)



#### C. Earl Hunter, Commissioner

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

#### 17 December 2008

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

Re: MCAS - Laurel Bay Housing - 1056 Gardenia

Site ID # 04012

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