

**SUMMARY REPORT
82 BIRCH ROAD (FORMERLY 273 BIRCH ROAD)
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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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
LTM	long-term monitoring
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
RSL	regional screening level
SCDHEC	South Carolina Department of Health and Environmental Control
Site	LBMH area at MCAS Beaufort, South Carolina
UFP SAP	Uniform Federal Policy Sampling and Analysis Plan
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VI	vapor intrusion
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, long-term monitoring (LTM) was approved by the South Carolina Department of Health and Environmental Control (SCDHEC) for 82 Birch Road (Formerly 273 Birch Road) in order to monitor groundwater impacts from the former heating oil USTs. LTM consists of annual groundwater sampling and is currently being conducted at the referenced property. 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 heating oil USTs and conduct sampling activities to determine if, and to what extent, petroleum constituents may have impacted the surrounding environment. MCAS Beaufort coordinated with the 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 IGWA sampling process utilizes temporary groundwater sampling points that are typically installed and sampled within the same day. The intent of the sampling point is to determine the presence or absence of the aforementioned COPCs in groundwater and identify whether former UST locations may require additional delineation of COPCs in groundwater. These sampling points are not subjected to the same installation standards as permanent monitoring wells and, as such; the data obtained from the IGWA wells can sometimes be biased high and is considered preliminary data. In order to confirm the presence of any impact to groundwater, a permanent well is installed where IGWA sampling has indicated the presence of COPCs is in excess of the SCDHEC RBSLs for groundwater. If COPCs are found to be present in the permanent well, additional permanent wells are installed to delineate the extent of impact to groundwater and a sampling program (LTM) is established. Groundwater analytical results from permanent wells 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 82 Birch Road (Formerly 273 Birch Road). The sampling activities at 82 Birch Road (Formerly 273 Birch Road) comprised a soil investigation, IGWA sampling, installation and sampling of five permanent monitoring wells, LTM sampling, and a vapor intrusion (VI) investigation. Details regarding the soil investigation at this site are provided in the *SCDHEC UST Assessment Report – 273 Birch Road* (MCAS Beaufort, 2013). The UST Assessment Report is provided in Appendix B. Details regarding the IGWA sampling activities at this site are provided in the *Initial Groundwater Investigation Report – May and June 2015* (Resolution Consultants, 2015). The laboratory report that includes the pertinent IGWA analytical results for this site is presented in Appendix

C. Details regarding the permanent well installations and initial sampling activities at this site are provided in the *Groundwater Assessment Report – June and July 2016* (Resolution Consultants, 2016) and in the *Groundwater Assessment Report – November and December 2018 and April 2019* (CDM-AECOM Multimedia JV, 2019). The laboratory reports that includes the pertinent groundwater analytical results for this site are presented in Appendix D. Details regarding the LTM activities to date at this site are provided in the *2019 Groundwater Monitoring Report* (Resolution Consultants, 2019). A comprehensive table of the historical groundwater analytical results for all permanent monitoring wells at the site through 2019 is presented in Appendix E. Details regarding the VI investigation at this site are provided in the *Vapor Intrusion Investigation Report 82 Birch Drive (Formerly 273 Birch Drive)* (Resolution Consultants, 2018) and in the *Letter Report Petroleum Vapor Intrusion Investigations – April 2017 through February 2018* (Resolution Consultants, 2018). The laboratory reports that include the pertinent vapor analytical results for this site are presented in Appendix F.

2.1 UST Removal and Soil Sampling

In June 2012, three 280 gallon heating oil USTs were removed from underneath the rear concrete patio at 82 Birch Road (Formerly 273 Birch Road). Tank 1 was removed on June 18, 2012. Tanks 2 and 3 were removed on June 19, 2012. The former UST locations are indicated on Figures 2 and 3 of the UST Assessment Report (Appendix B). The USTs were removed and properly disposed of (i.e., shipped offsite for recycling or transported to a landfill). There was no visual evidence (i.e., staining or sheen) of petroleum impact at the time of the UST removals. According to the UST Assessment Report (Appendix B), the depths to the bases of the USTs were 5'6" bgs (Tank 1), 4'6" bgs (Tank 2) and 4'1" bgs (Tank 3) and a single soil sample was collected for each from those depths. The samples were collected from the fill port side of the former USTs to represent a worst case scenario 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, 2 and 3) were used by MCAS Beaufort, in consultation with SCDHEC, to determine a path forward (i.e., additional sampling or No Further Action [NFA]) for the property. The soil results collected from the former UST locations (Tanks 1, 2 and 3) at 82 Birch Road (Formerly 273 Birch Road) were greater than the SCDHEC RBSLs, which indicated further investigation was required. In a letter dated May 14, 2009, SCDHEC requested an IGWA for 82 Birch Road (Formerly 273 Birch Road) to determine if the groundwater was impacted by petroleum COPCs. SCDHEC's request letter is provided in Appendix G.

2.3 Initial Groundwater Sampling

On May 27, 2015, a single temporary monitoring well was installed at 82 Birch Road (Formerly 273 Birch Road), 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, 2 and 3). The former UST locations are indicated on Figures 2 and 3 of the UST Assessment Report (Appendix B). Further details are provided in the *Initial Groundwater Investigation Report – May and June 2015* (Resolution Consultants, 2015).

The sampling strategy for this phase of the investigation required a one-time sampling event of the temporary monitoring well. Following well installation and development, a groundwater sample was 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 *Initial Groundwater Investigation Report – May and June 2015* (Resolution Consultants, 2015).

2.4 Initial 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 82 Birch Road (Formerly 273 Birch Road) were greater than the SCDHEC RBSLs and the site specific groundwater VISLs (Table 2), which indicated

further investigation was required. In a letter dated February 22, 2016, SCDHEC requested a permanent well be installed for 82 Birch Road (Formerly 273 Birch Road) to confirm the impact to groundwater detected in the temporary well sample. SCDHEC's request letter is provided in Appendix G.

2.5 Permanent Well Groundwater Sampling

On July 6, 2016, a permanent monitoring well was installed at 82 Birch Road (Formerly 273 Birch Road), 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 permanent monitoring well, MW01, was placed in the same general location as the former heating oil USTs (Tanks 1, 2 and 3) and the IGWA sample location. The former UST locations are indicated on Figures 2 and 3 of the UST Assessment Report (Appendix B). Further details are provided in the *Groundwater Assessment Report – June and July 2016* (Resolution Consultants, 2016). The sampling strategy for this phase of the investigation required a one-time sampling event of the permanent monitoring well to confirm the impact to groundwater detected in the temporary well sample.

In November 2018, four additional permanent wells (MW02, MW03, MW04 and MW05) were also installed around the property at 82 Birch Road (Formerly 273 Birch Road) to delineate potential contamination. Further details are provided in the *Groundwater Assessment Report – November and December 2018 and April 2019* (CDM-AECOM Multimedia JV, 2019). The sampling strategy for this phase of the investigation required an initial sampling event of the permanent monitoring wells.

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. Field forms are provided in the *Groundwater Assessment Report – June and July 2016* (Resolution Consultants, 2016) and in the *Groundwater Assessment Report – November and December 2018 and April 2019* (CDM-AECOM Multimedia JV, 2019).

2.6 Permanent Well Groundwater Analytical Results

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

During the June and July 2016 groundwater assessment, the groundwater results collected from 82 Birch Road (Formerly 273 Birch Road) at MW01 were greater than the SCDHEC RBSLs (Table 3), which indicated that further investigation was required. Based on these results, a recommendation was made to conduct LTM at 82 Birch Road (Formerly 273 Birch Road). In a letter dated March 9, 2017, SCDHEC approved the LTM recommendation for 82 Birch Road (Formerly 273 Birch Road) to continue to monitor the impact to groundwater detected in the permanent well sample (MW01). SCDHEC's approval letter is provided in Appendix G.

During the November and December 2018 and April 2019 groundwater assessments, the groundwater results collected from 82 Birch Road (Formerly 273 Birch Road) were less than the SCDHEC RBSLs (Table 3). Based on these results, a recommendation was made to adopt the delineation wells into the existing LTM program for 82 Birch Road (Formerly 273 Birch Road). In a letter dated August 14, 2019, SCDHEC approved the recommendation to add the additional permanent wells to the LTM program for 82 Birch Road (Formerly 273 Birch Road) in order to monitor the impact to groundwater at this property. SCDHEC's approval letter is provided in Appendix G.

2.7 Long Term Monitoring

The LTM program at 82 Birch Road (Formerly 273 Birch Road) consists of annual groundwater sampling at the five permanent monitoring wells. LTM sampling activities have been conducted annually since 2017 at the referenced site. The latest groundwater sampling details are provided in the *2019 Groundwater Monitoring Report* (Resolution Consultants, 2019).

The sampling strategy for this phase of the investigation required annual LTM sampling of the permanent wells until an optimized monitoring strategy (e.g., reduced COPCs, reduced sampling frequency, reduce number of wells, etc.) or NFA determination could be made for the site. During each LTM sampling event, groundwater samples were collected using low-flow methods and shipped to an offsite laboratory for analysis of the petroleum COPCs. In 2019, groundwater samples were collected from 82 Birch Road (Formerly 273 Birch Road) and analyzed for naphthalene only. The remaining petroleum COPCs (benzene, ethylbenzene, toluene, xylenes, and select PAHs) were previously removed from the LTM program for 82 Birch Road (Formerly 273 Birch Road) since they have not been detected at concentrations above the applicable RBSLs in groundwater at any of the monitoring well locations. Field forms from the most recent sampling event in February and March 2019 are provided in the *2019 Groundwater Monitoring Report* (Resolution Consultants, 2019).

2.8 Long Term Monitoring Analytical Results

A summary of the laboratory analytical results and SCDHEC RBSLs is presented in Table 4. A comprehensive table of the historical groundwater analytical results for all permanent monitoring wells at the site through 2019 is presented in Appendix E. The associated laboratory analytical data reports are located in each of the annual LBMH groundwater monitoring reports.

The groundwater results collected from 82 Birch Road (Formerly 273 Birch Road) from at least one of the monitoring wells were greater than the SCDHEC RBSLs and/or the site specific groundwater VISLs (Table 4) during the 2017, 2018 and 2019 groundwater sampling events. This indicated LTM was required to continue at the property to further assess the impact in groundwater by COPCs associated with the former USTs (Tanks 1, 2 and 3) at concentrations that may present a potential risk to human health and the environment. In a letter dated December 17, 2019, SCDHEC approved continuing LTM at 82 Birch Road (Formerly 273 Birch Road) in order to monitor groundwater impacts from the former heating oil UST. SCDHEC's approval letter is provided in Appendix G.

LTM will continue at this property until COPC concentrations in groundwater sampled from all permanent monitoring wells are less than the SCDHEC RBSLs for three or more consecutive sampling events.

2.9 Soil Gas Sampling

On May 2, 2017, two temporary subsurface soil gas wells were installed at 82 Birch Road (Formerly 273 Birch Road) in accordance with the SCDHEC approved *Uniform Federal Policy Sampling and Analysis Plan (UFP SAP) for Vapor Media, Revision 4* (Resolution Consultants, 2017). A subsurface soil gas well was placed in the same general location as the former heating oil USTs (Tanks 2 and 3), underneath the concrete porch. The former UST locations are indicated on Figures 2 and 3 of the UST Assessment Report (Appendix B). A near-slab subsurface soil gas well was placed in the same general location as the former heating oil UST (Tank 1), underneath the concrete porch. Further details are provided in the *Vapor Intrusion Investigation Report 82 Birch Drive (Formerly 273 Birch Drive)* (Resolution Consultants, 2018) and in the *Letter Report Petroleum Vapor Intrusion Investigations – April 2017 through February 2018* (Resolution Consultants, 2018).

In May and July 2017 and in February 2018, three temporary sub-slab vapor points were installed at 82 Birch Road (Formerly 273 Birch Road) in accordance with the SCDHEC approved *UFP SAP for Vapor Media, Revision 4* (Resolution Consultants, 2017). The sub-slab vapor points were placed under the house slab. Further details are provided in the *Vapor Intrusion Investigation Report 82 Birch Drive (Formerly 273 Birch Drive)* (Resolution Consultants, 2018) and in the *Letter Report Petroleum Vapor Intrusion Investigations – April 2017 through February 2018* (Resolution Consultants, 2018).

On February 14, 2018, summa canisters for indoor and ambient outdoor air sampling were placed at 82 Birch Road (Formerly 273 Birch Road) in accordance with the SCDHEC approved *UFP SAP for Vapor Media, Revision 4* (Resolution Consultants, 2017). The indoor air summa canister was placed in the house approximately 3 to 5 feet above the floor (within the breathing zone). The ambient outdoor air summa canister was set up outside and attached to an immovable structure to ensure canister security and protection from precipitation. An indoor air building survey form was also completed to assess the conditions inside the residential building at 82 Birch Road (Formerly 273 Birch Road). Further details are provided in the *Vapor Intrusion Investigation Report 82 Birch Drive (Formerly 273 Birch Drive)* (Resolution Consultants, 2018) and in the *Letter Report Petroleum Vapor Intrusion Investigations – July 2015, January 2016, and May 2016* (Resolution Consultants, 2017).

The sampling strategy for these phases of the investigation required a one-time sampling event of the subsurface soil gas wells, the sub-slab vapor points, and the indoor and ambient outdoor air. The subsurface soil gas wells at 82 Birch Road (Formerly 273 Birch Road) were unable to be sampled, due to infiltration of water into the soil vapor wells. The first sub-slab vapor point at 82 Birch Road (Formerly 273 Birch Road) was sampled on May 30, 2017, however the sample was compromised by a laboratory instrument malfunction and the analysis was cancelled. The second sub-slab vapor point at 82 Birch Road (Formerly 273 Birch Road) was sampled on July 11, 2017. The third sub-slab vapor point at 82 Birch Road (Formerly 273 Birch Road) was sampled on February 15, 2018. The indoor and ambient outdoor air were sampled on February 15, 2018. The vapor samples (soil gas, indoor air, and ambient outdoor air) were collected and shipped to an offsite laboratory for analysis of the petroleum COPCs. Upon completion of soil gas sampling, the temporary subsurface soil gas wells and sub-slab vapor points were abandoned in accordance with the *UFP SAP for Vapor Media, Revision 4* (Resolution Consultants, 2017). Field forms are provided in the *Vapor Intrusion Investigation Report 82 Birch Drive (Formerly 273 Birch Drive)* (Resolution Consultants, 2018) and in the *Letter Report*

Petroleum Vapor Intrusion Investigations – April 2017 through February 2018 (Resolution Consultants, 2018).

2.10 Soil Gas Analytical Results

A summary of the laboratory analytical results and United States Environmental Protection Agency (USEPA) VISLs is presented in Table 5. The USEPA's VISL calculator (USEPA, 2018) was used to calculate soil gas and indoor air screening levels for each compound and were developed based on the USEPA's Residential Air Regional Screening Levels (RSLs) (USEPA, 2017). A copy of the laboratory analytical data reports are included in Appendix F.

The soil gas results collected on July 11, 2017 from the sub-slab vapor point at 82 Birch Road (Formerly 273 Birch Road) were above the USEPA VISLs, which indicated that additional investigation was required. The indoor and ambient outdoor air results collected from 82 Birch Road (Formerly 273 Birch Road) were above the USEPA VISLs. Analytical sub-slab soil gas, indoor air, and ambient outdoor air data collected during this investigation were evaluated in conjunction with the indoor survey to evaluate whether there is a complete vapor intrusion pathway and to evaluate the potential risk/hazard to residents associated with the measured indoor air concentrations. The detailed evaluation is presented in the *Vapor Intrusion Investigation Report 82 Birch Drive (Formerly 273 Birch Drive)* (Resolution Consultants, 2018). The report concluded that the vapor intrusion pathway is not the likely source of the indoor air concentrations and that indoor air concentrations of benzene are more likely attributable to outdoor air sources. An assessment of potential risk/hazard performed based on measured indoor air results, irrespective of the source of the detections in indoor air, indicate that the measured indoor air concentrations do not pose a potential health risk above USEPA target levels.

3.0 PROPERTY STATUS

Based on the analytical results for groundwater collected from the permanent monitoring wells, LTM is required to continue at 82 Birch Road (Formerly 273 Birch Road) to further assess the impact in groundwater by COPCs associated with the former UST. Groundwater monitoring results for this site beyond 2019 will be available on the Laurel Bay Health Study website, which is located at: <https://www.beaufort.marines.mil/Resources/Laurel-Bay-Health-Study/>. Based on the analytical results for vapor, it was determined that there was not a VI concern at this property and a recommendation was made for no additional VI assessment activities. SCDHEC

approved the no further VI investigation recommendation for 82 Birch Road (Formerly 273 Birch Road) in letters dated June 7, 2018 and August 29, 2018. SCDHEC's letters are provided in Appendix G.

4.0 REFERENCES

CDM-AECOM Multimedia JV, 2019. *Groundwater Assessment Report – November and December 2018 and April 2019 for Laurel Bay Military Housing Area, Multiple Properties, Laurel Bay Military Housing Area, Marine Corps Air Station Beaufort, Beaufort, South Carolina, July 2019.*

Marine Corps Air Station Beaufort, 2013. *South Carolina Department of Health and Environmental Control (SCDHEC) Underground Storage Tank Assessment Report – 273 Birch Road, Laurel Bay Military Housing Area, April 2013.*

Resolution Consultants, 2015. *Initial Groundwater Investigation Report – May and June 2015 for Laurel Bay Military Housing Area, Multiple Properties, Laurel Bay Military Housing Area, Marine Corps Air Station Beaufort, Beaufort, South Carolina, October 2015.*

Resolution Consultants, 2016. *Groundwater Assessment Report – June and July 2016 for Laurel Bay Military Housing Area, Multiple Properties, Laurel Bay Military Housing Area, Marine Corps Air Station Beaufort, Beaufort, South Carolina, December 2016.*

Resolution Consultants, 2017. *Uniform Federal Policy Sampling and Analysis Plan for Vapor Media, Revision 4, for Laurel Bay Military Housing Area, Marine Corps Air Station Beaufort, Beaufort, South Carolina, May 2017.*

Resolution Consultants, 2018. *Vapor Intrusion Investigation Report 82 Birch Drive (Formerly 273 Birch Drive), Laurel Bay Military Housing Area, Marine Corps Air Station Beaufort, Beaufort, South Carolina, April 2018.*

Resolution Consultants, 2018. *Letter Report Petroleum Vapor Intrusion Investigations – April 2017 through February 2018 for Laurel Bay Military Housing Area, Multiple Properties, Laurel Bay Military Housing Area, Marine Corps Air Station Beaufort, Beaufort, South Carolina, July 2018.*

Resolution Consultants, 2019. *2019 Groundwater Monitoring Report for Laurel Bay Military Housing Area, Long-Term Monitoring (LTM), Laurel Bay Military Housing Area, Marine Corps Air Station Beaufort, Beaufort, South Carolina*, October 2019.

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.

United States Environmental Protection Agency, 2018. *USEPA OSWER Vapor Intrusion Assessment, Vapor Intrusion Screening Level Calculator*, February 2018.

Tables

Table 1
Laboratory Analytical Results - Soil
82 Birch Road (Formerly 273 Birch Road)
Laurel Bay Military Housing Area
Marine Corps Air Station Beaufort
Beaufort, South Carolina

Constituent	SCDHEC RBSLs ⁽¹⁾	Results Samples Collected 06/28/12		
		273 Birch - 1A	273 Birch - 2A	273 Birch - 3A
Volatile Organic Compounds Analyzed by EPA Method 8260B (mg/kg)				
Benzene	0.003	ND	ND	ND
Ethylbenzene	1.15	0.12	0.26	0.49
Naphthalene	0.036	1.2	1.3	2.0
Toluene	0.627	ND	ND	ND
Xylenes, Total	13.01	ND	ND	0.15
Semivolatile Organic Compounds Analyzed by EPA Method 8270D (mg/kg)				
Benzo(a)anthracene	0.66	ND	ND	ND
Benzo(b)fluoranthene	0.66	ND	ND	ND
Benzo(k)fluoranthene	0.66	ND	ND	ND
Chrysene	0.66	0.11	ND	ND
Dibenz(a,h)anthracene	0.66	ND	ND	ND

Notes:

⁽¹⁾ South Carolina Risk-Based Screening Levels from the Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 1.1 (SCDHEC, February 2011).

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 -Initial Groundwater
82 Birch Road (Formerly 273 Birch Road)
Laurel Bay Military Housing Area
Marine Corps Air Station Beaufort
Beaufort, South Carolina

Constituent	SCDHEC RBSLs ⁽¹⁾	Site-Specific Groundwater VISLs ⁽²⁾	Results Sample Collected 05/27/15
Volatile Organic Compounds Analyzed by EPA Method 8260B (µg/L)			
Benzene	5	16.24	1.4
Ethylbenzene	700	45.95	1.7
Naphthalene	25	29.33	34
Toluene	1000	105,445	ND
Xylenes, Total	10,000	2,133	1.0
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 3.0 (SCDHEC, May 2015).

⁽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 1×10^{-6} , a target hazard quotient of 1 (per target organ), and a default residential exposure scenario, assuming exposure for 24 hours/day, 350 days/year, for 26 years. Modeling was performed for a range of depths to groundwater for application as appropriate in different areas of the Laurel Bay Military Housing Area. The most conservative levels are presented for comparison. Refer to Appendix H of the Uniform Federal Policy Sampling Analysis and Sampling Plan for Vapor Media, Revision 4 (Resolution Consultants, April 2017) for additional information.

Bold font indicates the analyte was detected.

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

EPA - United States Environmental Protection Agency

JE - Johnson & Ettinger

NA - not applicable

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

Table 3
Laboratory Analytical Results - Permanent Monitoring Well Groundwater
82 Birch Road (Formerly 273 Birch Road)
Laurel Bay Military Housing Area
Marine Corps Air Station Beaufort
Beaufort, South Carolina

Constituent	SCDHEC RBSLs ⁽¹⁾	Site-Specific Groundwater VISLs ⁽²⁾	Results				
			Samples Collected 07/25/16 and 12/13/18				
			MW01 07/25/16	MW02 12/13/18	MW03 12/13/18	MW04 12/13/18	MW05 12/13/18
Volatile Organic Compounds Analyzed by EPA Method 8260B (µg/L)							
Benzene	5	16.24	2.4	ND	ND	ND	ND
Ethylbenzene	700	45.95	5.9	ND	0.79	ND	ND
Naphthalene	25	29.33	75	ND	23	0.62	ND
Toluene	1000	105,445	ND	ND	ND	ND	ND
Xylenes, Total	10,000	2,133	1.5	ND	0.74	ND	ND
Semivolatile Organic Compounds Analyzed by EPA Method 8270D (µg/L)							
Benzo(a)anthracene	10	NA	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	10	NA	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	10	NA	ND	ND	ND	ND	ND
Chrysene	10	NA	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	10	NA	ND	ND	ND	ND	ND

Notes:

⁽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 1×10^{-6} , a target hazard quotient of 1 (per target organ), and a default residential exposure scenario, assuming exposure for 24 hours/day, 350 days/year, for 26 years. Modeling was performed for a range of depths to groundwater for application as appropriate in different areas of the Laurel Bay Military Housing Area. The most conservative levels are presented for comparison. Refer to Appendix H of the Uniform Federal Policy Sampling Analysis and Sampling Plan for Vapor Media, Revision 4 (Resolution Consultants, April 2017) for additional information.

Bold font indicates the analyte was detected.

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

EPA - United States Environmental Protection Agency

JE - Johnson & Ettinger

NA - not applicable

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

RBSL - Risk-Based Screening Level

SCDHEC - South Carolina Department Of Health and Environmental Control

µg/L - micrograms per liter

VISL - Vapor Intrusion Screening Level

Table 4
Laboratory Analytical Results - Long Term Monitoring
82 Birch Road (Formerly 273 Birch Road)
Laurel Bay Military Housing Area
Marine Corps Air Station Beaufort
Beaufort, South Carolina

Constituent		Benzene	Ethylbenzene	Naphthalene	Toluene	Xylenes	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene
SCDHEC RBSLs ⁽¹⁾ ($\mu\text{g/L}$)		5	700	25	1000	10,000	10	10	10	10	10
Site-Specific Groundwater VISLs ⁽²⁾ ($\mu\text{g/L}$)		16.24	45.95	29.33	105,445	2,133	N/A	N/A	N/A	N/A	N/A
Well ID	Sample Date										
BEALB273MW01	7/25/2016	2.4	5.9	75	ND	1.5	ND	ND	ND	ND	ND
	6/14/2017	1.9	16	170	ND	ND	0.056	ND	ND	ND	ND
	1/23/2018	2.6	11	140	ND	ND	ND	ND	ND	ND	ND
	3/5/2019	NA	NA	100	NA	NA	NA	NA	NA	NA	NA
BEALB273MW02	12/13/2018	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/6/2019	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
BEALB273MW03	12/13/2018	ND	0.72	24	ND	0.67	ND	ND	ND	ND	ND
	3/5/2019	NA	NA	15	NA	NA	NA	NA	NA	NA	NA
BEALB273MW04	12/13/2018	ND	ND	0.78	ND	ND	ND	ND	ND	ND	ND
	3/5/2019	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
BEALB273MW05	12/13/2018	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/6/2019	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA

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 1×10^{-6} , a target hazard quotient of 1 (per target organ), and a default residential exposure scenario, assuming exposure for 24 hours/day, 350 days/year, for 26 years. Modeling was performed for a range of depths to groundwater for application as appropriate in different areas of the Laurel Bay Military Housing Area. The most conservative levels are presented for comparison. Refer to Appendix H of the Uniform Federal Policy Sampling Analysis and Sampling Plan for Vapor Media, Revision 4 (Resolution Consultants, April 2017) for additional information.

Bold font indicates the analyte was detected.

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

JE - Johnson & Ettinger

N/A - not applicable

NA - not analyzed

ND - not detected at the reporting limit (or method detection limit if shown on the laboratory report). A comprehensive table of the historical groundwater analytical results for all permanent monitoring wells at the site through 2019 is presented in Appendix E.

RBSL - Risk-Based Screening Level

SCDHEC - South Carolina Department Of Health and Environmental Control

$\mu\text{g/L}$ - micrograms per liter

VISL - Vapor Intrusion Screening Level

Table 5
Laboratory Analytical Results - Vapor
82 Birch Road (Formerly 273 Birch Road)
Laurel Bay Military Housing Area
Marine Corps Air Station Beaufort
Beaufort, South Carolina

Constituent	USEPA VISL^(1a)	USEPA VISL^(1b)	Soil Gas Results Samples Collected 07/11/17 and 02/15/18		Ambient and Indoor Air Samples Collected 02/15/18	
			SS01 07/11/17	SS01 02/15/18	IA01 02/15/18	AA01 02/15/18
Volatile Organic Compounds Analyzed by USEPA Method TO-15 ($\mu\text{g}/\text{m}^3$)						
Benzene	12	0.36	ND	ND	0.39	0.63
Toluene	17000	521	ND	45	0.59	1.4
Ethylbenzene	37	1.12	56	9.6	0.078	0.50
m,p-Xylenes	350	10.4	230	39	0.18	0.72
o-Xylene	350	10.4	100	31	0.082	0.30
Naphthalene	2.8	0.0826	ND	0.80	0.044	1.9

Notes:

⁽¹⁾ United States Environmental Protection Agency Exterior Soil Gas Vapor Intrusion Screening Level (VISL) from VISL Calculator (February 2018).

a - VISL for Soil Gas

b - VISL for Ambient and Indoor Air

VISLs are based on a residual exposure scenario and a target risk level of 1×10^{-6} and a hazard quotient of 0.1.

Bold font indicates the analyte was detected.

Bold font and shading indicates the concentration exceeds the residential VISL.

ND - not detected at the reporting limit (or method detection limit if shown on the laboratory report). The vapor laboratory reports are provided in Appendix F.

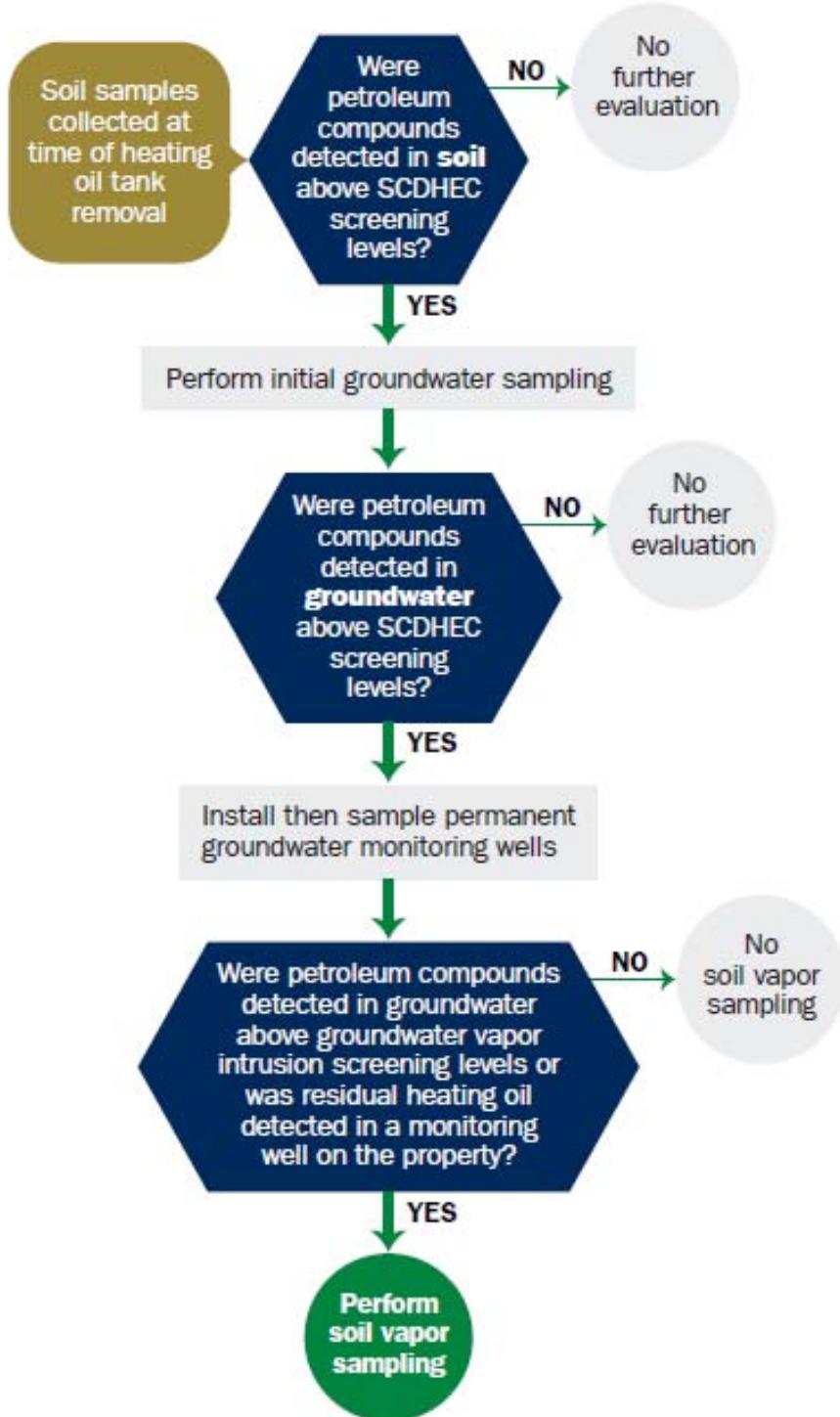
RBSL - Risk-Based Screening Level

$\mu\text{g}/\text{m}^3$ - micrograms per cubic meter

USEPA - United States Environmental Protection Agency

VISL - Vapor Intrusion Screening Level

Appendix A
Multi-Media Selection Process for LBMH



Appendix A - Multi-Media Selection Process for LBMH

Appendix B
UST Assessment Report

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) 896-7957

I. OWNERSHIP OF UST (S)

MCAS Beaufort, Commanding Officer Attn: NREAO (Craig Ehde)
 Owner Name (Corporation, Individual, Public Agency, Other)

P.O. Box 55001

Mailing Address

<u>Beaufort,</u> City	<u>South Carolina</u> State	<u>29904-5001</u> Zip Code
<u>843</u> Area Code	<u>228-7317</u> Telephone Number	<u>Craig Ehde</u> Contact Person

II. SITE IDENTIFICATION AND LOCATION

Permit I.D. #

Laurel Bay Military Housing Area, Marine Corps Air Station, Beaufort, SC
 Facility Name or Company Site Identifier

273 Birch Drive, Laurel Bay Military Housing Area

Street Address or State Road (as applicable)

<u>Beaufort,</u> City	<u>Beaufort</u> County
--------------------------	---------------------------

Attachment 2

III. INSURANCE INFORMATION

Insurance Statement

The petroleum release reported to DHEC on _____ at Permit ID Number _____ 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.

IV. REQUEST FOR SUPERB FUNDING

I **DO / DO NOT** wish to participate in the SUPERB Program. (Circle one.)

V. CERTIFICATION (To be signed by the UST owner)

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

VI. UST INFORMATION

- A. Product...(ex. Gas, Kerosene).....
- B. Capacity..(ex. 1k, 2k).....
- C. Age.....
- D. Construction Material..(ex. Steel, FRP).....
- E. Month/Year of Last Use.....
- F. Depth (ft.) To Base of Tank.....
- G. Spill Prevention Equipment Y/N.....
- H. Overfill Prevention Equipment Y/N.....
- I. Method of Closure Removed/Filled.....
- J. Date Tanks Removed/Filled.....
- K. Visible Corrosion or Pitting Y/N.....
- L. Visible Holes Y/N.....
- M. Method of disposal for any USTs removed from the ground (attach disposal manifests)
USTs 273Birch-1 and 273Birch-2 were removed from the ground, cleaned and recycled. UST 273Birch-3 was removed from the ground and disposed at a Subtitle "D" landfill. See Attachment "A".
-
- N. Method of disposal for any liquid petroleum, sludges, or wastewaters removed from the USTs (attach disposal manifests)
Contaminated water was pumped from 273Birch-1 and 273Birch-2 and disposed of by MCAS.
UST 273Birch-3 was previously filled with sand by others.
-
- O. If any corrosion, pitting, or holes were observed, describe the location and extent for each UST
Corrosion, pitting and holes were found in all three tanks.

273 Birch-1	273 Birch-2	273 Birch-3
Heating oil	Heating oil	Heating oil
280 gal	280 gal	280 gal
Late 1950s	Late 1950s	Late 1950s
Steel	Steel	Steel
Mid 80s	Mid 80s	Mid 80s
5' 6"	4' 6"	4' 1"
No	No	No
No	No	No
Removed	Removed	Removed
6/18/2012	6/19/2012	6/19/2012
Yes	Yes	Yes
Yes	Yes	Yes

VII. PIPING INFORMATION

- A. Construction Material..(ex. Steel, FRP).....
- B. Distance from UST to Dispenser.....
- C. Number of Dispensers.....
- D. Type of System Pressure or Suction.....
- E. Was Piping Removed from the Ground? Y/N
- F. Visible Corrosion or Pitting Y/N.....
- G. Visible Holes Y/N.....
- H. Age.....
- I. If any corrosion, pitting, or holes were observed, describe the location and extent for each piping run.

273Birch-1	273Birch-2	273Birch-3
Steel & Copper	Steel & Copper	Steel & Copper
N/A	N/A	N/A
N/A	N/A	N/A
Suction	Suction	Suction
No	No	No
Yes	Yes	Yes
No	No	No
Late 1950s	Late 1950s	Late 1950s

Steel vent piping for all tanks were corroded and pitted. All copper supply and return piping were sound.

VIII. BRIEF SITE DESCRIPTION AND HISTORY

The USTs at the residences are constructed of single wall steel and formerly contained fuel oil for heating. These USTs were installed in the late 1950s and last used in the mid 1980s.

IX. 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.	<input type="checkbox"/>	<input checked="" type="checkbox"/> X	<input type="checkbox"/>
B. Were any petroleum odors detected in the excavation, soil borings, trenches, or monitoring wells? *Slight odor from all three excavations. If yes, indicate location on site map and describe the odor (strong, mild, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/> *X	<input type="checkbox"/>
C. Was water present in the UST excavation, soil borings, or trenches? If yes, how far below land surface (indicate location and depth)?	<input type="checkbox"/>	<input checked="" type="checkbox"/> X	<input type="checkbox"/>
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:	<input type="checkbox"/>	<input checked="" type="checkbox"/> X	<input type="checkbox"/>
E. Was a petroleum sheen or free product detected on any excavation or boring waters? If yes, indicate location and thickness.	<input type="checkbox"/>	<input checked="" type="checkbox"/> X	<input type="checkbox"/>

X. SAMPLE INFORMATION

A. SCDHEC Lab Certification Number 84009

B.

Sample #	Location	Sample Type (Soil/Water)	Soil Type (Sand/Clay)	Depth*	Date/Time of Collection	Collected by	OVA #
273 Birch-1A	Excav at fill end	Soil	Sandy	5' 6"	6/28/12 0945 hrs	P. Shaw	
273 Birch-2A	Excav at fill end	Soil	Sandy	4' 6"	6/28/12 1000 hrs	P. Shaw	
273 Birch-3A	Excav at fill end	Soil	Sandy	4' 1"	6/28/12 1015 hrs	P. Shaw	
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

* = Depth Below the Surrounding Land Surface

XI. 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.

Sampling was performed in accordance with SC DHEC R.61-92 Part 280 and SC DHEC Assessment Guidelines. Sample containers were prepared by the testing laboratory. The grab method was utilized to fill the sample containers leaving as little head space as possible and immediately capped. Soil samples were extracted from area below tank. The samples were marked, logged, and immediately placed in a sample cooler packed with ice to maintain an approximate temperature of 4 degrees Centigrade. Tools were thoroughly cleaned and decontaminated with the seven step decon process after each use. The samples remained in custody of SBG-EEG, Inc. until they were transferred to Test America Incorporated for analysis as documented in the Chain of Custody Record.

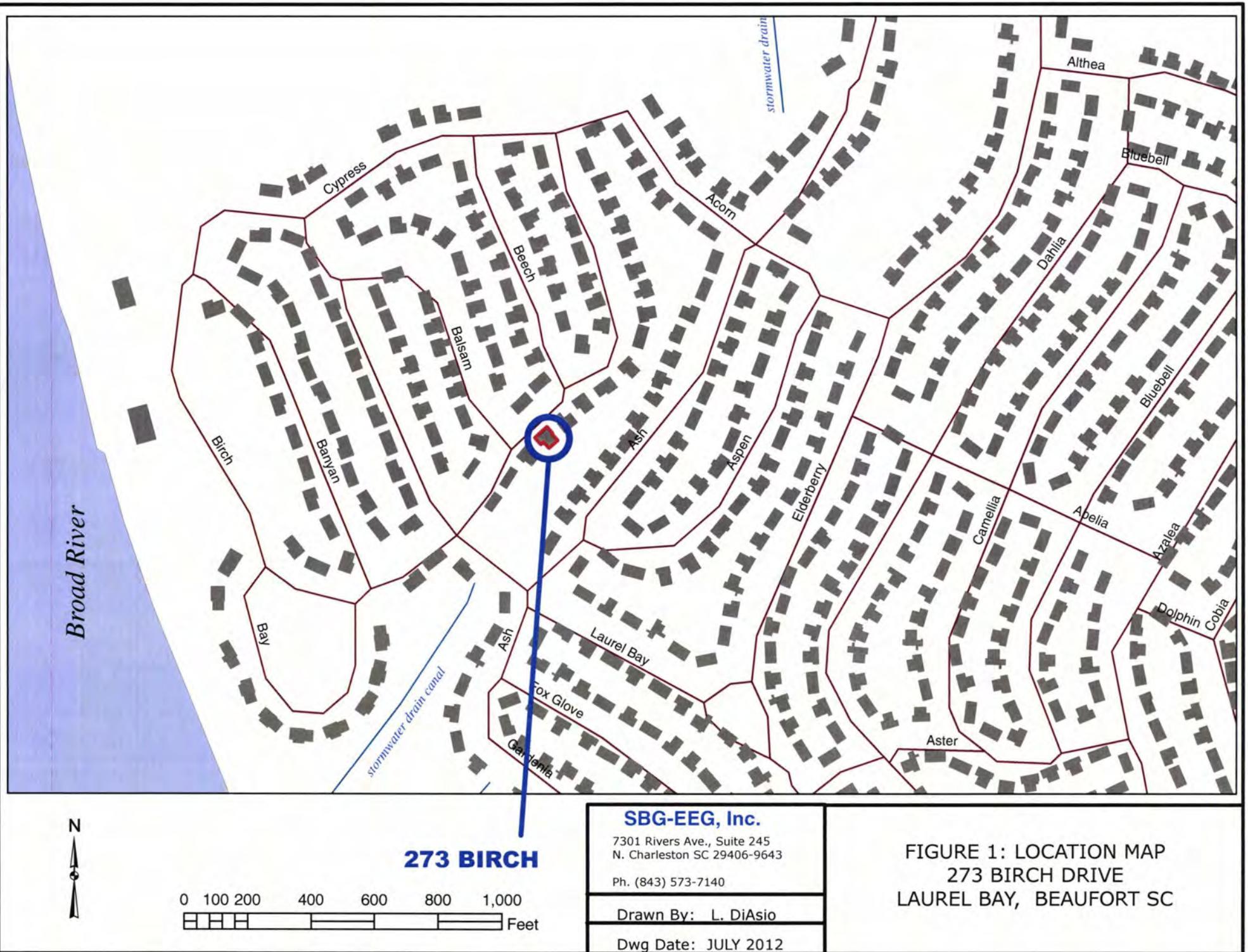
XII. RECEPTORS

	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.	*X	
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.	X	
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.		X
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.	*X	*Sewer, water, cable, storm drain electricity & fiber optic
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.	X	

XIII. SITE MAP

You must supply a scaled site map. It should include all buildings, road names, utilities, tank and dispenser island locations, labeled sample locations, extent of excavation, and any other pertinent information.

(Attach Site Map Here)



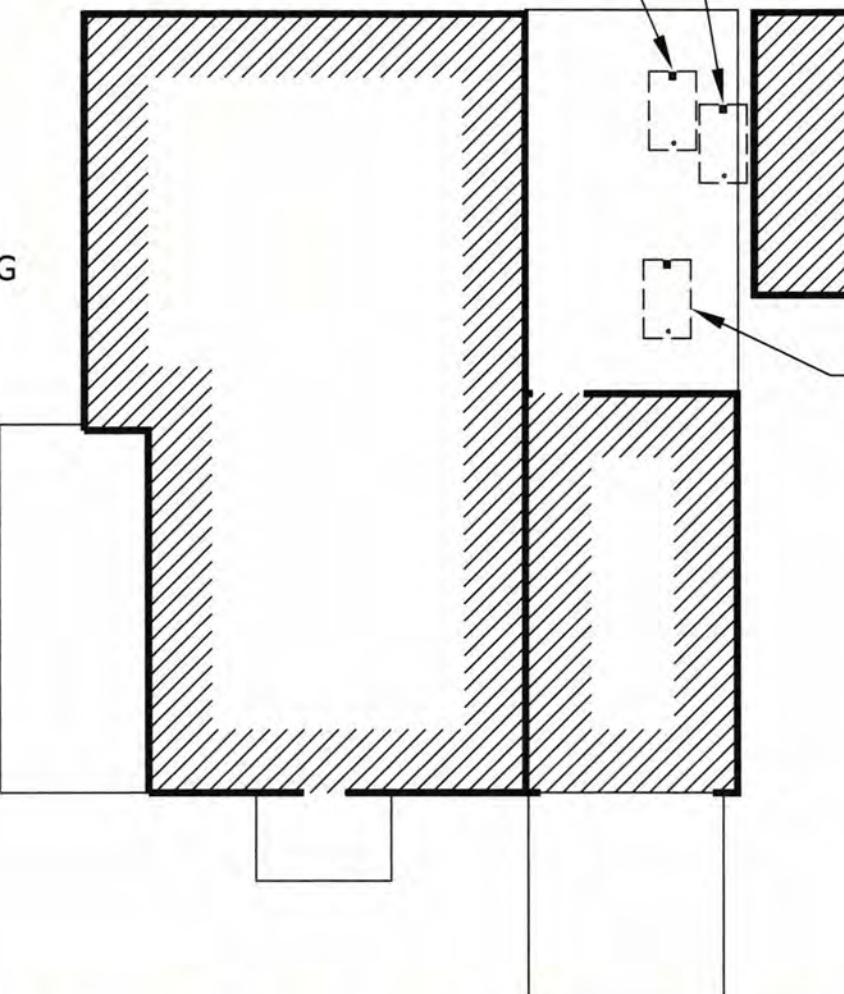
STORMWATER DRAINAGE CANAL ≈ 450'

STORM DRAIN ≈ 100'

UST 273BIRCH-3, 280 GAL.

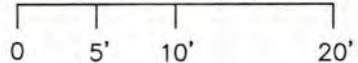
UST 273BIRCH-2, 280 GAL.

273 BIRCH DRIVE
LAUREL BAY MILITARY HOUSING
MCAS BEAUFORT, SC



UST 273BIRCH-1, 280 GAL.

GRAPHIC SCALE



TANK DEPTH BELOW GRADE

273BIRCH-1 = 30"

273BIRCH-2 = 18"

273BIRCH-3 = 13"

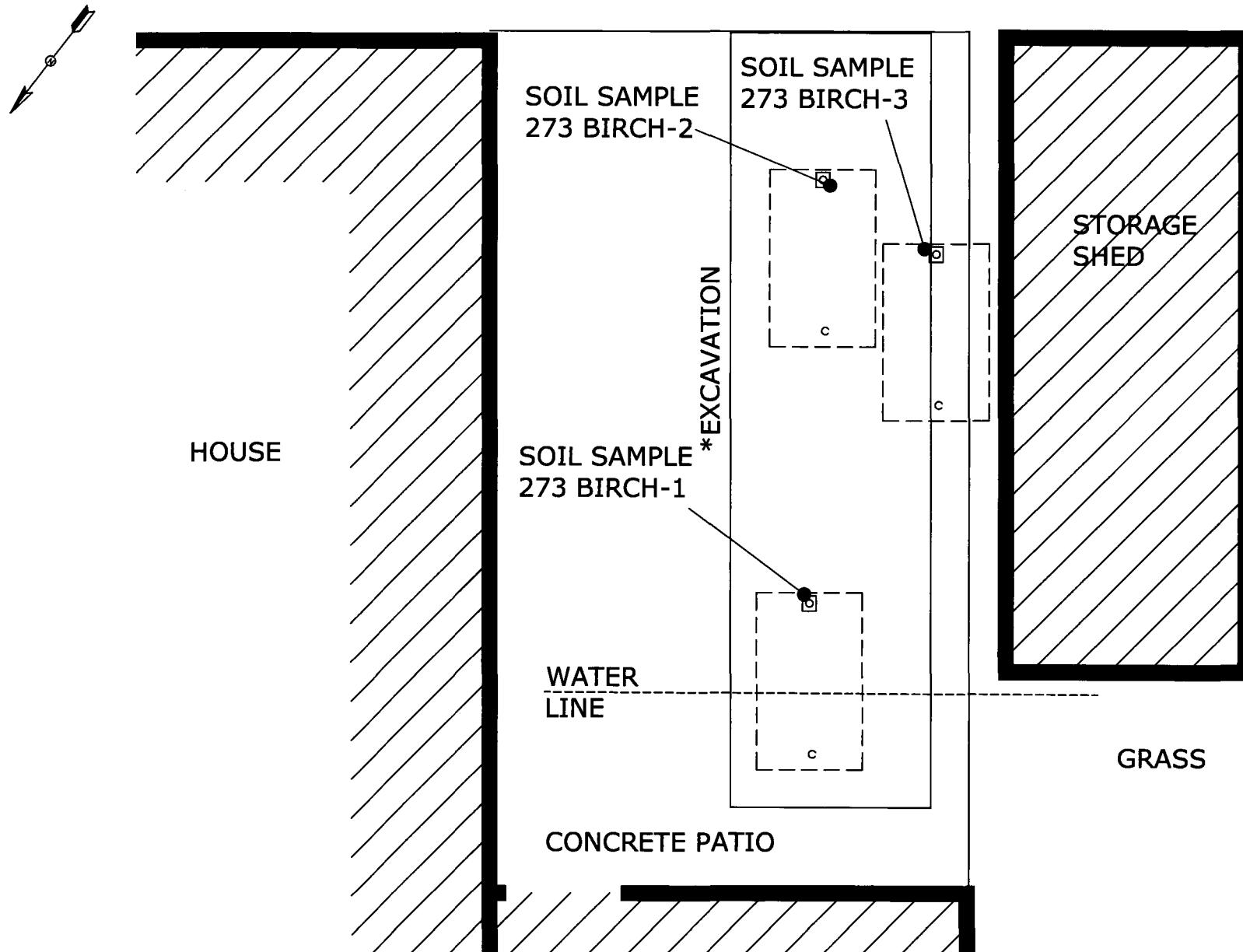
SBG-EEG

7301 RIVERS AVE., SUITE 245
N. CHARLESTON SC 29406
(843) 573-7140

FIGURE 2 SITE MAP
273 BIRCH DRIVE, LAUREL BAY
MCAS BEAUFORT SC

SCALE: GRAPHIC

DWG DATE JULY 2012



*A PORTION OF THE PATIO
WAS REMOVED TO FACILITATE
EXTRACTING THE TANK.

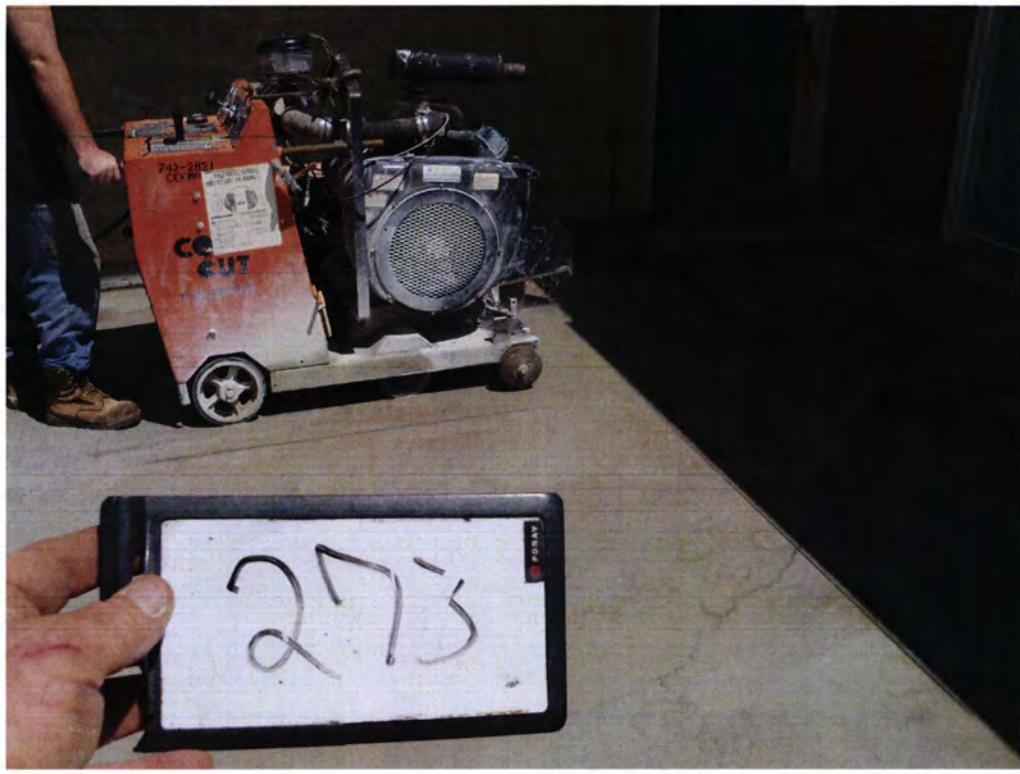
GRAPHIC SCALE
0 5'

SBG-EEG
7301 RIVERS AVE., SUITE 245
N. CHARLESTON SC 29406
(843) 573-7140

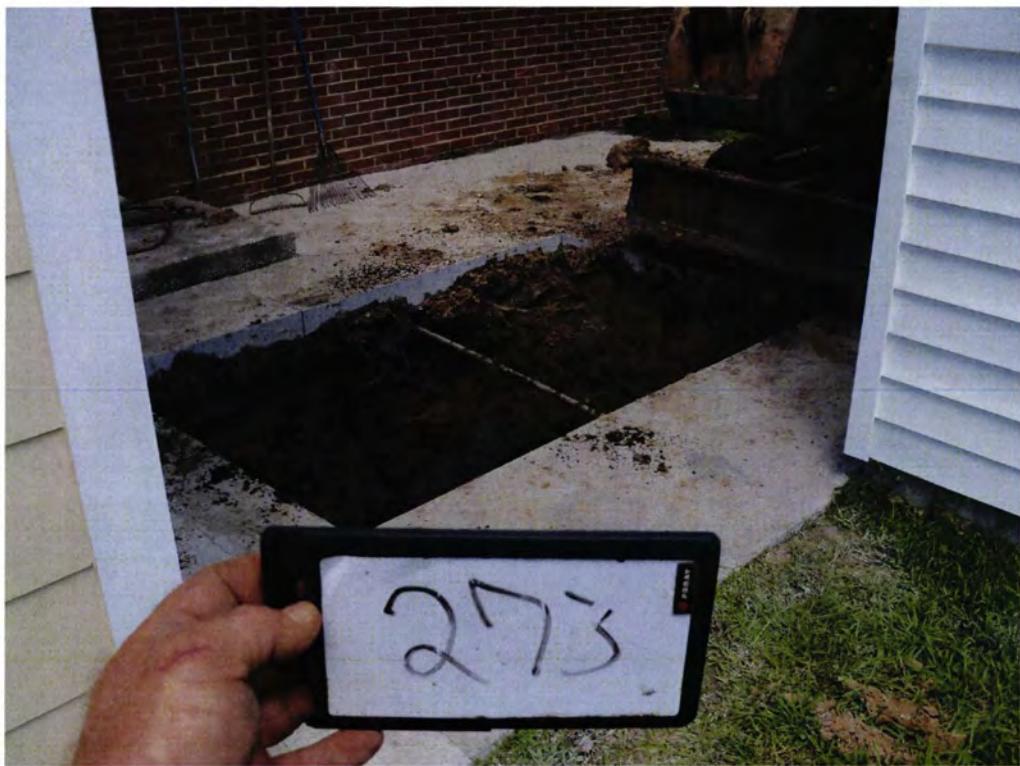
FIGURE 3 UST SAMPLE LOCATIONS
273 BIRCH DRIVE, LAUREL BAY
MCAS BEAUFORT SC

SCALE: GRAPHIC

DWG DATE JULY 2012



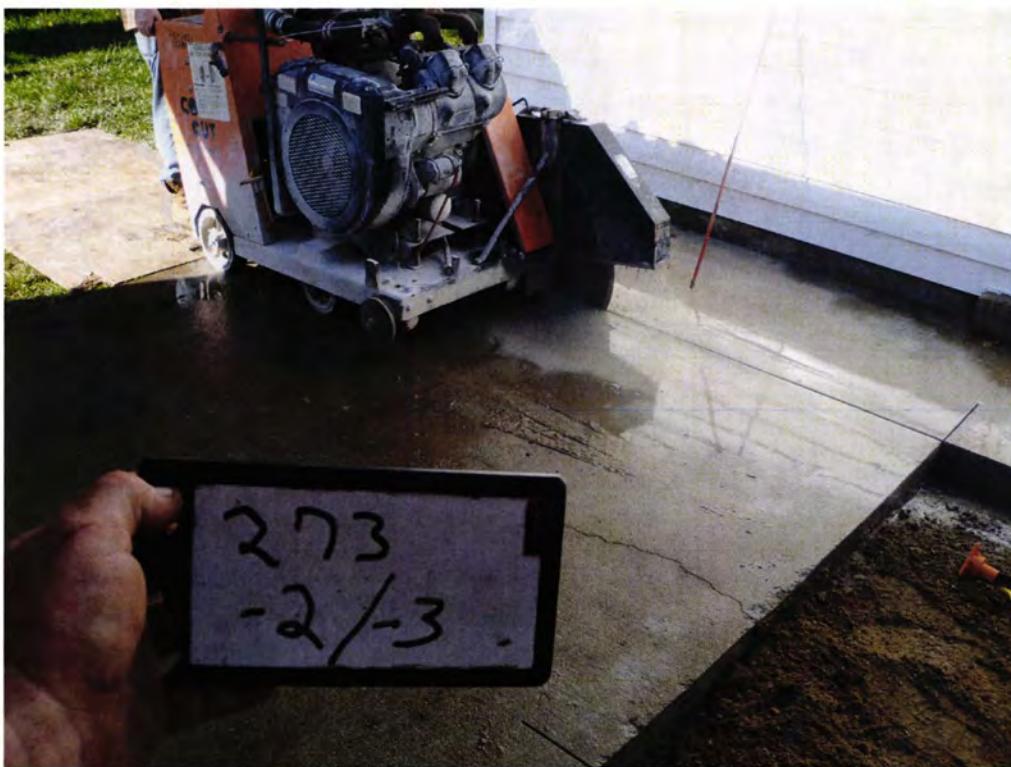
Picture 1: Location of UST 273Birch-1.



Picture 2: UST 273Birch-1 excavation.



Picture 3: UST 273Birch-1 being wrapped for transport.



Picture 4: Location of tanks 273Birch-2 and -3.



Picture 5: Excavation site of UST 273Birch-2.



Picture 6: Removal of UST 273Birch-3.

XIV. SUMMARY OF ANALYSIS RESULTS

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

CoC	UST	273Birch-1A		273Birch-2A		273Birch-3A
Benzene		ND		ND		ND
Toluene		ND		ND		ND
Ethylbenzene		0.12 mg/kg		0.26 mg/kg		0.49 mg/kg
Xylenes		ND		ND		0.15 mg/kg
Naphthalene		1.2 mg/kg		1.3 mg/kg		2.0 mg/kg
Benzo (a) anthracene		ND		ND		ND
Benzo (b) fluoranthene		ND		ND		ND
Benzo (k) fluoranthene		ND		ND		ND
Chrysene		0.11 mg/kg		ND		ND
Dibenz (a, h) anthracene		ND		ND		ND
TPH (EPA 3550)						

CoC							
Benzene							
Toluene							
Ethylbenzene							
Xylenes							
Naphthalene							
Benzo (a) anthracene							
Benzo (b) fluoranthene							
Benzo (k) fluoranthene							
Chrysene							
Dibenz (a, h) anthracene							
TPH (EPA 3550)							

SUMMARY OF ANALYSIS RESULTS (cont'd)

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 ($\mu\text{g/l}$)	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	5				
Lead	Site specific				

XV. 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)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-66756-1

Client Project/Site: Laurel Bay Housing Project

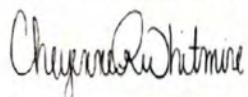
For:

Environmental Enterprise Group

10179 Highway 78

Ladson, South Carolina 29456

Attn: Mr. Tom McElwee



Authorized for release by:

7/11/2012 12:19:18 PM

Cheyenne Whitmire

Project Manager II

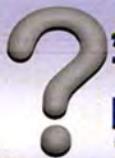
cheyenne.whitmire@testamericainc.com

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Have a Question?

 Ask
The
Expert

Visit us at:

www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Environmental Enterprise Group
Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Job ID: 400-66756-1

Laboratory: TestAmerica Pensacola

Narrative

**Job Narrative
400-66756-1**

GC/MS Semi VOA

Method(s) 8270D: The following sample was diluted to bring target analyte concentration(s) within the calibration range: 273 Birch - 2A (400-66756-2).

Method Summary

Client: Environmental Enterprise Group
Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PEN
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PEN
Moisture	Percent Moisture	EPA	TAL PEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Sample Summary

Client: Environmental Enterprise Group
Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-66756-1	273 Birch - 1A	Solid	06/28/12 09:45	06/30/12 09:30
400-66756-2	273 Birch - 2A	Solid	06/28/12 10:00	06/30/12 09:30
400-66756-3	273 Birch - 3A	Solid	06/28/12 10:15	06/30/12 09:30
400-66756-4	1248 Dove - A	Solid	06/28/12 10:45	06/30/12 09:30
400-66756-5	711 Bluebell - A	Solid	06/28/12 11:15	06/30/12 09:30

Client Sample Results

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Client Sample ID: 273 Birch - 1A

Date Collected: 06/28/12 09:45

Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-1

Matrix: Solid

Percent Solids: 80.4

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.31	0.030	mg/Kg	⊕	07/02/12 14:30	07/05/12 13:49	50
Ethylbenzene	0.12	J	0.31	0.038	mg/Kg	⊕	07/02/12 14:30	07/05/12 13:49	50
Toluene	ND		0.31	0.043	mg/Kg	⊕	07/02/12 14:30	07/05/12 13:49	50
Xylenes, Total	ND		0.62	0.12	mg/Kg	⊕	07/02/12 14:30	07/05/12 13:49	50
Naphthalene	1.2		0.31	0.062	mg/Kg	⊕	07/02/12 14:30	07/05/12 13:49	50
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	100			72 - 122			07/02/12 14:30	07/05/12 13:49	50
Dibromofluoromethane	96			79 - 118			07/02/12 14:30	07/05/12 13:49	50
Toluene-d8 (Surr)	101			80 - 120			07/02/12 14:30	07/05/12 13:49	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.26	J	0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Acenaphthylene	ND		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Anthracene	0.12	J	0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Benzo[a]anthracene	ND		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Benzo[a]pyrene	ND		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Benzo[b]fluoranthene	ND		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Benzo[g,h,i]perylene	ND		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Benzo[k]fluoranthene	ND		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Chrysene	0.11	J	0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Dibenz(a,h)anthracene	ND		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Fluoranthene	0.22	J	0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Fluorene	ND		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Indeno[1,2,3-cd]pyrene	ND		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Naphthalene	0.34	J	0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Phenanthrene	1.5		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Pyrene	0.14	J	0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
1-Methylnaphthalene	3.1		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
2-Methylnaphthalene	4.3		0.41	0.041	mg/Kg	⊕	07/03/12 08:39	07/06/12 23:36	1
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	79			44 - 108			07/03/12 08:39	07/06/12 23:36	1
Nitrobenzene-d5 (Surr)	73			27 - 114			07/03/12 08:39	07/06/12 23:36	1
Terphenyl-d14 (Surr)	88			36 - 134			07/03/12 08:39	07/06/12 23:36	1

Client Sample Results

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Client Sample ID: 273 Birch - 2A

Date Collected: 06/28/12 10:00
 Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-2

Matrix: Solid
 Percent Solids: 83.8

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.24	0.023	mg/Kg	⊗	07/02/12 14:30	07/05/12 14:11	50
Ethylbenzene	0.26		0.24	0.029	mg/Kg	⊗	07/02/12 14:30	07/05/12 14:11	50
Toluene	ND		0.24	0.033	mg/Kg	⊗	07/02/12 14:30	07/05/12 14:11	50
Xylenes, Total	ND		0.47	0.090	mg/Kg	⊗	07/02/12 14:30	07/05/12 14:11	50
Naphthalene	1.3		0.24	0.047	mg/Kg	⊗	07/02/12 14:30	07/05/12 14:11	50
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	100			72 - 122			07/02/12 14:30	07/05/12 14:11	50
Dibromofluoromethane	97			79 - 118			07/02/12 14:30	07/05/12 14:11	50
Toluene-d8 (Surr)	102			80 - 120			07/02/12 14:30	07/05/12 14:11	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Acenaphthylene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Anthracene	0.047 J		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Benzo[a]anthracene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Benzo[a]pyrene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Benzo[b]fluoranthene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Benzo[g,h,i]perylene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Benzo[k]fluoranthene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Chrysene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Dibenz(a,h)anthracene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Fluoranthene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Fluorene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Indeno[1,2,3-cd]pyrene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Naphthalene	0.25 J		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Phenanthrene	ND		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
Pyrene	0.39		0.39	0.039	mg/Kg	⊗	07/03/12 08:39	07/07/12 00:11	1
1-Methylnaphthalene	17		2.0	0.20	mg/Kg	⊗	07/03/12 08:39	07/09/12 23:48	5
2-Methylnaphthalene	21		2.0	0.20	mg/Kg	⊗	07/03/12 08:39	07/09/12 23:48	5
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	56			44 - 108			07/03/12 08:39	07/07/12 00:11	1
Nitrobenzene-d5 (Surr)	98			27 - 114			07/03/12 08:39	07/07/12 00:11	1
Terphenyl-d14 (Surr)	74			36 - 134			07/03/12 08:39	07/07/12 00:11	1

Client Sample Results

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Client Sample ID: 273 Birch - 3A

Date Collected: 06/28/12 10:15

Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-3

Matrix: Solid

Percent Solids: 74.9

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.25	0.025	mg/Kg	✉	07/02/12 14:30	07/05/12 14:33	50
Ethylbenzene	0.49		0.25	0.031	mg/Kg	✉	07/02/12 14:30	07/05/12 14:33	50
Toluene	ND		0.25	0.035	mg/Kg	✉	07/02/12 14:30	07/05/12 14:33	50
Xylenes, Total	0.15	J	0.50	0.096	mg/Kg	✉	07/02/12 14:30	07/05/12 14:33	50
Naphthalene	2.0		0.25	0.050	mg/Kg	✉	07/02/12 14:30	07/05/12 14:33	50
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	100			72 - 122			07/02/12 14:30	07/05/12 14:33	50
Dibromofluoromethane	92			79 - 118			07/02/12 14:30	07/05/12 14:33	50
Toluene-d8 (Surr)	102			80 - 120			07/02/12 14:30	07/05/12 14:33	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.13	J	0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Acenaphthylene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Anthracene	0.12	J	0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Benzo[a]anthracene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Benzo[a]pyrene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Benzo[b]fluoranthene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Benzo[g,h,i]perylene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Benzo[k]fluoranthene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Chrysene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Dibenz(a,h)anthracene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Fluoranthene	0.11	J	0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Fluorene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Indeno[1,2,3-cd]pyrene	ND		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Naphthalene	0.47		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Phenanthrene	0.72		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Pyrene	0.087	J	0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
1-Methylnaphthalene	2.0		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
2-Methylnaphthalene	2.5		0.44	0.044	mg/Kg	✉	07/03/12 08:39	07/07/12 00:45	1
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	81			44 - 108			07/03/12 08:39	07/07/12 00:45	1
Nitrobenzene-d5 (Surr)	66			27 - 114			07/03/12 08:39	07/07/12 00:45	1
Terphenyl-d14 (Surr)	87			36 - 134			07/03/12 08:39	07/07/12 00:45	1

Client Sample Results

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Client Sample ID: 1248 Dove - A

Date Collected: 06/28/12 10:45

Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-4

Matrix: Solid

Percent Solids: 89.6

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0059	0.00058	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:21	1
Ethylbenzene	ND		0.0059	0.00072	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:21	1
Toluene	ND		0.0059	0.00083	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:21	1
Xylenes, Total	ND		0.012	0.0023	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:21	1
Naphthalene	ND		0.0059	0.0012	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:21	1
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99			72 - 122			07/02/12 14:30	07/05/12 12:21	1
Dibromofluoromethane	105			79 - 118			07/02/12 14:30	07/05/12 12:21	1
Toluene-d8 (Surr)	101			80 - 120			07/02/12 14:30	07/05/12 12:21	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Acenaphthylene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Anthracene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Benzo[a]anthracene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Benzo[a]pyrene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Benzo[b]fluoranthene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Benzo[g,h,i]perylene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Benzo[k]fluoranthene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Chrysene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Dibenz(a,h)anthracene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Fluoranthene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Fluorene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Indeno[1,2,3-cd]pyrene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Naphthalene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Phenanthrene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Pyrene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
1-Methylnaphthalene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
2-Methylnaphthalene	ND		0.36	0.036	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:19	1
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	54			44 - 108			07/03/12 08:39	07/07/12 01:19	1
Nitrobenzene-d5 (Surr)	39			27 - 114			07/03/12 08:39	07/07/12 01:19	1
Terphenyl-d14 (Surr)	74			36 - 134			07/03/12 08:39	07/07/12 01:19	1

Client Sample Results

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Client Sample ID: 711 Bluebell - A

Date Collected: 06/28/12 11:15

Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-5

Matrix: Solid

Percent Solids: 88.9

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0051	0.00050	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:43	1
Ethylbenzene	ND		0.0051	0.00063	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:43	1
Toluene	ND		0.0051	0.00072	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:43	1
Xylenes, Total	ND		0.010	0.0019	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:43	1
Naphthalene	ND		0.0051	0.0010	mg/Kg	⊗	07/02/12 14:30	07/05/12 12:43	1
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	103			72 - 122			07/02/12 14:30	07/05/12 12:43	1
Dibromofluoromethane	104			79 - 118			07/02/12 14:30	07/05/12 12:43	1
Toluene-d8 (Surr)	101			80 - 120			07/02/12 14:30	07/05/12 12:43	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Acenaphthylene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Anthracene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Benzo[a]anthracene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Benzo[a]pyrene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Benzo[b]fluoranthene	0.042 J		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Benzo[g,h,i]perylene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Benzo[k]fluoranthene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Chrysene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Dibenz(a,h)anthracene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Fluoranthene	0.047 J		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Fluorene	0.041 J		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Indeno[1,2,3-cd]pyrene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Naphthalene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Phenanthrene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Pyrene	0.041 J		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
1-Methylnaphthalene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
2-Methylnaphthalene	ND		0.37	0.037	mg/Kg	⊗	07/03/12 08:39	07/07/12 01:53	1
Surrogate	%Recovery	Qualifier		Limits			Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	72			44 - 108			07/03/12 08:39	07/07/12 01:53	1
Nitrobenzene-d5 (Surr)	63			27 - 114			07/03/12 08:39	07/07/12 01:53	1
Terphenyl-d14 (Surr)	78			36 - 134			07/03/12 08:39	07/07/12 01:53	1

Definitions/Glossary

Client: Environmental Enterprise Group
Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report.

⊗	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Lab Chronicle

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Client Sample ID: 273 Birch - 1A

Date Collected: 06/28/12 09:45

Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-1

Matrix: Solid

Percent Solids: 80.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			157922	07/02/12 14:30	JL	TAL PEN
Total/NA	Analysis	8260B		50	157925	07/05/12 13:49	JL	TAL PEN
Total/NA	Prep	3550C			157861	07/03/12 08:39	RT	TAL PEN
Total/NA	Analysis	8270D		1	158045	07/06/12 23:36	DW	TAL PEN
Total/NA	Analysis	Moisture		1	157907	07/02/12 15:00	MS	TAL PEN

Client Sample ID: 273 Birch - 2A

Date Collected: 06/28/12 10:00

Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-2

Matrix: Solid

Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			157922	07/02/12 14:30	JL	TAL PEN
Total/NA	Analysis	8260B		50	157925	07/05/12 14:11	JL	TAL PEN
Total/NA	Prep	3550C			157861	07/03/12 08:39	RT	TAL PEN
Total/NA	Analysis	8270D		1	158045	07/07/12 00:11	DW	TAL PEN
Total/NA	Analysis	8270D		5	158184	07/09/12 23:48	JP	TAL PEN
Total/NA	Analysis	Moisture		1	157907	07/02/12 15:00	MS	TAL PEN

Client Sample ID: 273 Birch - 3A

Date Collected: 06/28/12 10:15

Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-3

Matrix: Solid

Percent Solids: 74.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			157922	07/02/12 14:30	JL	TAL PEN
Total/NA	Analysis	8260B		50	157925	07/05/12 14:33	JL	TAL PEN
Total/NA	Prep	3550C			157861	07/03/12 08:39	RT	TAL PEN
Total/NA	Analysis	8270D		1	158045	07/07/12 00:45	DW	TAL PEN
Total/NA	Analysis	Moisture		1	157907	07/02/12 15:00	MS	TAL PEN

Client Sample ID: 1248 Dove - A

Date Collected: 06/28/12 10:45

Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-4

Matrix: Solid

Percent Solids: 89.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			157922	07/02/12 14:30	JL	TAL PEN
Total/NA	Analysis	8260B		1	157925	07/05/12 12:21	JL	TAL PEN
Total/NA	Prep	3550C			157861	07/03/12 08:39	RT	TAL PEN
Total/NA	Analysis	8270D		1	158045	07/07/12 01:19	DW	TAL PEN
Total/NA	Analysis	Moisture		1	157907	07/02/12 15:00	MS	TAL PEN

Lab Chronicle

Client: Environmental Enterprise Group
Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Client Sample ID: 711 Bluebell - A

Date Collected: 06/28/12 11:15

Date Received: 06/30/12 09:30

Lab Sample ID: 400-66756-5

Matrix: Solid

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			157922	07/02/12 14:30	JL	TAL PEN
Total/NA	Analysis	8260B		1	157925	07/05/12 12:43	JL	TAL PEN
Total/NA	Prep	3550C			157861	07/03/12 08:39	RT	TAL PEN
Total/NA	Analysis	8270D		1	158045	07/07/12 01:53	DW	TAL PEN
Total/NA	Analysis	Moisture		1	157907	07/02/12 15:00	MS	TAL PEN

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

QC Association Summary

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

GC/MS VOA

Prep Batch: 157922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-66756-1	273 Birch - 1A	Total/NA	Solid	5035	
400-66756-2	273 Birch - 2A	Total/NA	Solid	5035	
400-66756-3	273 Birch - 3A	Total/NA	Solid	5035	
400-66756-4	1248 Dove - A	Total/NA	Solid	5035	
400-66756-5	711 Bluebell - A	Total/NA	Solid	5035	
LCS 400-157922/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 400-157922/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
MB 400-157922/1-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 157925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-66756-1	273 Birch - 1A	Total/NA	Solid	8260B	157922
400-66756-2	273 Birch - 2A	Total/NA	Solid	8260B	157922
400-66756-3	273 Birch - 3A	Total/NA	Solid	8260B	157922
400-66756-4	1248 Dove - A	Total/NA	Solid	8260B	157922
400-66756-5	711 Bluebell - A	Total/NA	Solid	8260B	157922
LCS 400-157922/2-A	Lab Control Sample	Total/NA	Solid	8260B	157922
LCSD 400-157922/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	157922
MB 400-157922/1-A	Method Blank	Total/NA	Solid	8260B	157922

GC/MS Semi VOA

Prep Batch: 157861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-66739-E-3-B MS	Matrix Spike	Total/NA	Solid	3550C	
400-66739-E-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3550C	
400-66756-1	273 Birch - 1A	Total/NA	Solid	3550C	
400-66756-2	273 Birch - 2A	Total/NA	Solid	3550C	
400-66756-3	273 Birch - 3A	Total/NA	Solid	3550C	
400-66756-4	1248 Dove - A	Total/NA	Solid	3550C	
400-66756-5	711.Bluebell - A	Total/NA	Solid	3550C	
LCS 400-157861/17-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 400-157861/18-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 158045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-66756-1	273 Birch - 1A	Total/NA	Solid	8270D	157861
400-66756-2	273 Birch - 2A	Total/NA	Solid	8270D	157861
400-66756-3	273 Birch - 3A	Total/NA	Solid	8270D	157861
400-66756-4	1248 Dove - A	Total/NA	Solid	8270D	157861
400-66756-5	711 Bluebell - A	Total/NA	Solid	8270D	157861

Analysis Batch: 158085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-66739-E-3-B MS	Matrix Spike	Total/NA	Solid	8270D	157861
400-66739-E-3-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8270D	157861
LCS 400-157861/17-A	Lab Control Sample	Total/NA	Solid	8270D	157861
MB 400-157861/18-A	Method Blank	Total/NA	Solid	8270D	157861

Analysis Batch: 158184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-66756-2	273 Birch - 2A	Total/NA	Solid	8270D	157861

QC Association Summary

Client: Environmental Enterprise Group
Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

General Chemistry

Analysis Batch: 157907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-66756-1	273 Birch - 1A	Total/NA	Solid	Moisture	
400-66756-2	273 Birch - 2A	Total/NA	Solid	Moisture	
400-66756-3	273 Birch - 3A	Total/NA	Solid	Moisture	
400-66756-4	1248 Dove - A	Total/NA	Solid	Moisture	
400-66756-5	711 Bluebell - A	Total/NA	Solid	Moisture	

QC Sample Results

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 400-157922/1-A

Matrix: Solid

Analysis Batch: 157925

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 157922

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier									
Benzene	ND		0.0050		0.00049	mg/Kg		06/28/12 14:00	07/05/12 08:49		1
Ethylbenzene	ND		0.0050		0.00061	mg/Kg		06/28/12 14:00	07/05/12 08:49		1
Toluene	ND		0.0050		0.00070	mg/Kg		06/28/12 14:00	07/05/12 08:49		1
Xylenes, Total	ND		0.010		0.0019	mg/Kg		06/28/12 14:00	07/05/12 08:49		1
Naphthalene	ND		0.0050		0.0010	mg/Kg		06/28/12 14:00	07/05/12 08:49		1
Surrogate		MB	MB	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene		102				72 - 122			06/28/12 14:00	07/05/12 08:49	
Dibromofluoromethane		104				79 - 118			06/28/12 14:00	07/05/12 08:49	
Toluene-d8 (Surr)		100				80 - 120			06/28/12 14:00	07/05/12 08:49	

Lab Sample ID: LCS 400-157922/2-A

Matrix: Solid

Analysis Batch: 157925

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 157922

Analyte	MB	MB	Spike	Result	Qualifier	Unit	D	%Rec	Limits	%Rec.
	Added									
Benzene		0.0500		0.0561		mg/Kg		112	74 - 119	
Ethylbenzene		0.0500		0.0523		mg/Kg		105	78 - 116	
Toluene		0.0500		0.0549		mg/Kg		110	76 - 116	
Xylenes, Total		0.150		0.160		mg/Kg		107	77 - 118	
Naphthalene		0.0500		0.0541		mg/Kg		108	64 - 126	
Surrogate		MB	MB	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene		99				72 - 122				
Dibromofluoromethane		105				79 - 118				
Toluene-d8 (Surr)		102				80 - 120				

Lab Sample ID: LCSD 400-157922/3-A

Matrix: Solid

Analysis Batch: 157925

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 157922

Analyte	LCSD	LCSD	Spike	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
	Added										
Benzene		0.0500		0.0557		mg/Kg		111	74 - 119	1	10
Ethylbenzene		0.0500		0.0526		mg/Kg		105	78 - 116	1	12
Toluene		0.0500		0.0551		mg/Kg		110	76 - 116	0	11
Xylenes, Total		0.150		0.162		mg/Kg		108	77 - 118	1	12
Naphthalene		0.0500		0.0555		mg/Kg		111	64 - 126	3	16
Surrogate		LCSD	LCSD	%Recovery	Qualifier	Limits					
4-Bromofluorobenzene		100				72 - 122					
Dibromofluoromethane		104				79 - 118					
Toluene-d8 (Surr)		100				80 - 120					

QC Sample Results

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 400-157861/18-A

Matrix: Solid

Analysis Batch: 158085

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 157861

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
	Result	Qualifier								
Acenaphthene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Acenaphthene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Acenaphthylene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Acenaphthylene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Anthracene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Anthracene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[a]anthracene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[a]anthracene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[a]pyrene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[a]pyrene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[b]fluoranthene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[b]fluoranthene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[g,h,i]perylene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[g,h,i]perylene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[k]fluoranthene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Benzo[k]fluoranthene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Chrysene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Chrysene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Dibenz(a,h)anthracene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Dibenz(a,h)anthracene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Fluoranthene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Fluoranthene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Fluorene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Fluorene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Indeno[1,2,3-cd]pyrene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Indeno[1,2,3-cd]pyrene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Naphthalene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Naphthalene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Phenanthrene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Phenanthrene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Pyrene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Pyrene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
1-Methylnaphthalene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
1-Methylnaphthalene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
2-Methylnaphthalene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
2-Methylnaphthalene	ND		0.33	0.033	mg/Kg	07/03/12 08:39	07/06/12 20:58		1	
Surrogate		MB		MB		Limits		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier				Limits				
2-Fluorobiphenyl	88					44 - 108		07/03/12 08:39	07/06/12 20:58	1
2-Fluorobiphenyl	88					44 - 108		07/03/12 08:39	07/06/12 20:58	1
Nitrobenzene-d5 (Surr)	73					27 - 114		07/03/12 08:39	07/06/12 20:58	1
Nitrobenzene-d5 (Surr)	73					27 - 114		07/03/12 08:39	07/06/12 20:58	1
Terphenyl-d14 (Surr)	107					36 - 134		07/03/12 08:39	07/06/12 20:58	1
Terphenyl-d14 (Surr)	107					36 - 134		07/03/12 08:39	07/06/12 20:58	1

QC Sample Results

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 400-157861/17-A

Matrix: Solid

Analysis Batch: 158085

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 157861

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				Limits
Acenaphthene	1.67	1.49		mg/Kg	89	53 - 108	
Acenaphthene	1.67	1.49		mg/Kg	89	53 - 108	
Acenaphthylene	1.67	1.50		mg/Kg	90	57 - 111	
Acenaphthylene	1.67	1.50		mg/Kg	90	57 - 111	
Anthracene	1.67	1.57		mg/Kg	94	56 - 110	
Anthracene	1.67	1.57		mg/Kg	94	56 - 110	
Benzo[a]anthracene	1.67	1.69		mg/Kg	101	52 - 105	
Benzo[a]anthracene	1.67	1.69		mg/Kg	101	52 - 105	
Benzo[a]pyrene	1.67	1.33		mg/Kg	80	52 - 97	
Benzo[a]pyrene	1.67	1.33		mg/Kg	80	52 - 97	
Benzo[b]fluoranthene	1.67	1.34		mg/Kg	81	49 - 95	
Benzo[b]fluoranthene	1.67	1.34		mg/Kg	81	49 - 95	
Benzo[g,h,i]perylene	1.67	1.35		mg/Kg	81	47 - 122	
Benzo[g,h,i]perylene	1.67	1.35		mg/Kg	81	47 - 122	
Benzo[k]fluoranthene	1.67	1.56		mg/Kg	94	57 - 113	
Benzo[k]fluoranthene	1.67	1.56		mg/Kg	94	57 - 113	
Chrysene	1.67	1.60		mg/Kg	96	56 - 102	
Chrysene	1.67	1.60		mg/Kg	96	56 - 102	
Dibenz(a,h)anthracene	1.67	1.46		mg/Kg	87	46 - 114	
Dibenz(a,h)anthracene	1.67	1.46		mg/Kg	87	46 - 114	
Fluoranthene	1.67	1.70		mg/Kg	102	56 - 120	
Fluoranthene	1.67	1.70		mg/Kg	102	56 - 120	
Fluorene	1.67	1.57		mg/Kg	94	51 - 116	
Fluorene	1.67	1.57		mg/Kg	94	51 - 116	
Indeno[1,2,3-cd]pyrene	1.67	1.63		mg/Kg	98	48 - 119	
Indeno[1,2,3-cd]pyrene	1.67	1.63		mg/Kg	98	48 - 119	
Naphthalene	1.67	1.38		mg/Kg	83	52 - 99	
Naphthalene	1.67	1.38		mg/Kg	83	52 - 99	
Phenanthrene	1.67	1.59		mg/Kg	95	56 - 113	
Phenanthrene	1.67	1.59		mg/Kg	95	56 - 113	
Pyrene	1.67	1.47		mg/Kg	88	56 - 100	
Pyrene	1.67	1.47		mg/Kg	88	56 - 100	
1-Methylnaphthalene	1.67	1.51		mg/Kg	90	58 - 104	
1-Methylnaphthalene	1.67	1.51		mg/Kg	90	58 - 104	
2-Methylnaphthalene	1.67	1.40		mg/Kg	84	53 - 99	
2-Methylnaphthalene	1.67	1.40		mg/Kg	84	53 - 99	

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl	82		44 - 108
2-Fluorobiphenyl	82		44 - 108
Nitrobenzene-d5 (Surr)	69		27 - 114
Nitrobenzene-d5 (Surr)	69		27 - 114
Terphenyl-d14 (Surr)	91		36 - 134
Terphenyl-d14 (Surr)	91		36 - 134

QC Sample Results

Client: Environmental Enterprise Group
 Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 400-66739-E-3-B MS

Matrix: Solid

Analysis Batch: 158085

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 157861

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Acenaphthene	ND		2.04	1.72		mg/Kg	⊗	85	10 - 150
Acenaphthylene	ND		2.04	1.74		mg/Kg	⊗	85	10 - 150
Anthracene	ND		2.04	1.84		mg/Kg	⊗	90	10 - 150
Benzo[a]anthracene	ND		2.04	1.99		mg/Kg	⊗	98	10 - 150
Benzo[a]pyrene	ND		2.04	1.55		mg/Kg	⊗	76	10 - 150
Benzo[b]fluoranthene	ND		2.04	1.54		mg/Kg	⊗	75	10 - 150
Benzo[g,h,i]perylene	ND		2.04	1.56		mg/Kg	⊗	77	10 - 150
Benzo[k]fluoranthene	ND		2.04	1.80		mg/Kg	⊗	88	10 - 150
Chrysene	ND		2.04	1.86		mg/Kg	⊗	91	10 - 150
Dibenz(a,h)anthracene	ND		2.04	1.68		mg/Kg	⊗	82	32 - 111
Fluoranthene	ND		2.04	2.03		mg/Kg	⊗	100	10 - 150
Fluorene	ND		2.04	1.78		mg/Kg	⊗	88	10 - 150
Indeno[1,2,3-cd]pyrene	ND		2.04	1.89		mg/Kg	⊗	93	10 - 150
Naphthalene	ND		2.04	1.56		mg/Kg	⊗	77	10 - 150
Phenanthrene	ND		2.04	1.87		mg/Kg	⊗	92	10 - 150
Pyrene	ND		2.04	1.74		mg/Kg	⊗	85	10 - 150
1-Methylnaphthalene			2.04	1.72		mg/Kg	⊗		
2-Methylnaphthalene	ND		2.04	1.60		mg/Kg	⊗	78	10 - 150
Surrogate		MS	MS						
		%Recovery	Qualifier			Limits			
2-Fluorobiphenyl		73				44 - 108			
Nitrobenzene-d5 (Surr)		62				27 - 114			
Terphenyl-d14 (Surr)		83				36 - 134			

Lab Sample ID: 400-66739-E-3-C MSD

Matrix: Solid

Analysis Batch: 158085

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 157861

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Acenaphthene	ND		2.03	1.76		mg/Kg	⊗	86	10 - 150	2	36
Acenaphthylene	ND		2.03	1.78		mg/Kg	⊗	88	10 - 150	3	29
Anthracene	ND		2.03	1.86		mg/Kg	⊗	91	10 - 150	1	30
Benzo[a]anthracene	ND		2.03	1.98		mg/Kg	⊗	97	10 - 150	1	33
Benzo[a]pyrene	ND		2.03	1.55		mg/Kg	⊗	76	10 - 150	0	30
Benzo[b]fluoranthene	ND		2.03	1.56		mg/Kg	⊗	77	10 - 150	1	31
Benzo[g,h,i]perylene	ND		2.03	1.58		mg/Kg	⊗	78	10 - 150	1	30
Benzo[k]fluoranthene	ND		2.03	1.81		mg/Kg	⊗	89	10 - 150	1	29
Chrysene	ND		2.03	1.86		mg/Kg	⊗	92	10 - 150	0	33
Dibenz(a,h)anthracene	ND		2.03	1.71		mg/Kg	⊗	84	32 - 111	2	30
Fluoranthene	ND		2.03	2.02		mg/Kg	⊗	99	10 - 150	1	42
Fluorene	ND		2.03	1.79		mg/Kg	⊗	88	10 - 150	0	36
Indeno[1,2,3-cd]pyrene	ND		2.03	1.93		mg/Kg	⊗	95	10 - 150	2	31
Naphthalene	ND		2.03	1.61		mg/Kg	⊗	79	10 - 150	3	33
Phenanthrene	ND		2.03	1.87		mg/Kg	⊗	92	10 - 150	0	34
Pyrene	ND		2.03	1.74		mg/Kg	⊗	86	10 - 150	0	45
1-Methylnaphthalene			2.03	1.75		mg/Kg	⊗				
2-Methylnaphthalene	ND		2.03	1.63		mg/Kg	⊗	80	10 - 150	2	32

QC Sample Results

Client: Environmental Enterprise Group
Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 400-66739-E-3-C MSD

Matrix: Solid

Analysis Batch: 158085

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 157861

Surrogate	MSD	MSD	
	%Recovery	Qualifier	Limits
2-Fluorobiphenyl	78		44 - 108
Nitrobenzene-d5 (Surr)	64		27 - 114
Terphenyl-d14 (Surr)	83		36 - 134

Login Sample Receipt Checklist

Client: Environmental Enterprise Group

Job Number: 400-66756-1

Login Number: 66756

List Source: TestAmerica Pensacola

List Number: 1

Creator: Hooper, Carolyn

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.3°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Environmental Enterprise Group
Project/Site: Laurel Bay Housing Project

TestAmerica Job ID: 400-66756-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Pensacola	Alabama	State Program	4	40150
TestAmerica Pensacola	Arizona	State Program	9	AZ0710
TestAmerica Pensacola	Arkansas DEQ	State Program	6	88-0689
TestAmerica Pensacola	Florida	NELAC	4	E81010
TestAmerica Pensacola	Georgia	State Program	4	N/A
TestAmerica Pensacola	Illinois	NELAC	5	200041
TestAmerica Pensacola	Iowa	State Program	7	367
TestAmerica Pensacola	Kansas	NELAC	7	E-10253
TestAmerica Pensacola	Kentucky (UST)	State Program	4	53
TestAmerica Pensacola	Louisiana	NELAC	6	30976
TestAmerica Pensacola	Maryland	State Program	3	233
TestAmerica Pensacola	Massachusetts	State Program	1	M-FL094
TestAmerica Pensacola	Michigan	State Program	5	9912
TestAmerica Pensacola	New Hampshire	NELAC	1	2505
TestAmerica Pensacola	New Jersey	NELAC	2	FL006
TestAmerica Pensacola	North Carolina DENR	State Program	4	314
TestAmerica Pensacola	Oklahoma	State Program	6	9810
TestAmerica Pensacola	Pennsylvania	NELAC	3	68-00467
TestAmerica Pensacola	Rhode Island	State Program	1	LAO00307
TestAmerica Pensacola	South Carolina	State Program	4	96026
TestAmerica Pensacola	Tennessee	State Program	4	TN02907
TestAmerica Pensacola	Texas	NELAC	6	T104704286-12-4
TestAmerica Pensacola	USDA	Federal		P330-10-00407
TestAmerica Pensacola	Virginia	NELAC	3	460166
TestAmerica Pensacola	Washington	State Program	10	C915
TestAmerica Pensacola	West Virginia DEP	State Program	3	136

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

testAmerica

THE LEADER IN ENVIRONMENTAL TESTING

400-66756 Chain of Custody

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

Client Name/Account #: EEG - S86 # 2449

Address: 10179 Highway 78

City/State/Zip: Ladson, SC 29456

Project Manager: Tom McElwee email: tomelwee@eeginc.net

Telephone Number: 843-412-2088

Sampler Name: (Print) Joe H. Shanks
Sampler Signature: Joe H. Shanks

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

Compliance Monitoring? Yes No
Enforcement Action? Yes No

Site State: SC

PO#: 1063

TA Quote #:

Project ID: Laurel Bay Housing Project

Project #:

Sample ID / Description		Date Sampled	Time Sampled	No. of Containers Shipped	Group	Composite	Field Filtered	Ice	HNO ₃ (Red Label)	HNO ₃ (Orange Label)	H ₂ SO ₄ (Plastic Yellow Label)	H ₂ SO ₄ (Glass Yellow Label)	None (Black Label)	Other (Specify):	Soil	Dredging Water	Groundwater	Wastewater	Drinking Water	Studge	Other (Specify)	TA66756	PAH - 8270D	BTEX + Napth - 8260E	PO#:	Site State:	TA Quote #:	Project ID:	Project #:	Matrix	Analyze For:	RUSH TAT (Pre-Schedule)
273 Birch - 1A		6/28/12	0945	5	X																											
273 Birch - 2A		6/28/12	1000	5	X																											
273 Birch - 3A		6/28/12	1015	5	X																											
1248 DOVE - 1A		6/28/12	1045	5	X																											
711 WEBELL - A		6/28/12	1115	5	X																											

Special Instructions: These samples are re-sample events. Originator: FEDEX
Samples shipped 6/22/12

Method of Shipment: Relinquished by: Date Received by: Date Time Received by:

Laboratory Comments:

Temperature Upon Receipt:

VOCs Free of Headspace?

Y

4.3°C
Co were received at 1:29 out of
temperature bands at 11:29/12/2012

ATTACHMENT A

UST Certificate of Disposal

CONTRACTOR

Small Business Group, Inc.
10179 Highway 78
Ladson, SC 29456

TEL (843) 879-0403
FAX (843) 879-0401

TANK ID & LOCATION

UST 273Birch-1, 273 Birch Drive, Laurel Bay Housing Area, MCAS Beaufort, S.C.

DISPOSAL LOCATION

Coastal Auto Salvage Co., Inc.
130 Laurel Bay Road
Beaufort, S.C. 29906

TYPE OF TANK

SIZE (GAL)

Steel

280

CLEANING/DISPOSAL METHOD

The tank and piping were unearthed, cut open, cleaned with a pressure washer, cut into sections, and recycled.

DISPOSAL CERTIFICATION

I certify that the above tank, piping and equipment has been properly cleaned and disposed of.

T.L. McQuee / 8/3/12
(Name) (Date)

UST Certificate of Disposal

CONTRACTOR

Small Business Group, Inc.
10179 Highway 78
Ladson, SC 29456

TEL (843) 879-0403
FAX (843) 879-0401

TANK ID & LOCATION

UST 273Birch-2, 273 Birch Drive, Laurel Bay Housing Area, MCAS Beaufort, S.C.

DISPOSAL LOCATION

Coastal Auto Salvage Co., Inc.
130 Laurel Bay Road
Beaufort, S.C. 29906

<u>TYPE OF TANK</u>	<u>SIZE (GAL)</u>
----------------------------	--------------------------

Steel	280
-------	-----

CLEANING/DISPOSAL METHOD

The tank and piping were unearthed, cut open, cleaned with a pressure washer, cut into sections, and recycled.

DISPOSAL CERTIFICATION

I certify that the above tank, piping and equipment has been properly cleaned and disposed of.

T.E. Wheeler / 8-3-12

(Name)

(Date)



NON-HAZARDOUS MANIFEST

NON-HAZARDOUS MANIFEST		1. Generator's US EPA ID No.	Manifest Doc No.	2. Page 1 of 1		
3. Generator's Mailing Address: MCAS, BEAUFORT LAUREL BAY HOUSING BEAUFORT, SC 29907		Generator's Site Address (If different than mailing):		A. Manifest Number WMNA	00316821	
4. Generator's Phone 843-228-6461				B. State Generator's ID		
5. Transporter 1 Company Name EEG, INC.		6. US EPA ID Number		C. State Transporter's ID		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone	843-879-0411	
9. Designated Facility Name and Site Address HICKORY HILL LANDFILL 2621 LOW COUNTRY ROAD RIDGEGLAND, SC 29936		10. US EPA ID Number		E. State Transporter's ID		
				F. Transporter's Phone		
11. Description of Waste Materials		12. Containers	13. Total Quantity	14. Unit Wt./Vol.	I. Misc. Comments	
a. HEATING OIL TANKS FILLED WITH SAND WM Profile # 102655SC		No.	Type			
b. WM Profile #						
c. WM Profile #						
d. WM Profile #						
J. Additional Descriptions for Materials Listed Above		K. Disposal Location				
		Cell		Level		
		Grid				
15. Special Handling Instructions and Additional Information UST's from: 2) 273 Birch -3 1) 1300 East 1/2 - 3) 1248 Dove		4) 711 Bluebell 5) 1136 Iris 6) 1122 Iris				
Purchase Order #		EMERGENCY CONTACT / PHONE NO.:				
16. GENERATOR'S CERTIFICATE: I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.						
Printed Name		Signature "On behalf of"		Month	Day	Year
17. Transporter 1 Acknowledgement of Receipt of Materials Printed Name <u>Prath Shaw</u>		Signature <u>P. Shaw</u>		Month	Day	Year
18. Transporter 2 Acknowledgement of Receipt of Materials Printed Name <u>JAMES BALDWIN</u>		Signature <u>James Baldwin</u>		Month	Day	Year
19. Certificate of Final Treatment/Disposal I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the dates listed above.						
20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest. Printed Name <u>John Cofield</u>		Signature <u>John Cofield</u>		Month	Day	Year

White- TREATMENT, STORAGE, DISPOSAL FACILITY COPY

Blue- GENERATOR #2 COPY

Yellow- GENERATOR #1 COPY

Pink- FACILITY USE ONLY

Gold- TRANSPORTER #1 COPY

Appendix C
Laboratory Analytical Report - Initial Groundwater

Volatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants	Laboratory ID: QE29035-003
Description: BEALB273TW02WG20150527	Matrix: Aqueous
Date Sampled: 05/27/2015 1745	
Date Received: 05/29/2015	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	5030B	8260B	1	06/02/2015 1538	EH1		76315			
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
Benzene		71-43-2	8260B	1.4	J	5.0	0.45	0.21	ug/L	1
Ethylbenzene		100-41-4	8260B	1.7	J	5.0	0.51	0.17	ug/L	1
Naphthalene		91-20-3	8260B	34		5.0	0.96	0.32	ug/L	1
Toluene		108-88-3	8260B	0.48	U	5.0	0.48	0.16	ug/L	1
Xylenes (total)		1330-20-7	8260B	1.0	J	5.0	0.57	0.19	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits							
Bromofluorobenzene		97	75-120							
1,2-Dichloroethane-d4		91	70-120							
Toluene-d8		102	85-120							
Dibromofluoromethane		100	85-115							

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time Q = Surrogate failure
 ND = Not detected at or above the MDL J = Estimated result < PQL and \geq MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria L = LCS/LCSD failure
 Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
 S = MS/MSD failure

Semivolatile Organic Compounds by GC/MS (SIM)

Client: AECOM - Resolution Consultants

Laboratory ID: QE29035-003

Description: BEALB273TW02WG20150527

Matrix: Aqueous

Date Sampled: 05/27/2015 1745

Date Received: 05/29/2015

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	3520C	8270D (SIM)	1	06/02/2015 1922	RBH	06/01/2015 1430	76221			
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
Benzo(a)anthracene		56-55-3	8270D (SIM)	0.040	U	0.20	0.040	0.019	ug/L	1
Benzo(b)fluoranthene		205-99-2	8270D (SIM)	0.040	U	0.20	0.040	0.019	ug/L	1
Benzo(k)fluoranthene		207-08-9	8270D (SIM)	0.040	U	0.20	0.040	0.024	ug/L	1
Chrysene		218-01-9	8270D (SIM)	0.040	U	0.20	0.040	0.021	ug/L	1
Dibenzo(a,h)anthracene		53-70-3	8270D (SIM)	0.080	U	0.20	0.080	0.040	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits							
2-Methylnaphthalene-d10	73		15-139							
Fluoranthene-d10	90		23-154							

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

Q = Surrogate failure

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

L = LCS/LCSD failure

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

S = MS/MSD failure

Shealy Environmental Services, Inc.

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Level 1 Report v2.1

Appendix D
Laboratory Analytical Reports – Permanent Well Groundwater

Volatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Laboratory ID: RG27006-008

Description: BEALB273MW01WG20160725

Matrix: Aqueous

Date Sampled: 07/25/2016 1635

Date Received: 07/27/2016

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	5030B	8260B	1	07/28/2016 0136	ECP		18490			
Parameter		CAS Number		Analytical Method	Result Q	LOQ	LOD	DL	Units	Run
Benzene		71-43-2		8260B	2.4	1.0	0.80	0.40	ug/L	1
Ethylbenzene		100-41-4		8260B	5.9	1.0	0.80	0.40	ug/L	1
Naphthalene		91-20-3		8260B	75	1.0	0.80	0.40	ug/L	1
Toluene		108-88-3		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Xylenes (total)		1330-20-7		8260B	1.5	1.0	0.80	0.40	ug/L	1
Surrogate		Run 1 Q	% Recovery	Acceptance Limits						
Bromofluorobenzene		94		85-114						
Dibromofluoromethane		107		80-119						
1,2-Dichloroethane-d4		108		81-118						
Toluene-d8		100		89-112						

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

Q = Surrogate failure

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

L = LCS/LCSD failure

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

S = MS/MSD failure

Semivolatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Laboratory ID: RG27006-008

Description: BEALB273MW01WG20160725

Matrix: Aqueous

Date Sampled: 07/25/2016 1635

Date Received: 07/27/2016

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch					
1	3520C	8270D	1	08/03/2016 1425	RBH	08/01/2016	1236	18706				
Parameter		CAS Number		Analytical Method		Result	Q	LOQ	LOD	DL	Units	Run
Benzo(a)anthracene		56-55-3		8270D		0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(b)fluoranthene		205-99-2		8270D		0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(k)fluoranthene		207-08-9		8270D		0.10	U	0.20	0.10	0.040	ug/L	1
Chrysene		218-01-9		8270D		0.10	U	0.20	0.10	0.040	ug/L	1
Dibenzo(a,h)anthracene		53-70-3		8270D		0.10	U	0.20	0.10	0.040	ug/L	1
Surrogate		Run 1 Q	% Recovery		Acceptance Limits							
Nitrobenzene-d5		67		44-120								
2-Fluorobiphenyl		62		44-119								
Terphenyl-d14		58		50-134								

PQL = Practical quantitation limit

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

H = Out of holding time

Q = Surrogate failure

ND = Not detected at or above the MDL

J = Estimated result < PQL and \geq MDL

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

L = LCS/LCSD failure

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

S = MS/MSD failure

Volatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Laboratory ID: TL15001-019

Description: BEALB273MW02WG20181213

Matrix: Aqueous

Date Sampled: 12/13/2018 1340

Date Received: 12/14/2018

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	5030B	8260B	1	12/27/2018 0046	STM		93376			
Parameter		CAS Number		Analytical Method	Result Q	LOQ	LOD	DL	Units	Run
Benzene		71-43-2		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Ethylbenzene		100-41-4		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Naphthalene		91-20-3		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Toluene		108-88-3		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Xylenes (total)		1330-20-7		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Surrogate		Run 1 Q	% Recovery	Acceptance Limits						
Bromofluorobenzene		101		85-114						
Dibromofluoromethane		103		80-119						
1,2-Dichloroethane-d4		101		81-118						
Toluene-d8		103		89-112						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

Q = Surrogate failure

U = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result < LOQ and ≥ DL

L = LCS/LCSD failure

H = Out of holding time

W = Reported on wet weight basis

LOD = Limit of Detection

S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Laboratory ID: TL15001-019

Description: BEALB273MW02WG20181213

Matrix: Aqueous

Date Sampled: 12/13/2018 1340

Date Received: 12/14/2018

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch				
1	3520C	8270D	1	12/23/2018 1906	CMP2	12/17/2018 1747	92641				
Parameter		CAS Number		Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
Benzo(a)anthracene		56-55-3		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(b)fluoranthene		205-99-2		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(k)fluoranthene		207-08-9		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Chrysene		218-01-9		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Dibenzo(a,h)anthracene		53-70-3		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Surrogate		Run 1 Q	% Recovery	Acceptance Limits							
Nitrobenzene-d5		79		44-120							
2-Fluorobiphenyl		60		44-119							
Terphenyl-d14		96		50-134							

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

Q = Surrogate failure

U = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result < LOQ and \geq DL

L = LCS/LCSD failure

H = Out of holding time

W = Reported on wet weight basis

LOD = Limit of Detection

S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Laboratory ID: TL15001-007

Description: BEALB273MW03WG20181213

Matrix: Aqueous

Date Sampled: 12/13/2018 0920

Date Received: 12/14/2018

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/24/2018 1859	KGT		93276
2	5030B	8260B	1	12/28/2018 0005	STM		93514

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
Benzene	71-43-2	8260B	0.80	UQ	1.0	0.80	0.40	ug/L	1
Ethylbenzene	100-41-4	8260B	0.79	JQ	1.0	0.80	0.40	ug/L	1
Naphthalene	91-20-3	8260B	23	Q	1.0	0.80	0.40	ug/L	1
Toluene	108-88-3	8260B	0.80	UQ	1.0	0.80	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	0.74	JQ	1.0	0.80	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		102	85-114	H	104	85-114
Dibromofluoromethane	N	122	80-119	H	104	80-119
1,2-Dichloroethane-d4	N	76	81-118	H	103	81-118
Toluene-d8		109	89-112	H	104	89-112

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

Q = Surrogate failure

U = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result < LOQ and ≥ DL

L = LCS/LCSD failure

H = Out of holding time

W = Reported on wet weight basis

LOD = Limit of Detection

S = MS/MSD failure

Shealy Environmental Services, Inc.

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Semivolatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Laboratory ID: TL15001-007

Description: BEALB273MW03WG20181213

Matrix: Aqueous

Date Sampled: 12/13/2018 0920

Date Received: 12/14/2018

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	12/23/2018 1415	CMP2	12/17/2018 1747	92641

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
Benzo(a)anthracene	56-55-3	8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Chrysene	218-01-9	8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
Nitrobenzene-d5	80		44-120						
2-Fluorobiphenyl	60		44-119						
Terphenyl-d14	89		50-134						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

Q = Surrogate failure

U = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result < LOQ and ≥ DL

L = LCS/LCSD failure

H = Out of holding time

W = Reported on wet weight basis

LOD = Limit of Detection

S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants	Laboratory ID: TL15001-011
Description: BEALB273MW04WG20181213	Matrix: Aqueous
Date Sampled: 12/13/2018 1020	
Date Received: 12/14/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	12/24/2018 2028	KGT		93276
2	5030B	8260B	1	12/28/2018 0149	STM		93514

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
Benzene	71-43-2	8260B	0.80	UQ	1.0	0.80	0.40	ug/L	1
Ethylbenzene	100-41-4	8260B	0.80	UQ	1.0	0.80	0.40	ug/L	1
Naphthalene	91-20-3	8260B	0.62	JQ	1.0	0.80	0.40	ug/L	1
Toluene	108-88-3	8260B	0.80	UQ	1.0	0.80	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	0.80	UQ	1.0	0.80	0.40	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits			
Bromofluorobenzene		101	85-114	H	102	85-114			
Dibromofluoromethane	N	120	80-119	H	100	80-119			
1,2-Dichloroethane-d4	N	76	81-118	H	101	81-118			
Toluene-d8		108	89-112	H	104	89-112			

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants	Laboratory ID: TL15001-011
Description: BEALB273MW04WG20181213	Matrix: Aqueous
Date Sampled: 12/13/2018 1020	
Date Received: 12/14/2018	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch				
Parameter		CAS Number		Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
Benzo(a)anthracene		56-55-3		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(b)fluoranthene		205-99-2		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(k)fluoranthene		207-08-9		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Chrysene		218-01-9		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Dibenzo(a,h)anthracene		53-70-3		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Surrogate		Run 1 Q	% Recovery	Acceptance Limits							
Nitrobenzene-d5		83		44-120							
2-Fluorobiphenyl		67		44-119							
Terphenyl-d14		93		50-134							

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 U = Not detected at or above the LOQ N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and \geq DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis LOD = Limit of Detection S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Laboratory ID: TL15001-030

Description: BEALB273MW05WG20181213

Matrix: Aqueous

Date Sampled: 12/13/2018 1150

Date Received: 12/14/2018

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	5030B	8260B	1	12/27/2018 0438	STM		93376			
Parameter		CAS Number		Analytical Method	Result Q	LOQ	LOD	DL	Units	Run
Benzene		71-43-2		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Ethylbenzene		100-41-4		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Naphthalene		91-20-3		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Toluene		108-88-3		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Xylenes (total)		1330-20-7		8260B	0.80 U	1.0	0.80	0.40	ug/L	1
Surrogate		Run 1 Q	% Recovery	Acceptance Limits						
Bromofluorobenzene		100		85-114						
Dibromofluoromethane		102		80-119						
1,2-Dichloroethane-d4		101		81-118						
Toluene-d8		104		89-112						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

Q = Surrogate failure

U = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result < LOQ and ≥ DL

L = LCS/LCSD failure

H = Out of holding time

W = Reported on wet weight basis

LOD = Limit of Detection

S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Laboratory ID: TL15001-030

Description: BEALB273MW05WG20181213

Matrix: Aqueous

Date Sampled: 12/13/2018 1150

Date Received: 12/14/2018

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch				
Parameter		CAS Number		Analytical Method	Result	Q	LOQ	LOD	DL	Units	Run
Benzo(a)anthracene		56-55-3		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(b)fluoranthene		205-99-2		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Benzo(k)fluoranthene		207-08-9		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Chrysene		218-01-9		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Dibenzo(a,h)anthracene		53-70-3		8270D	0.10	U	0.20	0.10	0.040	ug/L	1
Surrogate	Q	Run 1 % Recovery		Acceptance Limits							
Nitrobenzene-d5		58		44-120							
2-Fluorobiphenyl		48		44-119							
Terphenyl-d14		89		50-134							

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

Q = Surrogate failure

U = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result < LOQ and \geq DL

L = LCS/LCSD failure

H = Out of holding time

W = Reported on wet weight basis

LOD = Limit of Detection

S = MS/MSD failure

Shealy Environmental Services, Inc.

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Appendix E
Historical Groundwater Analytical Results

Appendix F
Laboratory Analytical Reports - Vapor

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: AECOM

Client Sample ID: BEALB273SS01GS20170711

ALS Project ID: P1703354

Client Project ID: WE56-82 Birch Drive / 60342031.FI.WI

ALS Sample ID: P1703354-001

Test Code: EPA TO-15

Date Collected: 7/11/17

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9

Date Received: 7/17/17

Analyst: Simon Cao

Date Analyzed: 7/18/17

Sampling Media: 1.0 L Summa Canister

Volume(s) Analyzed: 0.025 Liter(s)

Test Notes:

Container ID: 1SC01228

Initial Pressure (psig): -0.90

Final Pressure (psig): 6.58

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
71-43-2	Benzene	26	31	26	9.9	U
108-88-3	Toluene	26	31	26	10	U
100-41-4	Ethylbenzene	56	31	26	9.9	
179601-23-1	m,p-Xylenes	230	62	52	18	
95-47-6	o-Xylene	100	31	26	9.2	
91-20-3	Naphthalene	26	31	26	11	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: AECOM

Client Sample ID: BEALB273SS01GS20180215

ALS Project ID: P1800790

Client Project ID: WE56-82 Birch Drive / 60342031.FI.WI

ALS Sample ID: P1800790-004

Test Code: EPA TO-15

Date Collected: 2/15/18

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9

Date Received: 2/22/18

Analyst: Simon Cao

Date Analyzed: 2/26/18

Sampling Media: 1.0 L Summa Canister

Volume(s) Analyzed: 0.40 Liter(s)

Test Notes:

Container ID: 1SC01294

Initial Pressure (psig): -0.69

Final Pressure (psig): 5.08

Container Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
71-43-2	Benzene	1.5	1.8	1.5	0.56	U
108-88-3	Toluene	45	1.8	1.5	0.60	
100-41-4	Ethylbenzene	9.6	1.8	1.5	0.56	
179601-23-1	m,p-Xylenes	39	3.5	3.0	1.1	
95-47-6	o-Xylene	31	1.8	1.5	0.53	
91-20-3	Naphthalene	0.80	1.8	1.5	0.63	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: AECOM

Client Sample ID: BEALB273IA01AA20180215

Client Project ID: WE56-82 Birch Drive / 60342031.FI.WI

ALS Project ID: P1800790

ALS Sample ID: P1800790-001

Test Code: EPA TO-15 SIM

Date Collected: 2/15/18

Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

Date Received: 2/22/18

Analyst: Lusine Hakobyan

Date Analyzed: 2/26/18

Sample Type: 6.0 L Silonite Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container ID: AS00878

Initial Pressure (psig): -2.30 Final Pressure (psig): 3.56

Container Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
71-43-2	Benzene	0.39	0.11	0.062	0.029	
108-88-3	Toluene	0.59	0.15	0.062	0.016	
100-41-4	Ethylbenzene	0.078	0.15	0.031	0.014	J
179601-23-1	m,p-Xylenes	0.18	0.15	0.062	0.028	
95-47-6	o-Xylene	0.082	0.15	0.031	0.013	J
91-20-3	Naphthalene	0.044	0.15	0.062	0.024	J

U = This analyte was analyzed for but not detected at the specified detection limit.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: AECOM

Client Sample ID: BEALB273AA01AA20180215

Client Project ID: WE56-82 Birch Drive / 60342031.FI.WI

ALS Project ID: P1800790

ALS Sample ID: P1800790-003

Test Code: EPA TO-15 SIM

Date Collected: 2/15/18

Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

Date Received: 2/22/18

Analyst: Lusine Hakobyan

Date Analyzed: 2/26/18

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container ID: SC01937

Initial Pressure (psig): -2.32 Final Pressure (psig): 3.59

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
71-43-2	Benzene	0.63	0.11	0.062	0.030	
108-88-3	Toluene	1.4	0.15	0.062	0.016	
100-41-4	Ethylbenzene	0.50	0.15	0.031	0.014	
179601-23-1	m,p-Xylenes	0.72	0.15	0.062	0.028	
95-47-6	o-Xylene	0.30	0.15	0.031	0.013	
91-20-3	Naphthalene	1.9	0.15	0.062	0.024	

U = This analyte was analyzed for but not detected at the specified detection limit.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Appendix G
Regulatory Correspondence

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

May 15, 2014

Commanding Officer
Attention: NREAO Mr. William A. Drawdy
United State Marine Corps Air Station
Post Office Box 55001
Beaufort, SC 29904-5001

RE: IGWA
Laurel Bay Underground Storage Tank Assessment Reports for:
See attached sheet

Dear Mr. Drawdy,

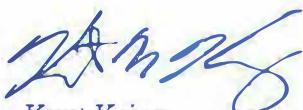
The South Carolina Department of Health and Environmental Control (the Department) received the above referenced Underground Storage Tank Assessment Reports for the addresses listed above. The regulatory authority for the investigation and cleanup of releases from these tank systems is the South Carolina Pollution Control Act (S.C. Code Ann. §48-1-10 *et seq.*, as amended).

The Department has reviewed the referenced assessment reports. The submitted analytical results indicate that petroleum constituents are above established Risk-Based Screening Levels and additional investigation is warranted. Specifically, the Department requests that a groundwater sampling proposal be generated to determine if there has been an impact to groundwater at this site.

Please note that the Department's decision is based on information provided by the Marine Corps Air Station (MCAS) to date. Any information found to be contradictory to this decision may require additional action. Furthermore, the Department retains the right to request further investigation if deemed necessary.

If you have any questions, please contact me at kriegkm@hec.sc.gov or 803-898-0255.

Sincerely,



Kent Krieg
Department of Defense Corrective Action Section
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control

Cc: Russell Berry (via email)
Craig Ehde (via email)

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Attachment to: Krieg to Drawdy
Subject: IGWA
Dated 5/15/2014

Laurel Bay Underground Storage Tank Assessment Reports for: (121 addresses/139 tanks)

137 Laurel Bay Tank 2	387 Acorn
139 Laurel Bay	392 Acorn Tank 2
229 Cypress Tank 2	396 Acorn Tank 1
261 Beech Tank 1	396 Acorn Tank 2
261 Beech Tank 3	430 Elderberry
273 Birch Tank 1	433 Elderberry
273 Birch Tank 2	439 Elderberry
273 Birch Tank 3	440 Elderberry
276 Birch Tank 2	442 Elderberry
278 Birch Tank 2	443 Elderberry
291 Birch Tank 2	444 Elderberry Tank 1
300 Ash	445 Elderberry
304 Ash	446 Elderberry
314 Ash Tank 1	448 Elderberry
314 Ash Tank 2	449 Elderberry
322 Ash Tank 2	451 Elderberry
323 Ash	453 Elderberry
324 Ash	456 Elderberry Tank 1
325 Ash Tank 1	456 Elderberry Tank 2
325 Ash Tank 2	458 Elderberry Tank 1
326 Ash	458 Elderberry Tank 3
336 Ash	464 Dogwood
339 Ash	466 Dogwood
343 Ash Tank 1	467 Dogwood
344 Ash Tank 1	468 Dogwood
348 Ash	469 Dogwood
349 Ash Tank 1	471 Dogwood Tank 2
353 Ash Tank 1	471 Dogwood Tank 3
362 Aspen	475 Dogwood Tank 1
376 Aspen	475 Dogwood Tank 2
380 Aspen	516 Laurel Bay Tank 1 (UST#03747)
383 Aspen Tank 2	518 Laurel Bay

Laurel Bay Underground Storage Tank Assessment Reports for: (121 addresses/139 tanks) cont.

531 Laurel Bay	1219 Cardinal
532 Laurel Bay	1272 Albatross
635 Dahlia Tank 2	1305 Eagle
638 Dahlia	1353 Cardinal
640 Dahlia Tank 1	1356 Cardinal
640 Dahlia Tank 2	1357 Cardinal
645 Dahlia	1359 Cardinal
647 Dahlia	1360 Cardinal
648 Dahlia Tank 2	1361 Cardinal
650 Dahlia Tank 1	1368 Cardinal
650 Dahlia Tank 2	1370 Cardinal Tank 1
652 Dahlia Tank 1	1377 Dove
652 Dahlia Tank 2	1381 Dove
760 Althea	1382 Dove
763 Althea	1384 Dove
771 Althea	1385 Dove
927 Albacore	1389 Dove
1015 Foxglove	1391 Dove
1046 Gardenia	1392 Dove
1062 Gardenia Tank 2	1393 Dove Tank 1
1070 Heather	1393 Dove Tank 2
1072 Heather	1406 Eagle
1102 Iris Tank 1	1407 Eagle Tank 1
1107 Iris	1411 Eagle Tank 1
1126 Iris	1411 Eagle Tank 2
1129 Iris	1412 Eagle
1132 Iris	1413 Albatross
1133 Iris Tank 1	1414 Albatross
1138 Iris	1422 Albatross
1144 Iris Tank 1	1425 Albatross
1144 Iris Tank 2	1426 Albatross
1148 Iris Tank 1	1432 Dove
1148 Iris Tank 2	1434 Dove
1161 Jasmine	1436 Dove
1167 Jasmine	1438 Dove Tank 1
1170 Jasmine	1440 Dove
1190 Bobwhite	1442 Dove Tank 1
1192 Bobwhite	



Catherine E. Heigel, Director

Promoting and protecting the health of the public and the environment

Division of Waste Management
Bureau of Land and Waste Management

February 22, 2016

Commanding Officer
Attention: NREAO Mr. William A. Drawdy
United State Marine Corps Air Station
Post Office Box 55001
Beaufort, SC 29904-5001

RE: Approval and Concurrence with Draft Final Initial Groundwater Investigation Report-May and June 2015
Laurel Bay Military Housing Area Multiple Properties
Dated October 2015

Dear Mr. Drawdy,

The South Carolina Department of Health and Environmental Control (the Department) received groundwater data in the above referenced Groundwater Investigation Report for the addresses attached. The regulatory authority for the investigation and cleanup of releases from these tank systems is the South Carolina Pollution Control Act (S.C. Code Ann. §48-1-10 *et seq.*, as amended).

Per the Department's request, groundwater samples were collected from the attached referenced addresses. The Department reviewed the groundwater data and previous investigations and it agrees with the conclusions and recommendations included in the document. To further assess the impact to groundwater, permanent wells should be installed at the 52 stated addresses. For the remaining 91 addresses, there is no indication of contamination on the property and therefore no further investigation is required at this time.

Please note that the Department's decision is based on information provided by the Marine Corps Air Station (MCAS) to date. Any information found to be contradictory to this decision may require additional action. Furthermore, the Department retains the right to request further investigation if deemed necessary.

If you have any questions, please contact me at petruslb@dhec.sc.gov or 803-898-0294.

Sincerely,

Laurel Petrus
RCRA Federal Facilities Section

Attachment: Specific Property Recommendations

Cc: Russell Berry, EQC Region 8 (via email)
Shawn Dolan, Resolution Consultants (via email)
Bryan Beck, NAVFAC MIDATLANTIC (via email)
Craig Ehde (via email)

Attachment to: Petrus to Drawdy
Subject: Draft Final Initial Groundwater Investigation Report-May and June 2015
Specific Property Recommendations
Dated February 22, 2016

Draft Final Initial Groundwater Investigation Report for (143 addresses)

Permanent Monitoring Well Investigation recommendation (52 addresses)

273 Birch Drive	1192 Bobwhite Drive
325 Ash Street	1194 Bobwhite Drive
326 Ash Street	1272 Albatross Drive
336 Ash Street	1352 Cardinal Lane
343 Ash Street	1356 Cardinal Lane
353 Ash Street	1359 Cardinal Lane
430 Elderberry Drive	1360 Cardinal Lane
440 Elderberry Drive	1362 Cardinal Lane
456 Elderberry Drive	1370 Cardinal Lane
458 Elderberry Drive	1382 Dove Lane
468 Dogwood Drive	1384 Dove lane
518 Laurel Bay Blvd	1385 Dove Lane
635 Dahlia Drive	1389 Dove Lane
638 Dahlia Drive	1392 Dove Lane
640 Dahlia Drive	1393 Dove Lane
647 Dahlia Drive	1407 Eagle Lane
648 Dahlia Drive	1411 Eagle Lane
650 Dahlia Drive	1418 Albatross Drive
652 Dahlia Drive	1420 Albatross Drive
760 Althea Street	1426 Albatross Drive
1102 Iris Lane	1429 Albatross Drive
1132 Iris Lane	1434 Dove Lane
1133 Iris Lane	1436 Dove Lane
1144 Iris Lane	1440 Dove Lane
1148 Iris Lane	1442 Dove Lane
1186 Bobwhite Drive	1444 Dove Lane

No Further Action recommendation (91 addresses):

137 Laurel Bay Blvd	771 Althea Street
139 Laurel Bay Blvd	927 Albacore Street
229 Cypress Street	1015 Foxglove Street
261 Beech Street	1046 Gardenia Drive
276 Birch Drive	1062 Gardenia Drive
278 Birch Drive	1070 Heather Street
291 Birch Drive	1072 Heather Street

300 Ash Street	1107 Iris Lane
304 Ash Street	1126 Iris Lane
314 Ash Street	1129 Iris Lane
322 Ash Street	1138 Iris Lane
323 Ash Street	1161 Jasmine Street
324 Ash Street	1167 Jasmine Street
339 Ash Street	1170 Jasmine Street
344 Ash Street	1190 Bobwhite Drive
348 Ash Street	1219 Cardinal Lane
349 Ash Street	1305 Eagle Lane
362 Aspen Street	1353 Cardinal Lane
376 Aspen Street	1354 Cardinal Lane
380 Aspen Street	1357 Cardinal Lane
383 Aspen Street	1361 Cardinal Lane
387 Acorn Drive	1364 Cardinal Lane
392 Acorn Drive	1368 Cardinal Lane
396 Acorn Drive	1377 Dove Lane
433 Elderberry Drive	1381 Dove Lane
439 Elderberry Drive	1391 Dove Lane
442 Elderberry Drive	1403 Eagle Lane
443 Elderberry Drive	1404 Eagle Lane
444 Elderberry Drive	1405 Eagle Lane
445 Elderberry Drive	1406 Eagle Lane
446 Elderberry Drive	1408 Eagle Lane
448 Elderberry Drive	1410 Eagle Lane
449 Elderberry Drive	1412 Eagle Lane
451 Elderberry Drive	1413 Albatross Drive
453 Elderberry Drive	1414 Albatross Drive
464 Dogwood Drive	1417 Albatross Drive
466 Dogwood Drive	1421 Albatross Drive
467 Dogwood Drive	1422 Albatross Drive
469 Dogwood Drive	1425 Albatross Drive
471 Dogwood Drive	1427 Albatross Drive
475 Dogwood Drive	1430 Dove Lane
516 Laurel Bay Blvd	1432 Dove Lane
531 Laurel Bay Blvd	1438 Dove Lane
532 Laurel Bay Blvd	1453 Cardinal Lane
645 Dahlia Drive	1455 Cardinal Lane
763 Althea Street	

Attachment to: Petrus to Drawdy

Subject: Draft Final Initial Groundwater Investigation Report-May and June 2015

Specific Property Recommendations

Dated February 22, 2016, Page 2



March 9, 2017

Commanding Officer
Attention: NREAO Mr. William A. Drawdy
United State Marine Corps Air Station
Post Office Box 55001
Beaufort, SC 29904-5001

RE: Tank Removal Report 434 Elderberry Drive, October 2013 and
Draft Final Groundwater Assessment Report June and July 2016

Dear Mr. Drawdy:

The South Carolina Department of Health and Environmental Control (the Department) received groundwater data from permanent monitoring well installations in the Draft Final Groundwater Assessment Report June and July 2016 , Laurel Bay Military Housing Area for the addresses shown in the attachment. The Department also reviewed the tank removal report for 434 Elderberry. The tank was removed in 2013. The regulatory authority for the investigation and cleanup of releases from these tank systems is the South Carolina Pollution Control Act (S.C. Code Ann. §48-1-10 et seq., as amended).

The tank removal report for 434 Elderberry Drive indicates no soil contamination was found on the property. No Further investigation is required at this time at 434 Elderberry Drive.

Per the Department's request, groundwater samples were collected from the attached referenced addresses. The Department reviewed the groundwater data and previous investigations and it agrees with the conclusions and recommendations included in the document. To further assess the impact to groundwater, groundwater monitoring should begin at the fifteen stated addresses. For the remaining twelve addresses, there is no indication of contamination on the property and therefore no further investigation is required at this time.

Please note that the Department's decision is based on information provided by the Marine Corps Air Station (MCAS) to date. Any information found to be contradictory to this decision may require additional action. Furthermore, the Department retains the right to request further investigation if deemed necessary.

If you have any questions, please contact me at petruslb@dhec.sc.gov or 803-898-0294.

Sincerely,

Laurel Petrus, Environmental Engineer Associate
Bureau of Land and Waste Management

Cc: Russell Berry, EQC Region 8
Shawn Dolan, Resolution Consultants
Bryan Beck, NAVFAC MIDLANT

Attachment to: Petrus to Drawdy
Dated March 9, 2017

Draft Final Initial Groundwater Assessment Report for (27 addresses)

Groundwater Monitoring recommendation (15 addresses)	
273 Birch Drive	456 Elderberry Drive
325 Ash Street	458 Elderberry Drive
326 Ash Street	648 Dahlia Drive
330 Ash Street	650 Dahlia Drive
336 Ash Street	1132 Iris Lane
343 Ash Street	1144 Iris Lane
353 Ash Street	1148 Iris Lane
440 Elderberry Drive	
No Further Action recommendation (12 addresses):	
430 Elderberry Drive	647 Dahlia Drive
468 Dogwood Drive	652 Dahlia Drive
518 Laurel Bay Blvd	760 Althea Street
635 Dahlia Drive	1102 iris Lane
638 Dahlia Drive	1133 Iris Lane
640 Dahlia Drive	1272 Albatross Drive

Tank Removal Report October 2013 (1 address)

No Further Action
434 Elderberry Drive



August 14, 2019

Commanding Officer
Attention: NREAO Mr. Christopher L. Vaigneur
United States Marine Corps Air Station
Post Office Box 55001
Beaufort, SC 29904-5001

RE: Approval Draft Final Groundwater Assessment Report, November and December 2018 and April 2019, Laurel Bay Military Housing Area, Multiple Properties
(CDM - AECOM Multimedia JV, dated July 2019)

Dear Mr. Vaigneur,

The South Carolina Department of Health and Environmental Control (DHEC) received the above referenced document on July 24, 2019. The regulatory authority for the investigation and cleanup of releases from these tank systems is the South Carolina Pollution Control Act (S.C. Code Ann. §48-1-10 et seq., as amended).

DHEC has not generated any comments and agrees with the conclusions and recommendations included in the document. The installation approval of the additional monitoring well at 1385 Dove Lane will need to be requested under separate cover.

Please note that DHEC's decision is based on information provided by the Marine Corps Air Station (MCAS) to date. Any information found to be contradictory to this decision may require additional action. Furthermore, DHEC retains the right to request further investigation if deemed necessary. If you have any questions, please contact Kent Krieg at kriegkm@dhec.sc.gov or 803-898-0255.

Sincerely,

Lisa Appel
RCRA Federal Facilities Section
Division of Waste Management

cc: Bryan Beck, NAVFAC MIDLANT (via email)
Craig Ehde, NREAO (via email)
Shawn Dolan, CDM-AECOM (via email)
Reahnita Tuten, EQC Region 8 (via email)



December 17, 2019

Commanding Officer

Attention: NREAO Mr. Christopher L. Vaigneur
United States Marine Corps Air Station
Post Office Box 55001
Beaufort, SC 29904-5001

RE: Approval - Draft Final 2019 Groundwater Monitoring Report
Laurel Bay Military Housing Area, Multiple Properties, Beaufort, SC
(Resolution Consultants, dated October 2019)

Dear Mr. Vaigneur,

The South Carolina Department of Health and Environmental Control (DHEC) received the above referenced document on October 28, 2019. The regulatory authority for the investigation and cleanup of releases from these tank systems is the South Carolina Pollution Control Act (S.C. Code Ann. §48-1-10 et seq., as amended).

DHEC has reviewed the document and requests some additional down-gradient wells be installed at some properties. DHEC also requests a topic be added to the next Tier I Meeting to review the groundwater trends at the attached listed properties to discuss the current monitoring program and the data gaps.

No changes to this document are necessary and DHEC now considers the 2019 Groundwater Monitoring Report for the Laurel Bay Military Housing Area, Multiple Properties to be Final. DHEC agrees with the recommendation of NFA for 1132 Iris Lane.

Please note that DHEC's decision is based on information provided by the Marine Corps Air Station (MCAS) to date. Any information found to be contradictory to this may require additional action. Furthermore, DHEC retains the right to request further investigation if it is deemed necessary. If you have any questions, please contact Kent Krieg at kriegkm@dhec.sc.gov or 803-898-0255.

Sincerely,

Lisa Appel
RCRA Federal Facilities Section
Division of Waste Management

Attachment

cc: Bryan Beck, NAVFAC MIDLANT (via email)
Craig Ehde, NREAO (via email)
Shawn Dolan, AECOM (via email)
Reahnita Tuten, EQC Region 8 (via email)

Attachment: Appel to Vaigneur, Dated December 17, 2019

Re: Approval Draft Final 2019 Groundwater Monitoring Report
Laurel Bay Military Housing Area, Multiple Properties, Beaufort, SC
(Resolution Consultants, dated October 2019)

Properties to discuss the current monitoring program, and address any potential data gaps, during the next Tier I Meeting in February 2020:

285 Birch Drive	388 Acorn Drive (due to proximity of 326 Ash)
325 Ash Street	1054 Gardenia Street
326 Ash Street	1148 Iris Lane
330 Ash Street	1385 Dove Lane
343 Ash Street	1407 Eagle Lane



June 7, 2018

Commanding Officer
Attention: NREAO Mr. William A. Drawdy
United State Marine Corps Air Station
Post Office Box 55001
Beaufort, SC 29904-5001

RE: Approval Draft Final Vapor Intrusion Investigation Report, 82 Elderberry Drive (Formerly 273 Birch Drive)
Laurel Bay Military Housing Area

Dear Mr. Drawdy:

The South Carolina Department of Health and Environmental Control (DHEC) received the vapor intrusion investigation report for 273 Birch Drive on May 1, 2018. The regulatory authority for the investigation and cleanup of releases from these tank systems is the South Carolina Pollution Control Act (S.C. Code Ann. §48-1-10 et seq., as amended).

DHEC has reviewed the Investigation Report and based on this review, DHEC did not generate any comments on the report. Please note that DHEC's decision is based on information provided by the Marine Corps Air Station (MCAS) to date. Any information found to be contradictory to this decision may require additional action. Furthermore, DHEC retains the right to request further investigation if deemed necessary. If you have any questions, please contact me at petruslb@dhec.sc.gov or 803-898-0294.

Sincerely,

Laurel Petrus, Environmental Engineer Associate
Bureau of Land and Waste Management

Cc: EQC Region 8
Shawn Dolan, Resolution Consultants
Bryan Beck, NAVFAC MIDLANT



August 29, 2018

Commanding Officer
Attention: NREAO Mr. William A. Drawdy
United State Marine Corps Air Station
Post Office Box 55001
Beaufort, SC 29904-5001

RE: Approval Draft Final Letter Report-Petroleum Vapor Intrusion Investigations
April 2017 through February 2018
Laurel Bay Military Housing Area

Dear Mr. Drawdy:

The South Carolina Department of Health and Environmental Control (DHEC) received the Vapor Intrusion Investigation Report for multiple properties on July 30, 2018. The regulatory authority for the investigation and cleanup of releases from these tank systems is the South Carolina Pollution Control Act (S.C. Code Ann. §48-1-10 et seq., as amended).

DHEC has reviewed the Investigation Report and based on this review, DHEC did not generate any comments on the report. Please note that DHEC's decision is based on information provided by the Marine Corps Air Station (MCAS) to date. Any information found to be contradictory to this decision may require additional action. Furthermore, DHEC retains the right to request further investigation if deemed necessary. If you have any questions, please contact me at petruslb@dhec.sc.gov or 803-898-0294.

Sincerely,

Laurel Petrus, Environmental Engineer Associate
Bureau of Land and Waste Management

Cc: EQC Region 8
Shawn Dolan, Resolution Consultants
Bryan Beck, NAVFAC MIDLANT