



Heartland Environmental Associates, Inc.

FURTHER SITE INVESTIGATION AND REMEDIATION WORK PLAN REPORT

**Indiana – IFA 128(A) Grant for Assessment of
Former Shell Bulk Oil Terminal Facility
Groundwater Remediation Project**

Grantee:

Indiana Brownfields Program
Attn: Mr. Kendall Coad
100 North Senate Avenue, Room 1275
Indianapolis, Indiana 46204

Prepared by

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June 16, 2013

HEA No. 5113-13-02

“Your dependable partner for environmental compliance”

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For the Site:

Former Shell Bulk Oil Terminal Facility
2121 and 2219 West Michigan Street
Indianapolis, Indiana 46222

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06/16/2013

Date

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1.0 INTRODUCTION

Heartland Environmental Associates, Inc. (Heartland) is pleased to provide the Indiana Brownfields Program (IBP) with this Further Site Investigation (FSI) and Remediation Work Plan (RWP) Report. This report documents site activities completed at the former Shell Bulk Oil Terminal Facility, located at 2121 and 2219 West Michigan Street in Indianapolis, Indiana. Heartland has prepared this report to document the following activities:

- Ground Penetrating Radar Survey completed June 3, 2013.
- Laser-Induced Fluorescence Survey completed June 3, 2013.
- Monitoring Well Installation completed from June 4, 2013.
- Groundwater Monitoring Well Sampling Event completed on June 7, 2013.

Site activities have been completed under the United States Environmental Protection Agency (USEPA) Brownfields 128(a) State Response Program Grant provided to the Indiana Finance Authority (IFA) and leveraged by the IBP. Site activities were completed in accordance to the pre-approved, site specific Quality Assurance Project Plan (QAPP) and the Sampling and Analysis Plan (SAP) submitted to the USEPA in May 2013 for this project.

The former Shell Bulk Oil Terminal facility was historically operated as a bulk oil storage, warehouse and dispensing facility. The site is located on approximately 4.70-acres situated on two parcels (Parcel #'s 9021170 & 9054011). The facility historically dispensed, sold and stored petroleum products. Petroleum storage activities occurred from at least 1937 through 1996, when the property was demolished. Site demolition activities included the razing of all site buildings and superstructures, the removal of all foundations and footers, and the backfilling of the site to grade. The site has remained vacant since this time, and is currently covered by landscaped areas and overgrowth vegetation. The site was obtained by the City of Indianapolis in 1996, and transferred to the Westside Community Development Corporation (WCDC) in 1999. A site location map is provided as Figure 1. A site location map depicting parcel boundaries is provided as Figure 2. A site location map depicting the locations of the former site structures is provided as Figure 3.

Beginning in 1995, the site was subject to numerous subsurface investigations and remediation. From 1995 through 2001, site activities included the advancement of at least 87 shallow and deep soil borings and the installation of at least 13 groundwater monitoring wells. Soil and groundwater impacts were historically detected for numerous volatile organic compound (VOC) and semi-volatile organic compound (SVOC) constituents (polyaromatic hydrocarbon (PAH) subset) exceeding Indiana Department of Environmental Management (IDEM) Risk Integrated System of Closure (RISC) Default Closure Levels. Underground storage tank (UST) removal and soil remedial excavations were also completed during this time frame to remove source areas of impacts to both soil and groundwater. A site location map depicting existing groundwater

monitoring wells is provided as Figure 4.

In 1999, a limited human-health risk evaluation for groundwater was completed. This risk evaluation determined that, although residual impacts were present at the site exceeding IDEM residential default criteria, no significant pathway existed for groundwater migration and that existing groundwater impacts did not pose a threat to human health or the environment. Furthermore, utilizing statistical risk analysis, residual soil impacts encountered exceeding the IDEM RISC direct contact closure levels were determined acceptable.

Based on these determinations, the site was issued a Certificate of Completion from the IDEM Voluntary Remediation Program in March 2004. The site was subsequently issued a Covenant Not to Sue (CNTS) in August 2005. Based on the terms of the CNTS, the site was restricted from future residential use.

In May 2011, the WCDC was provided a Site Status Letter from the Indiana Brownfields Program (IBP) to clarify IDEM's position on the necessity of an environmental response at the site and to establish whether existing environmental conditions at the site might hinder future redevelopment and/or transferal of the site. Based on the review by the IBP, it was determined that, with the implementation of an environmental restrictive covenant limiting exposure to impacted groundwater and addressing potential vapor intrusion (VI) issues at the site, non-default commercial closure of the site under RISC would be suitable and no additional response action by IDEM was required.

In late 2012, the City of Indianapolis and the WCDC began evaluating the site for purposes of redevelopment. As part of this redevelopment evaluation, it was determined that additional investigation was needed throughout the site to determine the long term effectiveness of the prior remedial efforts and to assess existing subsurface conditions at the site. Heartland, as part of this investigation conducted in December 2012, advanced a total of five soil borings and installed five temporary groundwater piezometers at the site. These five temporary groundwater piezometers and the existing groundwater monitoring wells were sampled.

Impacts exceeding IDEM Remediation Closure Guide (RCG) Residential Screening Levels (RSLs) for VOCs and PAHs were encountered in the central-eastern and south-southeastern portions of the site. VOC impacts encountered included benzene, ethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, trichloroethene and xylenes. PAH impacts encountered included naphthalene and 2-methylnaphthalene. The impacts were present in the easternmost parcel (Parcel #9054011). Furthermore, the investigation indicated the presence of light non-aqueous phase liquids (LNAPLs) in one existing groundwater monitoring well (MW-1) and in two temporary piezometers (B-102 and B-103).

The FSI determined that petroleum impacts were still present in the central-eastern and south-southeastern portions of the site, and that, although it appeared that extensive site impacts were not

present at the site, additional investigation would be required to assess and delineate petroleum impacts in the area of concern and to determine the proper course of action to mitigate LNAPLs.

2.0 FURTHER SITE INVESTIGATION

2.1 Ground Penetrating Radar Survey

As part of the previously completed FSI, it was recommended that additional investigation be conducted in the area of concern located in the central-eastern and south-southeastern portions of the site. Additional investigation was recommended to assess and delineate the presence of petroleum impacts and LNAPLs in this area. As part of the initial site investigation, Heartland conducted a ground penetrating radar (GPR) survey to locate and identify any potential underground anomalies in the area of concern.

Heartland utilized a Sensors & Software Model LMX100™ Ground Penetrating Radar unit to conduct the GPR survey. The LMX100™ Locate & Mark system is a specifically designed GPR system built for the underground utility locating industry. The unit has the capability of resolving buried metallic and non-metallic objects, such as cables, pipes, conduits, plastic pipes, concrete duct, and dielectric fiber optic cables. The LMX100™ is equipped with real time display for accurate pipe & cable locating. This device complies with Part 15 of the U.S. Federal Communications Commission (FCC) Rules.

On June 3, 2013, Heartland completed the GPR survey of the area of concern. The area of concern was covered with grass and landscaping, with minor patches of gravel. The scanned area was traversed in crisscross patterns to help identify any anomalies encountered. The area of concern is identified in Figure 5.

During the GPR survey, Heartland did identify anomalies consistent with utilities in the southernmost portion of the area of concern, but not any anomalies consistent with USTs or backfilled UST excavations. Based on a survey of the area, it would appear any utility corridors located in this area of the site are likely from historic site usage and are no longer in use. Based on the results of the GPR survey, it is unlikely that any underground USTs or other utility corridors exist in the area of concern.

2.2 Laser-Induced Fluorescence Survey

At the request of the IBP, Heartland completed a laser-induced fluorescence (LIF) survey of the area of concern. The LIF survey was in the direct vicinity of existing groundwater monitoring wells MW-1 and MW-2 and historic soil borings B-102 and B-103. The LIF survey was completed to provide a real-time subsurface profile, vertically and horizontally delineating LNAPL and residual petroleum impacts.

On June 3, 2013, Heartland completed the LIF survey of the area of concern. Heartland mobilized Columbia Technologies, Inc. (Columbia) of Baltimore, Maryland to complete the

survey. The survey consisted of the advancement of seven screening locations using the LIF screening tool and a direct push technology rig to a maximum depth of 35 feet below ground surface (bgs). LIF screening locations are identified in Figure 5 and were determined by Heartland after consultation with the IBP based on initial screening results.

Based on the results of the LIF survey, each location exhibited responses ranging from 23% to 369% of the pre-calibrated LNAPL reference emitter. Observed impacts appeared to be a mixture of gasoline, diesel fuel, kerosene and potentially weathered petroleum and petroleum treatment materials. This result is likely due to leakage or releases from bulk storage operations conducted at this area of the site. Observed impacts were concentrated from a depth of 22 feet to 27 feet bgs. This indicates a presence of petroleum impacts primarily within the groundwater saturated zone. LNAPL impacts present likely sit onto of groundwater, causing petroleum impacts to soils located within the smear zone, or the area of hydrogeologic groundwater fluctuation.

Based on the results of this LIF survey, it was determined that four additional groundwater monitoring wells were necessary to confirm the presence/absence of petroleum impacts and LNAPLs and to assist in further evaluating remedial alternatives. A copy of Columbia's *Subsurface Characterization Using Laser Induced Fluorescence (LIF) Technology* report for the site dated June 10, 2013 is included in Appendix A.

2.3 Soil Boring and Monitoring Well Installation

After completion of the LIF survey, Heartland consulted with IBP staff. Based on discussions with IBP staff, it was determined that four additional groundwater monitoring wells should be installed in the area of concern to evaluate for the presence of petroleum impacts and to refine the delineation of the area of concern. Locations in the northern, central-western, southwestern and southeastern portions of the area of concern were selected for the additional monitoring wells. Soil borings were advanced, logged and field screened prior to the installation of the new groundwater monitoring wells. A site map depicting the existing groundwater monitoring well network and the locations of the new soil borings and monitoring wells is provided as Figure 6.

On June 4, 2013, Heartland personnel provided oversight for the advancement of four (4) direct-push soil borings. Soil borings were advanced to a maximum depth of 36 feet bgs. Heartland contracted with Midway Services, Inc. of Knightstown, Indiana to advance the soil borings.

Soil sample intervals were continuously logged and the soil lithology was described on Heartland boring logs. Soils in the areas of investigation were consistent with soils previously identified at the subject site. The soil samples were inspected for indications of chemical impacts, such as staining and odors. The soil samples collected from the borings were continuously screened for soil vapors using a pre-calibrated photo-ionization detector (PID) organic vapor monitor. Soil samples were not collected for laboratory analysis as part of this investigation.

Soil borings logs are included in Appendix B.

After completion of the soil borings, each soil boring was completed as a permanent groundwater monitoring well. All groundwater monitoring wells were constructed of PVC with 10 feet of 0.010-inch slotted screen extending from the base of the groundwater monitoring well with solid PVC riser to the top of casing. The annular spacing around each monitoring well casing was filled with #5 quartz sand pack to 2 feet above the screened interval, with hydrated bentonite chips placed to 6 inches below grade. Monitoring wells were capped with flush mount steel protective covers and encased in a 2 foot by 2 foot concrete pad. Monitoring well construction diagrams are included in Appendix B.

Each groundwater monitoring well was subsequently developed utilizing IDEM approved well development methodology, with purged well development groundwater staged onsite in 55-gallon drums pending offsite disposal.

2.4 Water Level Measurements and Groundwater Flow

From June 5 through June 7, 2013, Heartland personnel measured and recorded the static water levels of the monitoring well network using a Solinst Instruments Oil/Water Interface Meter. The interface probe was decontaminated between each measurement to help prevent cross-contamination. In addition to the gauging of the monitoring wells, Heartland personnel re-surveyed the groundwater monitoring well network to reference the datum from the previous survey.

Based on the collected static groundwater level measurements, groundwater flow at the site is to the southeast. It should be noted that groundwater level measurements were only taken in select monitoring wells at the site. A groundwater flow map is provided as Figure 7 and the water level gauging data is summarized in Table 1.

In addition to static water level gauging, each groundwater monitoring well was gauged for the presence of light non-aqueous phase liquids (LNAPLs). Based on the results of the gauging, LNAPLs were detected in trace amounts in groundwater monitoring well MW-1. LNAPLs were not encountered in any other monitoring well; however it should be noted that monitoring wells MW-102 and MW-103 exhibited a heavy sheen on groundwater encountered during both development and sampling.

2.5 Groundwater Sampling

Groundwater monitoring wells were sampled at the site utilizing IDEM accepted low-flow sampling methodology to minimize purged groundwater volumes. Groundwater was pumped at a low-flow rate through a flow cell equipped with a multi-parameter water quality meter to

measure water quality parameters. After water quality parameters stabilized, water samples were collected. Purged groundwater generated was stored onsite in a 55-gallon drum pending offsite disposal. Groundwater sampling data sheets are provided in Appendix C.

After an evaluation of historic groundwater sampling data and consultation with IBP personnel, it was determined that groundwater samples would be submitted for laboratory analysis of VOCs and PAHs only. This determination was also in accordance with the site specific SAP.

Samples were collected in laboratory prepared sample containers and placed in a secure cooler at 4 degrees Celsius. Groundwater samples were delivered to Pace in Indianapolis, Indiana, under Heartland chain-of-custody protocol, for analysis of VOCs using USEPA SW-846 Method 8260. Quality assurance/quality control (QA/QC) samples were collected for this sampling event in accordance with the site specific QAPP.

2.6 Groundwater Analytical Results

Groundwater impacts slightly exceeding IDEM RCG Residential Screening Levels (RSLs) for benzene were encountered in four groundwater monitoring wells (MW-1, MW-2, MW-102 and MW-103) with the highest concentration of 133 parts per billion (ppb) encountered in both MW-102 and MW-103. Groundwater impacts exceeding IDEM RSLs for ethylbenzene were encountered in two monitoring wells (MW-102 and MW-103) with the highest concentration of 7,870 ppb encountered in MW-102. Groundwater impacts exceeding IDEM RSLs for xylene were encountered in two monitoring wells (MW-102 and MW-103) with the highest concentration of 25,400 ppb encountered in MW-103.

Groundwater impacts of 1,2,4-trimethylbenzene were encountered in seven monitoring wells (MW-1, MW-2, MW-4, MW-7, MW-102, MW-103 and MW-104) exceeding IDEM RSL with the highest concentration of 3,750 ppb encountered in MW-103. Impacts of 1,3,5-trimethylbenzene were encountered in three monitoring wells (MW-7, MW-102 and MW-103) and impacts of vinyl chloride were encountered in one monitoring well (MW-2) exceeding IDEM RSLs. Impacts of tetrachloroethene (PCE) were encountered in monitoring well MW-101 and impacts of 1,1-dichloroethane were encountered in monitoring well MW-7 slightly exceeding IDEM RSLs. No other VOC constituents were encountered that exceeded IDEM RCG RSLs.

Groundwater impacts of naphthalene were encountered exceeding IDEM RSLs in five monitoring wells (MW-1, MW-7, MW-102, MW-103 and MW-104). Groundwater impacts of 1-methylnaphthalene were encountered in four monitoring wells (MW-1, MW-102, MW-103 and MW-104) and impacts of 2-methylnaphthalene were encountered in two monitoring wells (MW-1 and MW-102) exceeded IDEM RSLs. No other PAH constituents were encountered exceeding IDEM RCG RSLs.

Groundwater analytical results are depicted on Figure 8 and summarized in Table 2 and Table 3. The laboratory certificate of analysis is included in Appendix D.

2.7 Waste Disposal

Soil cuttings generated during soil boring and monitoring well installation activities and purged groundwater generated during groundwater sampling activities were placed in 55-gallon Department of Transportation approved steel drums and staged onsite. Drums were subsequently staged onsite pending offsite disposal by Liquid Waste Removal, Inc. of Greenwood, Indiana. Upon disposal of the waste, Heartland will provide the IBP with copies of the waste disposal manifests for its records.

2.8 Conclusions

Heartland has completed FSI activities that included the completion of a GPR and LIF survey, advancement of four soil borings, the installation of four groundwater monitoring wells and the sampling and analysis of newly installed and previously existing groundwater monitoring wells at the site. The objective of this FSI was to further investigate chemical impacts to groundwater and to evaluate and delineate previously encountered LNAPLs at the site.

Based upon the results of this FSI and previously conducted investigations, impacts exceeding IDEM RSLs for VOCs and PAHs are present at the site within the previously identified area of concern and in monitoring wells located downgradient from this area.

VOC impacts in the form of benzene, ethylbenzene and xylene were encountered exceeding IDEM RCG RSLs. Furthermore, impacts of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene were encountered exceeding IDEM RCG RSLs in several of the monitoring wells. Concentrations of these constituents were encountered that significantly exceeded IDEM RCG RSLs. Based on the results of this investigation and the results of the LIF survey, it appears impacts to groundwater are present and are related to historic use of the site. LNAPLs were detected in monitoring well MW-1 and trace LNAPLs were detected in monitoring wells MW-102 and MW-103; however, based on the results of the groundwater sampling, it appears that the LNAPLs detected are degraded and are not contributing significantly to groundwater impacts. Heartland will continue to gauge and monitor for the presence of LNAPLs.

VOC and PAHs were not encountered in deep groundwater monitoring wells MW-1A and MW-2A. Furthermore, based on the results of the LIF survey, impacts within the area of concern do not appear to extend beneath 27 feet bgs. Heartland does not recommend further investigation within the deep groundwater aquifer at this time.

Based on the results of this investigation, it appears a mixture of gasoline, diesel fuel and kerosene,

likely stored onsite during bulk oil storage operations, have contributed to impacts present from a depth of 22 feet to 27 feet bgs within the area of concern. This investigation has confirmed that extensive horizontal impacts are not present at the site. However, it is recommended that further investigation be conducted further downgradient to confirm that impacts have not migrated offsite.

Heartland understands that the site is being evaluated for potential redevelopment. Impacts present at the site, although encountered at depth, present a potential concern with regards to groundwater usage and potential vapor intrusion within any new construction within the area of concern. Therefore, remediation of groundwater impacts is recommended to mitigate potential future vapor intrusion issues and any potential additional exposure pathways.

3.0 EVALUATION OF REMEDIAL ALTERNATIVES

Based on the identified impacted media, extent and magnitude of impacts, and the corrective action goals, candidate remediation technologies were evaluated to address petroleum impacts to groundwater. Heartland has evaluated the following as potential remedial alternatives:

- **Soil Excavation and Off-site Disposal** – The removal of soil impacts is often very effective in reducing or eliminating the leaching of impacts to groundwater at petroleum sites. Excavation and removal of soil impacts is often the most time efficient remedial methodology and can focus on the area of concern.

Due to the presence of impacts at a depth of 22 feet to 27 feet bgs, and evidence of potential residual petroleum impacts at a depth of 10 feet bgs, soil remedial excavation at the site would require an extensive amount of removal and disposal. Furthermore, soil excavation would be limited horizontally and vertically along the eastern border of the area of concern due to the presence of an electric substation. Although an effective alternative, soil removal and disposal would not be cost effective due to the large amount of soil that would be necessary to be removed (>7,000 tons) and the horizontal and vertical limits placed on a potential excavation along the eastern border.

- **Monitored Natural Attenuation (MNA)** – Since the area of concern is limited, the groundwater could be left to naturally attenuate. Monitored Natural Attenuation would be the simplest method of corrective action. However, due to high concentrations of VOCs in the area of concern, this goal would take several years to achieve, and would likely place restrictions on potential redevelopment at the site. Furthermore, long term monitoring would require long term site access and groundwater monitoring, extending and potentially delaying full redevelopment of the site and as a result would not be a cost-effective solution.
- **Sequestration/Solidification of Impacts** – Sequestration/solidification of impacts using injectable, adsorbent materials can be utilized to capture and hold VOC and petroleum impacts to groundwater and within the groundwater smear zone within the area of concern. Sequestration/solidification presents not only a time efficient application process for remedial implementation, but provides a long term solution to mitigating groundwater impacts. Groundwater impacts will adsorb over time and will continually mitigate. The final adsorbed product will remain in place as an inert, stable silica-glass material that will remain in place for any foreseen length of time. By introducing this material, not only will groundwater impacts be mitigated, but residual smear zone impacts in soils will also be mitigated, remediating a potential continual source of impacts to groundwater. Sequestration will also serve to mitigate potential vapor intrusion issues by solidifying VOC impacts, therefore eliminating vapor migration pathways.

Although the implementation of this remedial alternative will require a site restriction that limits disturbance within the area of concern beneath a depth of 15 feet bgs, sequestration/solidification

of impacts using adsorbent glass material represents a time efficient and cost effective remedial alternative.

3.1 Selected Remedial Alternative

Heartland recommends that groundwater impacts at the site be remediated utilizing an injectable, adsorbent silica-glass material which will be utilized to sequester and solidify VOC and petroleum impacts in groundwater and within the soil smear zone in the area of concern. Heartland proposes to inject OSorb™ adsorbing glass materials, produced by ABSMaterials, Inc. of Wooster, Ohio. OSorb™ has been utilized throughout sites in the United States and Europe, including sites in USEPA Region V, and has had extensive success in mitigating petroleum and LNAPL impacts at petroleum refinery and bulk storage sites. Documentation on OSorb™ materials is included in Appendix E.

Sequestration OSorb™ will be introduced into the area of concern to capture and sequester VOC and petroleum impacts. Heartland proposes injecting a blend of OSorb™ in a step-by-step grid pattern within the entire area of concern. It is anticipated that radius of influence for OSorb™ will be approximately 12' from the point of injection. Therefore approximately 36 injection points will be introduced in the area of concern. Approximately 5 kilograms of OSorb™ will be injected per injection point, introduced directly into the interval of concern (22 feet to 27 feet bgs). A blend of high-swell OSorb™ and Iron-OSorb™ will be introduced to maximize capture of petroleum constituents.

Based on historic results at sites with similar lithologies, OSorb™ has been shown to sequester upwards of 75% contaminants. The remnant silica-glass material will remain inert and will remain in place. Therefore, Heartland will recommend that along with this injection, any future environmental restrictions placed on the site include limitations in disturbing soils in the area of concern beneath a depth of 15 feet.

After injection of the OSorb™ material, Heartland recommends installation of a minimum of one additional groundwater monitoring well, further downgradient and southeast of the site off the area of concern off of Belmont Avenue. The specific location of this downgradient monitoring well will be determined after consultation with IBP staff. After installation of this monitoring well, Heartland recommends quarterly groundwater monitoring at the site for a period of at least four consecutive quarters to evaluate the effectiveness of the sequestration in mitigating groundwater impacts.

3.2 Monitoring and Sampling Plan

In accordance with the SAP, Heartland will conduct the next groundwater sampling event in September 2013. Heartland will evaluate the site for a period of four consecutive sampling events to

determine the overall effectiveness of the remediation. Only existing groundwater monitoring wells sampled as part of this FSI and any new downgradient monitoring well installed will be sampled as part of future monitoring events. After four quarters of consecutive monitoring, Heartland will consult with the IBP, IDEM and USEPA staff and reevaluate the site for potential No Further Action status.

3.3 Projected Work Schedule

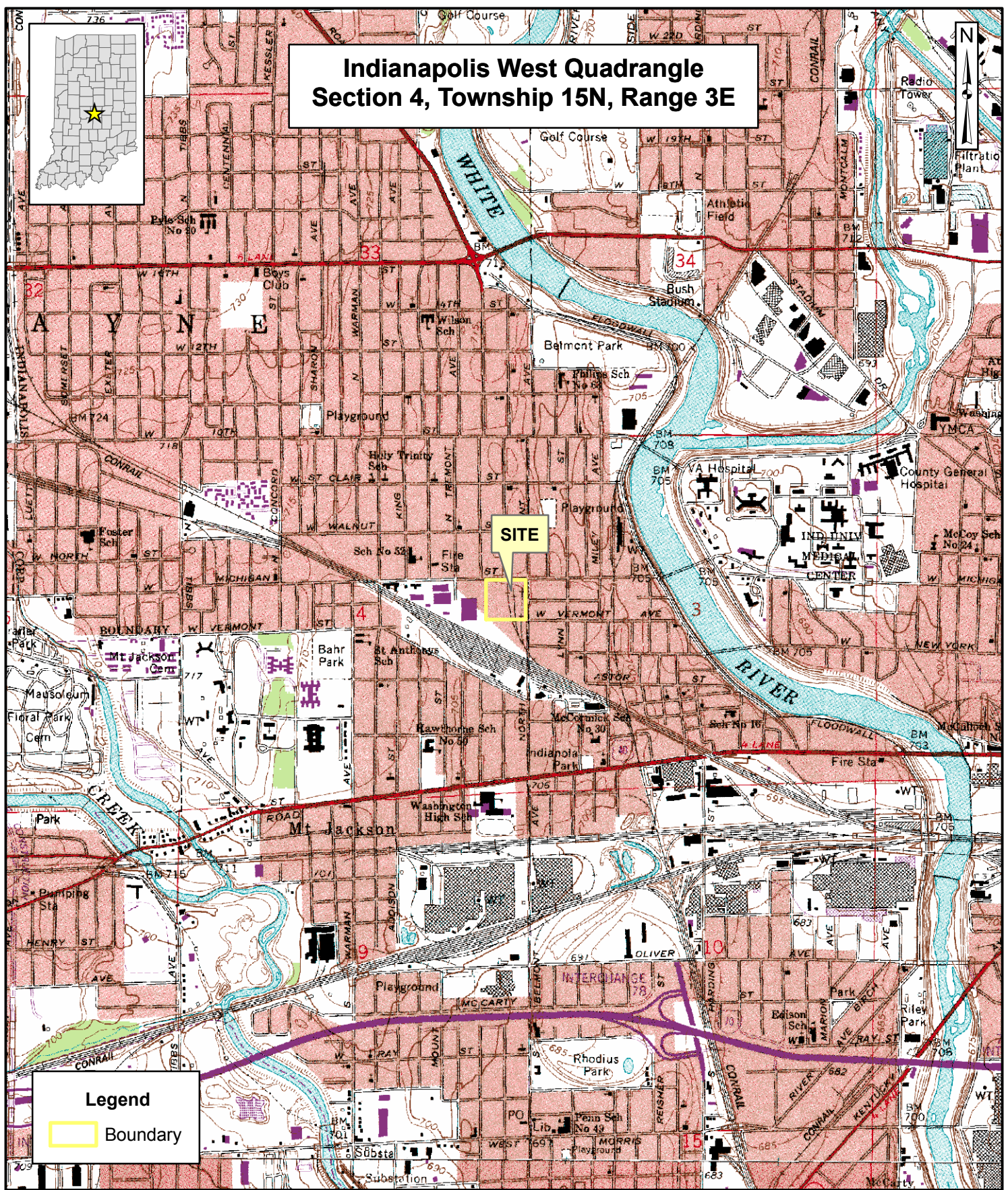
Implementation of sequestration injection will begin within 30 days from the date this RWP is approved and after completion of the mandatory public notice period. Implementation of the remedial technology will take approximately three days. Quarterly groundwater monitoring will commence within 60 days after remedial activities are completed. A RWP Implementation report will be submitted within 10 days after the completion of the recommended remedial action and groundwater monitoring reports will be submitted each quarter thereafter to the IBP.

4.0 DISCLAIMER

This FSI and RWP report was prepared in accordance with generally accepted principles and practices in the environmental consulting field and in accordance to the pre-approved QAPP and SAP submitted to the USEPA and the IBP in May 2013. Conclusions and recommendations expressed herein were developed from site evaluation and limited research, and we are not responsible for unrecorded data pertaining to this site. Heartland makes no warranties, expressed or implied, as to the fitness or merchantability of said property for any particular purpose, and we are not responsible for independent conclusions or opinions made by others based on this report.

FIGURES

Indianapolis West Quadrangle Section 4, Township 15N, Range 3E



Base Map: USGS 7.5 Minute DRG Quadrangle



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**FIGURE 1
SITE LOCATION MAP**

**FORMER SHELL BULK OIL FACILITY
2121 & 2219 WEST MICHIGAN STREET
INDIANAPOLIS, INDIANA**


Date:
6/16/13

Scale:
1"=100'

Drawn By:
NV



Legend

 Parcel Boundary

Base Map: 2011 IndianaMap Orthophotography



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FIGURE 2
SITE LOCATION MAP W/PARCEL BOUNDARIES

FORMER SHELL BULK OIL FACILITY
2121 & 2219 WEST MICHIGAN STREET
INDIANAPOLIS, INDIANA

Date:
6/16/13
Scale:
1"=100'
Drawn By:
NV



Sheffield Ave


Michigan St



Belmont Ave



Legend

 Former Structures

Base Map: 2011 IndianaMap Orthophotography

FIGURE 3
SITE LOCATION MAP W/HISTORIC SITE STRUCTURES

FORMER SHELL BULK OIL FACILITY
2121 & 2219 WEST MICHIGAN STREET
INDIANAPOLIS, INDIANA

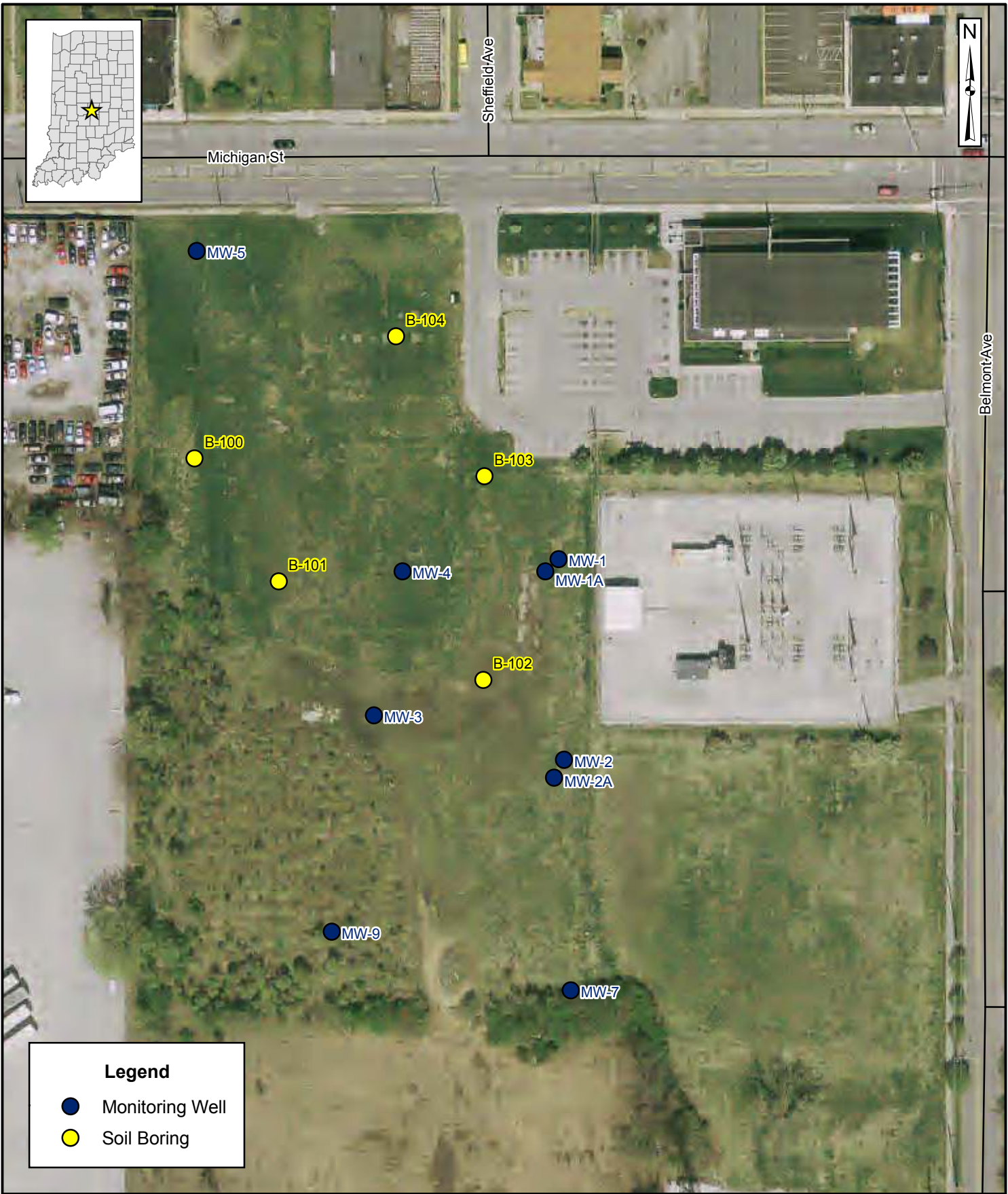
Date:
6/16/13

Scale:
1"=100'

Drawn By:
NV



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Legend

- Monitoring Well
- Soil Boring

Base Map: 2011 IndianaMap Orthophotography

FIGURE 4
SITE LOCATION MAP W/EXISTING MONITORING WELLS
AND HISTORIC SOIL BORING LOCATIONS
FORMER SHELL BULK OIL FACILITY
2121 & 2219 WEST MICHIGAN STREET
INDIANAPOLIS, INDIANA

Date:
6/16/13
Scale:
1"=100'
Drawn By:
NV



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Legend

- LIF Boring
- Area of Concern

Base Map: 2011 IndianaMap Orthophotography



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FIGURE 5
SITE LOCATION MAP W/LIF AREA OF CONCERN
AND LIF BORING LOCATIONS
FORMER SHELL BULK OIL FACILITY
2121 & 2219 WEST MICHIGAN STREET
INDIANAPOLIS, INDIANA

Date:
6/16/13
Scale:
1"=100'
Drawn By:
NV



Base Map: 2011 IndianaMap Orthophotography



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FIGURE 6
SITE LOCATION MAP WITH
NEW MONITORING WELL LOCATIONS
FORMER SHELL BULK OIL FACILITY
2121 & 2219 WEST MICHIGAN STREET
INDIANAPOLIS, INDIANA

Date:
6/16/13
Scale:
1"=100'
Drawn By:
NV



Legend

- Monitoring Well

Note:
Data in parentheses not used.

Base Map: 2011 IndianaMap Orthophotography



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FIGURE 7
GROUNDWATER FLOW MAP
(JUNE 7, 2013)
FORMER SHELL BULK OIL FACILITY
2121 & 2219 WEST MICHIGAN STREET
INDIANAPOLIS, INDIANA

Date:
6/16/13
Scale:
1"=100'
Drawn By:
NV



Sample ID	MW - 102
Sampled Date	6/6/13
Benzene	133
n-Butylbenzene	46.9
sec-Butylbenzene	54.2
tert-Butylbenzene	8.8
Ethylbenzene	7,870
Isopropylbenzene (Cumene)	169
n-Propylbenzene	293
1,2,4-Trimethylbenzene	2,010
1,3,5-Trimethylbenzene	591
Xylene (Total)	25,000
Fluorene	1.1
1-Methylnaphthalene	27.4
2-Methylnaphthalene	42.6
Naphthalene	246

Sample ID	MW - 1
Sampled Date	6/6/13
Benzene	85.6
n-Butylbenzene	44.5
sec-Butylbenzene	37.5
1,2-Dichlorobenzene	21.9
Ethylbenzene	362
Isopropylbenzene	82.2
n-Propylbenzene	144
1,2,4-Trimethylbenzene	579
1,3,5-Trimethylbenzene	20.5
Xylene (Total)	592
Fluorene	1.1
1-Methylnaphthalene	17.4
2-Methylnaphthalene	25.1
Naphthalene	211
Phenanthrene	1.1

Sample ID	MW - 101
Sampled Date	6/6/13
Tetrachloroethene	8.2

Sample ID	MW - 4
Sampled Date	6/6/13
Ethylbenzene	10.8
Isopropylbenzene	9.8
n-Propylbenzene	14.3
1,2,4-Trimethylbenzene	17.0
Xylene (Total)	77.6
1-Methylnaphthalene	4.6
2-Methylnaphthalene	3.6
Naphthalene	14.0

Sample ID	MW - 103
Sampled Date	6/7/13
Benzene	133
n-Butylbenzene	40.2
sec-Butylbenzene	53.3
tert-Butylbenzene	11.3
Ethylbenzene	5,900
Isopropylbenzene (Cumene)	272
n-Propylbenzene	514
Toluene	183
1,2,4-Trimethylbenzene	3,750
1,3,5-Trimethylbenzene	1,100
Xylene (Total)	25,400
1-Methylnaphthalene	12.6
2-Methylnaphthalene	20.9
Naphthalene	503

Sample ID	MW - 104
Sampled Date	6/7/13
n-Butylbenzene	20.7
sec-Butylbenzene	29.4
Ethylbenzene	41.3
Isopropylbenzene (Cumene)	31.4
n-Propylbenzene	30.5
1,2,4-Trimethylbenzene	46.6
Xylene (Total)	114
Acenaphthene	1.9
Anthracene	0.22
Fluorene	2.5
1-Methylnaphthalene	17.8
2-Methylnaphthalene	8.9
Naphthalene	5.6
Phenanthrene	2.9

Sample ID	MW - 7
Sampled Date	6/5/13
n-Butylbenzene	44.4
sec-Butylbenzene	21.2
1,2-Dichlorobenzene	566
1,1-Dichloroethane	41.8
Ethylbenzene	180
Isopropylbenzene	38.5
n-Propylbenzene	68.3
1,2,4-Trimethylbenzene	742
1,3,5-Trimethylbenzene	116
Xylene (Total)	433
1-Methylnaphthalene	3.3
2-Methylnaphthalene	4.8
Naphthalene	186

Sample ID	MW - 2
Sampled Date	6/5/13
Benzene	102
Chloroethane	82.2
1,1-Dichloroethane	57.6
cis-1,2-Dichloroethene	22.4
Ethylbenzene	499
Isopropylbenzene	9.6
1,2,4-Trimethylbenzene	48.8
1,3,5-Trimethylbenzene	14.6
Vinyl Chloride	4.7
Xylene (Total)	1,100
Naphthalene	2.7

Legend

● Monitoring Well

Notes:
 Values presented in parts per billion (ppb) or ug/l
 Bold text denotes value exceeds IDEM RCG RSLs
 Only results above detection limit shown.

Base Map: 2011 IndianaMap Orthophotography



Heartland Environmental Associates, Inc.
 3410 Mishawaka Avenue, South Bend, Indiana 46615

FIGURE 8
GROUNDWATER ANALYTICAL MAP
 FORMER SHELL BULK OIL FACILITY
 2121 & 2219 WEST MICHIGAN STREET
 INDIANAPOLIS, INDIANA

Date:
6/16/13
 Scale:
1"=100'
 Drawn By:
NV

TABLES

**Table 1
Well Survey Data
Former Shell Bulk Oil Terminal Facility
2121 & 2219 West Michigan Street
Indianapolis, Indiana**

Well Identification Number	Date Gauges	Well Diameter (in)	Depth to LNAPL (ft below grade)	Depth to Water (ft below grade)	Well Total Depth (ft)	Well Screen Length (ft)	Well Top of Casing Elevation
MW - 1	12/11/2012	2	27.81	27.83	32.13	10	103.36
	6/6/2013	2	25.26	25.28	32.36	10	
MW - 1A	12/11/2012	2	-	27.06	46.09	5	102.61
	6/6/2013	2	-	24.58	46.03	5	
MW - 2	12/11/2012	2	-	26.84	27.10	10	102.24
	6/5/2013	2	-	24.66	27.11	10	
MW - 2A	12/11/2012	2	-	26.87	46.11	5	102.17
	6/5/2013	2	-	24.40	46.37	5	
MW - 3	12/10/2012	2	-	28.24	32.23	10	104.16
	6/5/2013	2	-	25.68	32.27	10	
MW - 4	12/10/2012	2	-	26.16	31.30	10	100.77
	6/6/2013	2	-	23.59	31.35	10	
MW - 5	12/10/2012	2	-	24.31	31.46	10	101.00
MW - 7	12/11/2012	2	-	28.86	32.52	10	103.23
	6/5/2013	2	-	26.38	32.56	10	
MW - 9	12/11/2012	2	-	28.47	34.81	10	-
MW - 101	6/6/2013	2	-	21.68	31.04	10	100.31
MW - 102	6/6/2013	2	-	21.92	30.61	10	100.57
MW - 103	6/7/2013	2	-	22.33	31.15	10	100.11
MW - 104	6/7/2013	2	-	22.37	30.47	10	100.10
B - 100*	12/10/2012	1	-	24.58	29.55	10	101.22
B - 101*	12/10/2012	1	-	24.44	29.47	10	100.94
B - 102*	12/11/2012	1	27.64	27.78	32.99	10	103.42
B - 103*	12/11/2012	1	Trace	25.89	30.88	10	102.13
B - 104*	12/10/2012	1	-	23.54	29.43	10	100.16

Notes: Well Elevation Survey Datum represents newly collected datum
*-B-100 through B-104 are temporary 1" piezometers utilized only
for investigation completed December 2013 and were abandoned after sampling.

Table 2
Historic and Present VOCs in Groundwater
Former Shell Bulk Oil Terminal Facility
2121 & 2219 West Michigan Street
Indianapolis, Indiana

Sample Location	Date Sampled	Benzene	Carbon Tetrachloride	2-Butanone (MEK)	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Chloroethane	1,2-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	Isopropylbenzene (Cumene)	Methylene Chloride	n-Propylbenzene	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,2-Dibromoethane (EDB)	1,2-Dichloropropane	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	Trichloroethene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl Chloride	Xylene (Total)	
IDEM RCG Residential Screening Levels		5	5	-	780	-	-	-	600	75	24	5	7	70	100	700	390	5	530	5	5	0.05	5	5	1,000	200	5	15	87	2	10,000	
MW - 1	12/11/2012	192	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	3,350	98.9	<50	163	<50	<50	<50	<50	<50	<50	<50	<50	<50	1,230	151	<20	3,670
	6/6/2013	85.6	<5.0	<25.0	44.5	37.5	<5.0	<5.0	21.9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	362	82.2	<5.0	144	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	579	20.5	<2.0	592
MW - 1A	12/11/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<10	
	6/6/2013	<5.0	<5.0	<25.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<10.0	
MW - 2	6/5/2013	102	<5.0	<25.0	<5.0	<5.0	<5.0	82.2	<5.0	<5.0	57.6	<5.0	<5.0	22.4	<5.0	499	9.6	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	48.8	14.6	4.7	1,100
MW - 2A	12/11/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<10	
	6/5/2013	<5.0	<5.0	<25.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<10.0
MW - 3	12/10/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<10	
	6/5/2013	<5.0	<5.0	<25.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<10.0	
MW - 4	12/10/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	128	6.41	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	9.91	<5	<2	789
	6/6/2013	<5.0	<5.0	<25.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	10.8	9.8	<5.0	14.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	17.0	<5.0	<2.0	77.6
MW - 5	12/10/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<10	
MW - 7	12/11/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	31.8	<5	<5	<5	<5	216	38.5	<5	71.1	<5	<5	<5	<5	<5	<5	<5	<5	<5	497	<5	<2	296
	6/5/2013	<5.0	<5.0	<25.0	44.4	21.2	<5.0	<5.0	566	<5.0	41.8	<5.0	<5.0	<5.0	<5.0	180	38.5	<5.0	68.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	742	116	<2.0	433
MW - 9	12/11/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	9.79	11.5	<5	<5	<2	<10	
MW - 101	6/6/2013	<5.0	<5.0	<25.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<10.0	
MW - 102	6/6/2013	133	<5.0	<25.0	46.9	54.2	8.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7,870	169	<5.0	293	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	2,010	591	<2.0	25,000
MW - 103	6/7/2013	133	<5.0	<25.0	40.2	53.3	11.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5,900	272	<5.0	514	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	3,750	1,100	<2.0	25,400	
MW - 104	6/7/2013	<5.0	<5.0	<25.0	20.7	29.4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	41.3	31.4	<5.0	30.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	46.6	<5.0	<2.0	114
B - 100	12/10/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<10	
B - 101	12/10/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<10
B - 102	12/11/2012	141	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	7,730	105	<50	91.7	<50	<50	<50	<50	<50	<50	<50	<50	<50	1,090	316	<20	43,800
B - 103	12/11/2012	21.1	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	1,890	97.8	<50	208	<50	<50	<50	<50	<50	<50	<50	<50	<50	1,730	327	<20	3,340
B - 104	12/10/2012	<5	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2	<10	

Notes: Values presented in parts per billion (ppb) or ug/l
Default Closure levels based on IDEM Remediation Closure Guide Technical Document issued March 2012
Bold cell denotes value exceeds IDEM RCG RSLs
Non-detect concentrations encountered exceeding IDEM RSLs are a result of laboratory dilution methods, but do not necessarily represent chemical impacts.

Table 3
Historic and Present PAHs in Groundwater
Former Shell Bulk Oil Terminal Facility
2121 & 2219 West Michigan Street
Indianapolis, Indiana

Sample Location	Date Sampled	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	bis(2-Ethylhexyl)phthalate	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
IDEM RCG Residential Screening Levels		400	-	1,300	0.29	0.2	0.29	-	2.9	6	29	0.029	630	220	0.29	9.7	27	1.4	-	87
MW - 1	12/11/2012	<10.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<10.0	<10.0	<0.22	<10.0	33.4	366	<10.0	<10.0
	6/6/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	1.1	<0.10	17.4	25.1	211	1.1	<1.0
MW - 1A	12/11/2012	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<5	<0.10	<0.10	<1.0	<1.0	<0.022	<1.0	<1.0	<1.0	<1.0	<1.0
	6/6/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0
MW - 2	6/5/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	<1.0	<0.10	<1.0	<1.0	2.7	<1.0	<1.0
MW - 2A	12/11/2012	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<5	<0.10	<0.10	<1.0	<1.0	<0.022	<1.0	<1.0	<1.0	<1.0	<1.0
	6/5/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0
MW - 3	12/10/2012	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<5	<0.10	<0.10	<1.0	<1.0	<0.022	<1.0	<1.0	<1.0	<1.0	<1.0
	6/5/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0
MW - 4	12/10/2012	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<5	<0.10	<0.10	<1.0	<1.0	<0.022	<1.0	<1.0	<1.0	<1.0	<1.0
	6/6/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	<1.0	<0.10	4.6	3.6	14.0	<1.0	<1.0
MW - 5	12/10/2012	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<5	<0.10	<0.10	<1.0	<1.0	<0.022	<1.0	<1.0	<1.0	<1.0	<1.0
MW - 7	12/11/2012	<10.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	21.4	<1.0	<1.0	<10.0	<10.0	<0.22	<10.0	<10.0	89.0	<10.0	<10.0
	6/5/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	<1.0	<0.10	3.3	4.8	186	<1.0	<1.0
MW - 9	12/11/2012	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<5	<0.10	<0.10	<1.0	<1.0	<0.022	<1.0	<1.0	<1.0	<1.0	<1.0
MW - 101	6/6/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0
MW - 102	6/6/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	1.1	<0.10	27.4	42.6	246	<1.0	<1.0
MW - 103	6/7/2013	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	<1.0	<0.10	12.6	20.9	503	<1.0	<1.0
MW - 104	6/7/2013	1.9	<1.0	0.22	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.50	<0.10	<1.0	2.5	<0.10	17.8	8.9	5.6	2.9	<1.0
B - 100	12/10/2012	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<5	<0.10	<0.10	<1.0	<1.0	<0.022	<1.0	<1.0	<1.0	<1.0	<1.0
B - 101	12/10/2012	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<5	<0.10	<0.10	<1.0	<1.0	<0.022	<1.0	<1.0	<1.0	<1.0	<1.0
B - 102	12/11/2012	<10.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5	<1.0	<1.0	<10.0	<10.0	<0.22	<10.0	41.9	154	<10.0	<10.0
B - 103	12/11/2012	<50.0	<50.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	28.9	<5.0	<5.0	<50.0	<50.0	<1.1	<50.0	50.5	1,060	<50.0	<50.0
B - 104	12/10/2012	<1.0	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<5	<0.10	<0.10	<1.0	<1.0	<0.022	<1.0	<1.0	<1.0	<1.0	<1.0

Notes: Values presented in parts per billion (ppb) or ug/l
Default Closure levels based on IDEM Remediation Closure Guide Technical Document issued March 2012
Bold cell denotes value exceeds IDEM RCG RSLs
Non-detect concentrations encountered exceeding IDEM RSLs are a result of laboratory dilution methods, but do not necessarily represent chemical impacts.

APPENDIX A

Columbia Technologies, Inc.

***Subsurface Characterization Using Laser Induced Fluorescence (LIF)
Technology Report, June 10, 2013***

**Subsurface Characterization Using
Laser Induced Fluorescence (LIF) Technology
Former Shell Bulk Terminal Oil Facility
2121 and 2219 West Michigan Street
Indianapolis, Indiana**

PREPARED FOR

Heartland Environmental Associates
3410 Mishawaka Avenue
South Bend, Indiana 46615

June 10, 2013

PREPARED BY

COLUMBIA Technologies, LLC
1448 South Rolling Road
Baltimore, Maryland 21227
410-536-9911
www.columbiatechnologies.com

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Figure 1 ... Sitemap and Locations

APPENDICES

Appendix A: LIF/UVOST[®] Logs

Appendix B: UVOST Response to Various Random Products Saturated on Wet Sand

Introduction

Heartland Environmental Associates (Heartland) contracted **COLUMBIA Technologies, LLC (COLUMBIA)** to conduct an investigation of subsurface contamination at the Former Shell Bulk Terminal Oil Facility site, located in Indianapolis, Indiana. This investigation involved delineating the depth and horizontal extent of free product and residual petroleum contamination using Laser Induced Fluorescence/Ultraviolet Optical Screening Tool (LIF/UVOST[®]) technology.

The investigation was conducted on June 3rd, 2013 and consisted of seven LIF/UVOST[®] screening locations to depths ranging between 30.04 feet and 35.07 feet below ground surface (bgs). A Geoprobe[®] Direct Push Technology (DPT) drilling rig was used to advance the locations.

Objectives

The objective of this LIF/UVOST[®] investigation was to:

- Delineate in high resolution the vertical and horizontal extent of residual petroleum contamination in the soil and groundwater, in order to help facilitate remediation activities in preparation for the construction of a new commercial structure.

LIF/UVOST[®] Equipment Description

The LIF system utilized for this investigation is the latest generation UVOST[®] system developed by Dakota Technologies, Inc (DTI). The system uses a high-energy laser to produce a ultraviolet light source for the detection of polycyclic aromatic hydrocarbons (PAHs). PAHs are fused aromatic rings formed during the incomplete burning of oil and gas, and are commonly found in petroleum products.

The LIF/UVOST[®] system consists of an Excimer laser, two fiber optic cables that are pre-strung through the DPT rods, an optical detection system, a SONY Toughbook[™] laptop computer, and Shock Prevention Optical Cavity (SPOC). The SPOC consists of a sapphire window and a parabolic mirror, as well as a shock absorbing gel that allows the SPOC to maintain mirror alignment under the duress of percussion during advancement

LIF/UVOST[®] screening was performed by pushing/hammering the SPOC into the soil at the target rate of two cm/sec (0.8 inches per second). As the probe advanced, the excimer laser generates energy in the form of photons (308nm). This energy is transferred through one of the fiber optic cables at a rate of 50 pulses per second to the optical cavity where the parabolic mirror reflects the energy through the sapphire window. Any polycyclic aromatic hydrocarbons (PAHs) that come in contact with the sapphire window then absorb this photon energy. These PAHs then emit fluorescence in order to return to their base state. A portion of this fluorescence is carried back to the optical detection system via the second fiber optic.

Once at the surface, the emitted fluorescence is measured and recorded across four specific wavelengths – 350, 400, 450, and 500 nanometers (nm). These wavelengths represent a common range of fluorescence associated with PAHs. Typically the lighter fuels (jet fuel and gasoline) emit fluorescence at the shorter wavelengths – 350nm and 400nm, while heavier, less distilled compounds such as bunker fuel or diesel fuel emit fluorescence at the longer wavelengths – 450nm and 500nm. As the test proceeds, the total monitored fluorescence is recorded and displayed in real-time at one second intervals as a function of depth on the LIF/UVOST[®] system computer. In addition, the intensity and duration of the fluorescence at each of the four monitored wavelengths are recorded and presented in real time at one second intervals as a separate graph on the LIF/UVOST[®] system computer.

LIF/UVOST[®] System Performance Test

As a quality control check, the LIF/UVOST[®] system response is evaluated prior to and upon completion of each LIF/UVOST[®] screening location. This evaluation is completed using a Reference Emitter (RE) that consists of a blend of Non-Aqueous Phase Liquid (NAPL) and produces a consistent fluorescence response over the four wavelengths monitored by the LIF/UVOST[®] system. Collected data is then presented as a percentage of the RE. Using the same RE at each location and site, allows normalization of data collected over several locations, sites, or screening events. The RE standard is provided by DTI, and is the same for all LIF/UVOST[®] systems currently in operation.

In addition to obtaining a baseline RE for each location, the background reading of the LIF/UVOST[®] system is electronically recorded prior to insertion into the soil. This background reading is required to be below 0.5% of RE prior to the start of any testing. The background during

tool advancement typically stays at or below the surface background reading – giving confidence that any increases in fluoresce are “true” readings and not fluctuations or variations in background.

Investigation Methods

A total of seven LIF/UVOST[®] locations were completed at the Former Shell Bulk Terminal Oil Facility site. Each location was selected by **Heartland’s** representative onsite, and the termination depth of each location was also determined by **Heartland’s** representative onsite. Immediately upon completion of each location, the dataset is wirelessly delivered to **COLUMBIA’s** remote servers for Quality Assurance/Quality Control (QA/QC) review and upload to a password secure website using Columbia’s patented *SmartData Solutions*[®] technology. The results from each location are shown in Appendix A.

LIF/UVOST[®] Log Interpretation

There are three primary characteristics of fluorescence that are considered when interpreting LIF/UVOST[®] data. These characteristics are:

1. Fluorescence intensity - how brightly does the compound fluoresce,
2. Wavelength - what color does the compound fluoresce at, and
3. Duration - how long does the compound fluoresce at each monitored wavelength

Individual LIF/UVOST[®] logs consist of a primary graph of total fluorescence versus depth, an information box and up to five waveform “callouts”. In the primary fluorescence graph, depth is plotted on the Y axis and the combined total fluorescence intensity of the four monitored wavelengths is plotted on the X axis. Total fluorescence intensity is presented as a percentage of the RE standard. Since various PAHs fluoresce at differing intensities, there are several compounds that fluoresce brighter than the RE standard, and therefore the total RE can exceed 100%. Total fluorescence intensity is typically proportional to concentration and responds linearly as concentration increases.

Waveform callouts are presented along the left-hand side of the primary graph. These callouts present the fluoresce intensity of each of the monitored wavelengths on the Y axis (in microvolts (uV)) and the duration of fluorescence of each wavelength on the X axis. No scale is given along the X axis, however; it is a consistent 320 nanoseconds wide. The four peaks are

due to the fluorescence at the four monitored wavelengths – called channels. Each channel is assigned a color. Various NAPLs will have a unique waveform signature based on the relative amplitude of the four channels and/or the broadening of one or more of the channels. Callouts are selected by the operator and typically correspond to peaks on the primary graph.

The fill color of the response on the primary graph is based on the relative contribution of each of the four channels' area versus the total waveform area. This allows the viewer to discern different substances at different depths based on the fill color.

See Appendix B: UVOST Response to Various Random Products Saturated on Wet Sand for the expected wavelength signature for common compounds.

Correlating LIF/UVOST® to Sampling or Laboratory Analyses

Generalized correlation between LIF/UVOST® and laboratory sample results can be inferred, but cannot be viewed as a linear comparison. LIF/UVOST® response and laboratory results are collected, analyzed and reported in different units and by different procedures, so correlation is not an exact one-to-one comparison. The LIF/UVOST® uses a process whereas a 2D soil surface is exposed to excitation light, and any fluorescent light emitted is analyzed at the ground surface. Soil and groundwater results involve the collection of a sample, extraction of sub-sample at the surface, and then transporting them to a laboratory for further extraction and analysis. These processes are different by definition.

Observations

All locations exhibited response ranging from 23%RE to 369%RE. Observed product appeared to be a mixture of gasoline, diesel, and possibly kerosene, some in more weathered states than others. Maximum response observed, and possible product type is summarized in Table #1.

Table #1

<u>Location</u>	<u>Beginning Depth</u>	<u>Ending Depth</u>	<u>Maximum %RE</u>	<u>Possible Product</u>
L01	24.5 Feet	31 Feet	71.1%RE	Heavier End Petroleum
L02	4.50 Feet	13.25 Feet	5.0%RE	Heavier End Petroleum
	21.0 Feet	27.00 Feet	23.7%RE	Mix of Diesel and Gasoline
L03	2.00 Feet	22.00 Feet	36.9%RE	Mix of Gasoline and Diesel
	24.50 Feet	32.00 Feet	189.8%RE	Kerosene
L04	2.00 Feet	5.00 Feet	11.2%RE	Mix of Gasoline and Diesel
	22.00 Feet	31.50 Feet	272.6%RE	Weathered Kerosene
L05	0.00 Feet	2.00 Feet	14.2%RE	Weathered Gasoline
	28.50 Feet	29.50 Feet	57.3%RE	Weathered Gasoline
	31.25 Feet	33.50 Feet	117.6%RE	Weathered Gasoline
L06	26.00 Feet	31.75 Feet	369.2%RE	Mix of Gasoline and Kerosene
L07	24.50 Feet	31.50 Feet	351.2%RE	Mix of Kerosene and Gasoline

Log Anomalies

No log anomalies were noted.

Recommendations

COLUMBIA recommends obtaining confirmation samples and laboratory analyses to confirm the existence and type of petroleum hydrocarbons detected by the LIF-UVOST® system. **COLUMBIA** also recommends the use of the Hydraulic Profiling Tool (HPT) technology to better delineate pathways for the various contaminants. HPT information can also be useful for creating contaminate fate and transport models, selecting monitoring well location and screen intervals, and targeting zones for remedial injections.

SmartData Solutions® is a registered trademark of COLUMBIA Technologies LLC.
 UVOST® is a registered trademark of Dakota Technologies Inc.
 Geoprobe® is a registered trademark of Geoprobe Systems, Inc.

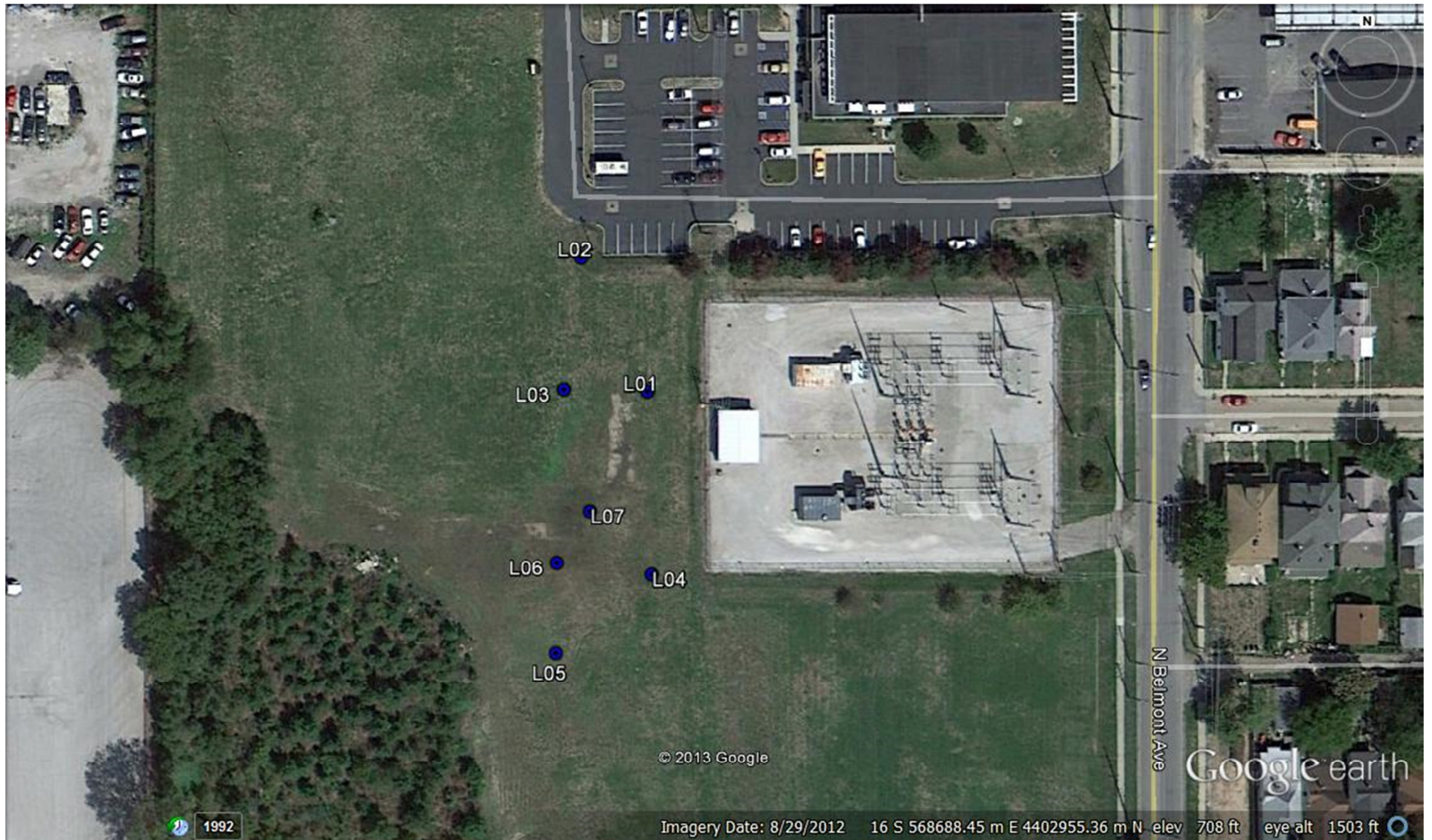
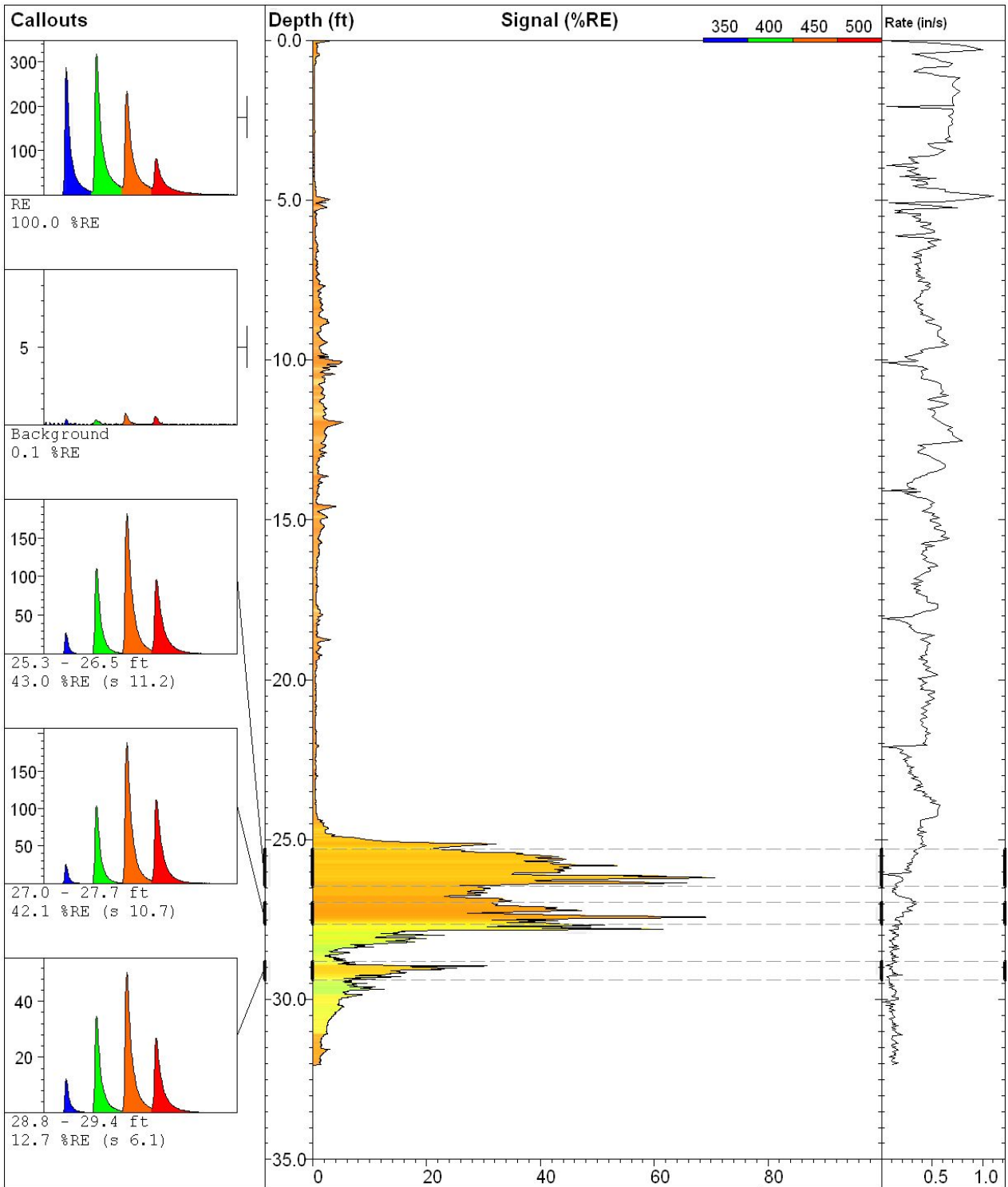


Figure 1 Sitemap and Locations
June 3, 2013

APPENDIX A
LIF/UVOST® Logs



COLUMBIA Technologies
Baltimore, MD 888-344-2704
www.columbiatechnologies.com

L01

Site:
Former Shell Bulk Termin

Client:
HEA

Job:

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
DJM/UVOST1005

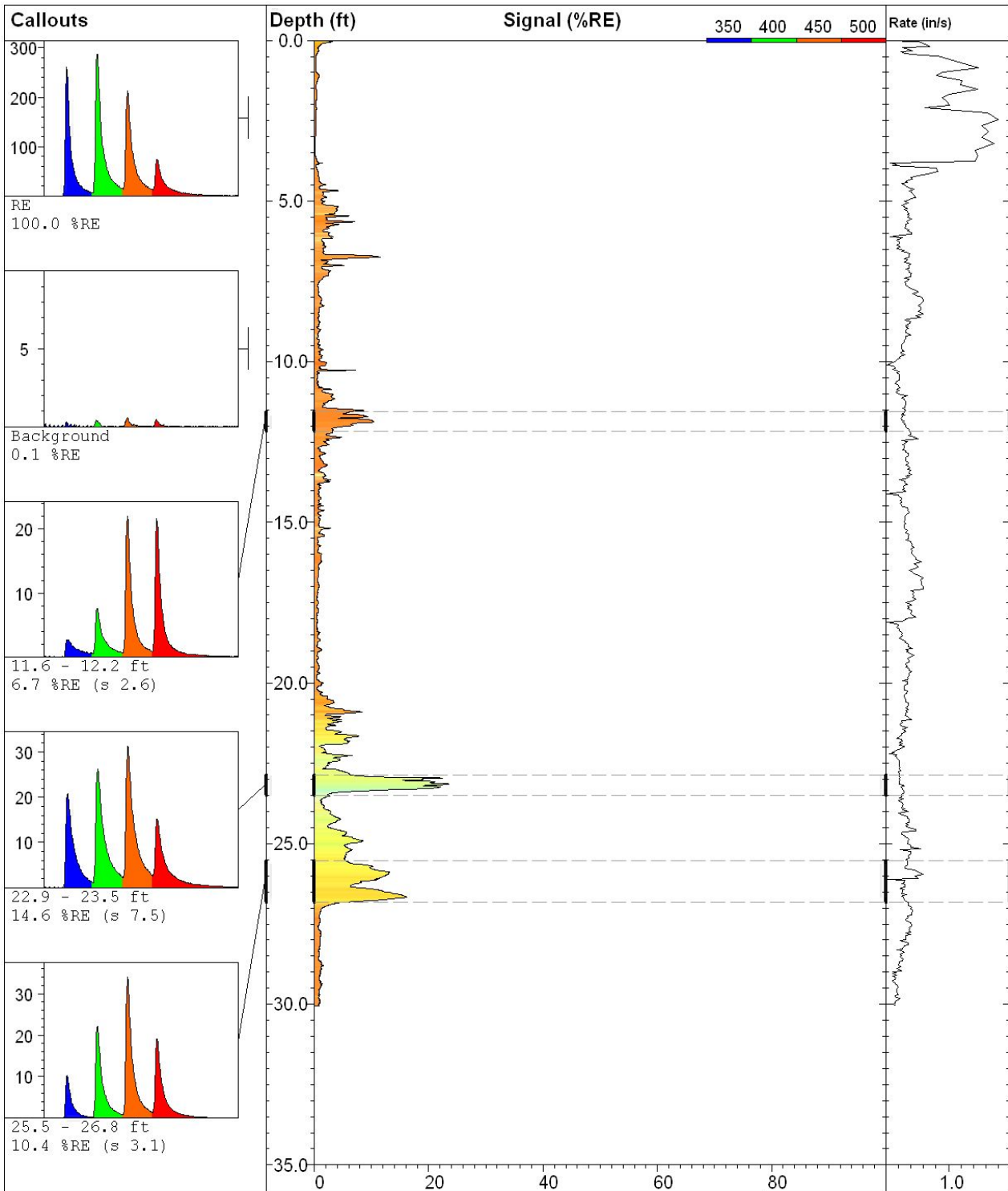
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
32.04 ft

Max signal:
71.1 % @ 26.19 ft

Date & Time:
2013-06-03 09:40 EDT



COLUMBIA Technologies
 Baltimore, MD 888-344-2704
 www.columbiatechnologies.com

L02

Site:
Former Shell Bulk Termin

Client:
HEA

Job:

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
DJM/UVOST1005

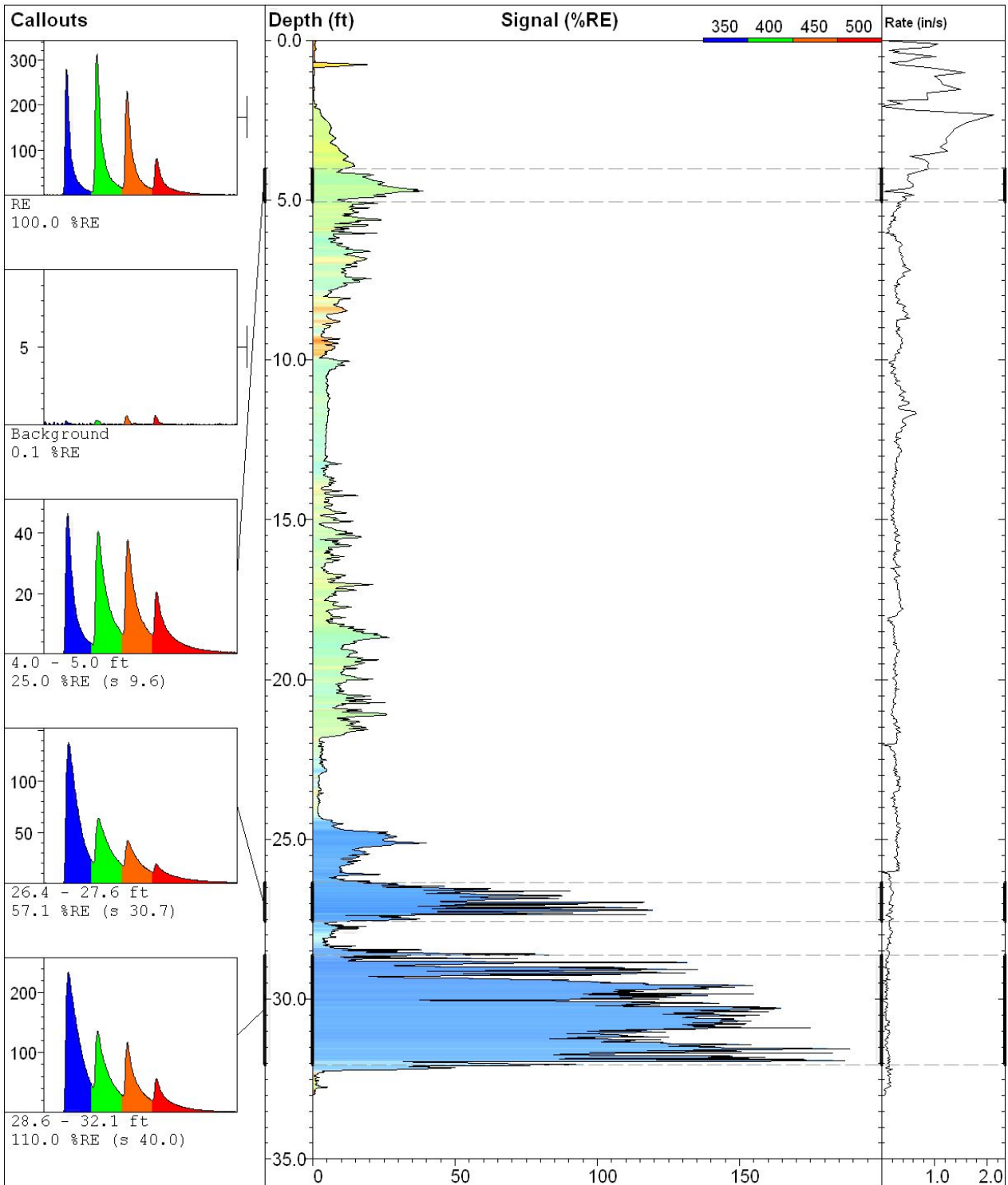
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
30.04 ft

Max signal:
23.7 % @ 23.14 ft

Date & Time:
2013-06-03 10:56 EDT



COLUMBIA Technologies
Baltimore, MD 888-344-2704
www.columbiatechnologies.com

L03

Site:
Former Shell Bulk Termin

Client:
HEA

Job:

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
DJM/UVOST1005

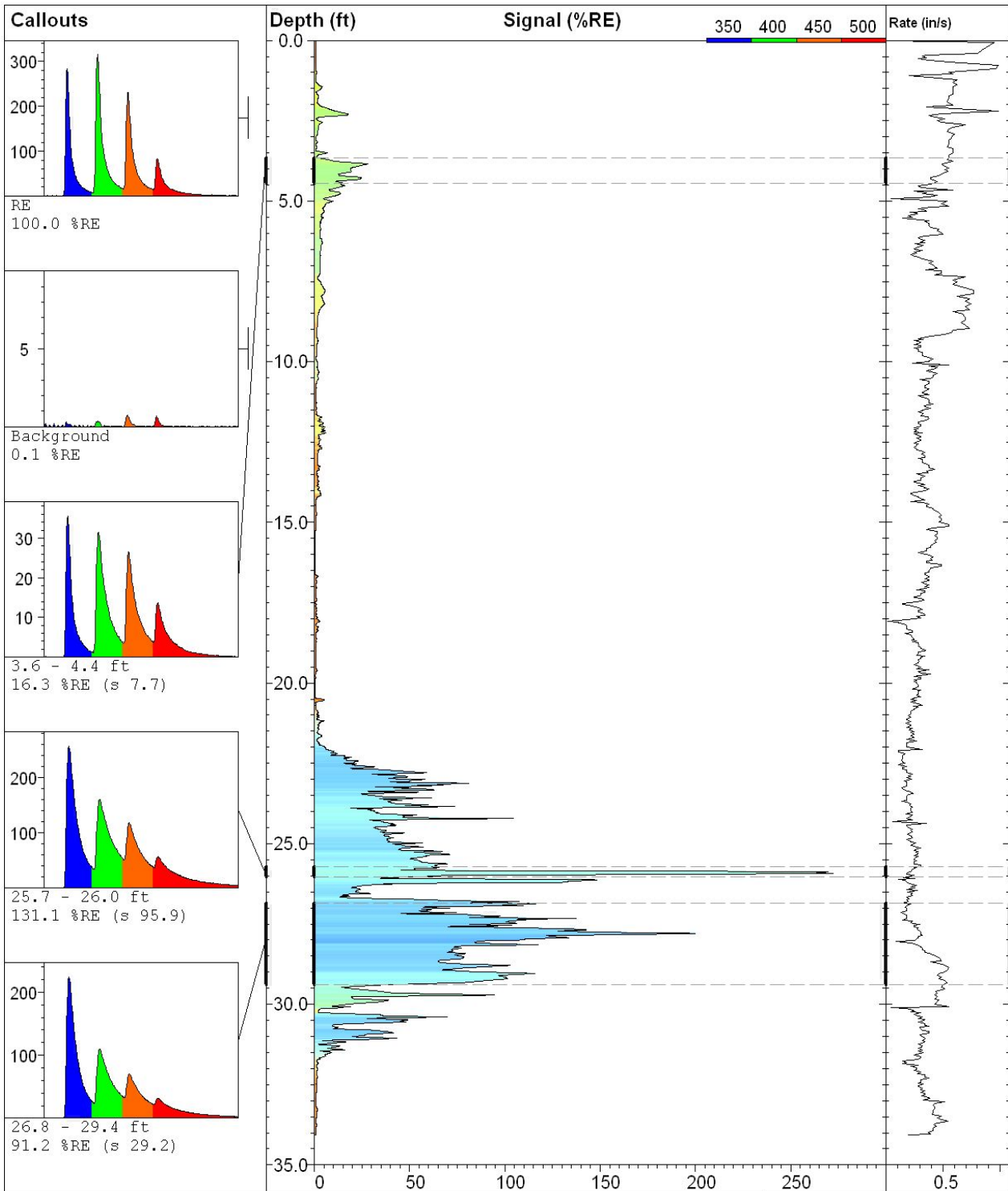
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
32.98 ft

Max signal:
189.8 % @ 31.55 ft

Date & Time:
2013-06-03 12:23 EDT



COLUMBIA Technologies
 Baltimore, MD 888-344-2704
 www.columbiatechnologies.com

L04

Site:
Former Shell Bulk Termin

Client:
HEA

Job:

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
DJM/UVOST1005

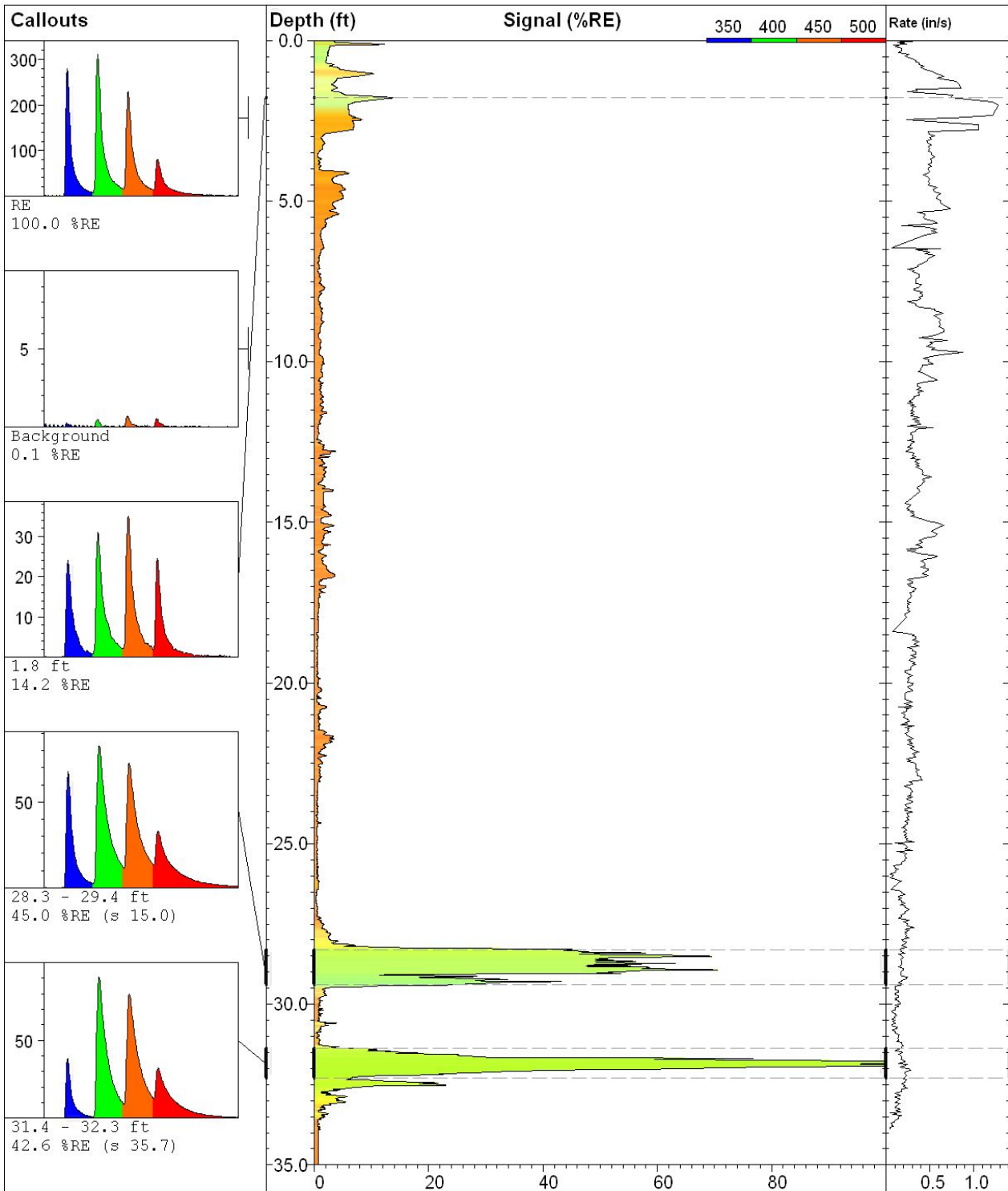
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
34.07 ft

Max signal:
272.6 % @ 25.93 ft

Date & Time:
2013-06-03 13:29 EDT



COLUMBIA Technologies
Baltimore, MD 888-344-2704
www.columbiatechnologies.com

L05

Site:
Former Shell Bulk Termin

Client:
HEA

Job:

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
DJM/UVOST1005

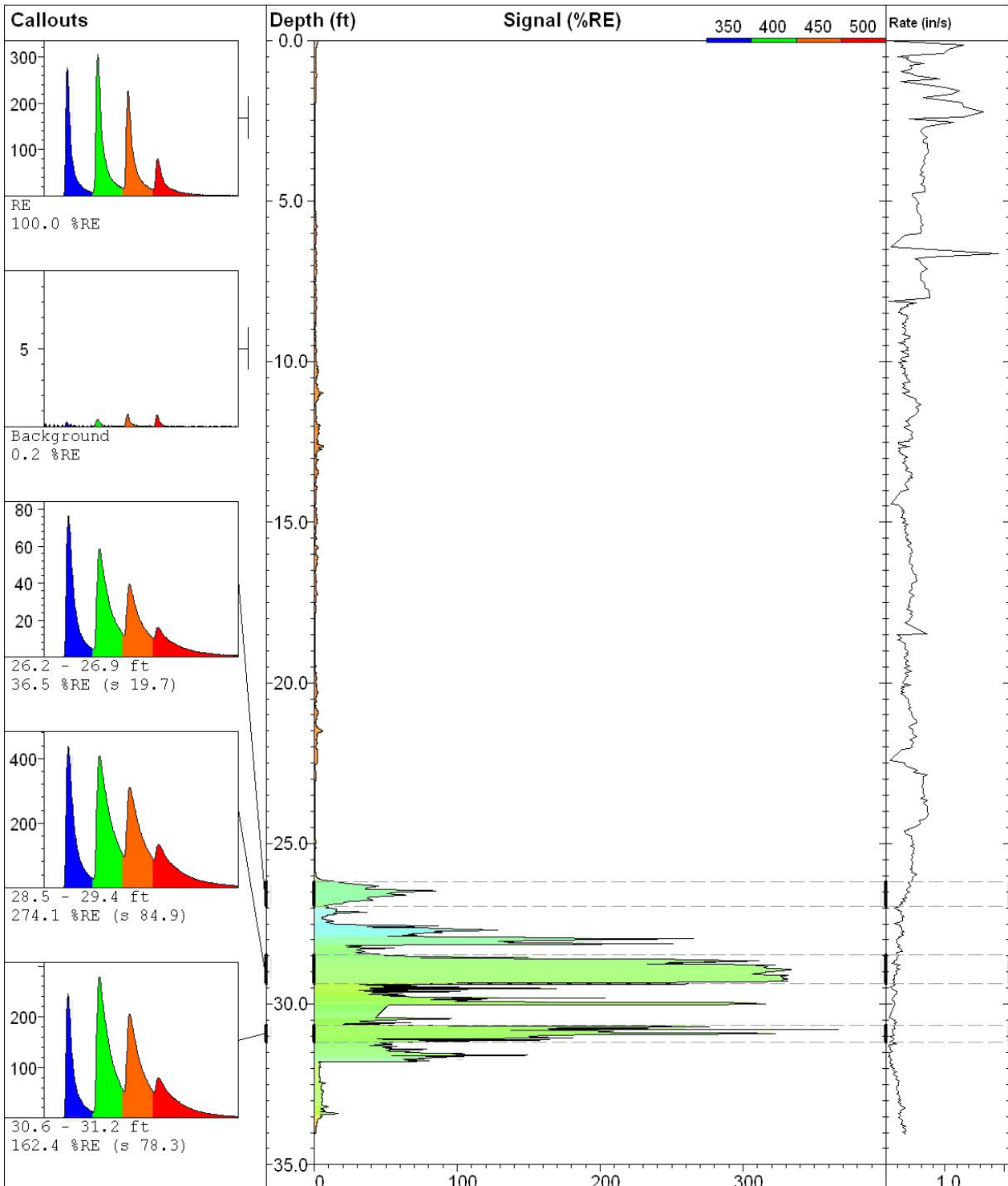
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
35.07 ft

Max signal:
117.6 % @ 31.82 ft

Date & Time:
2013-06-03 14:25 EDT



COLUMBIA Technologies
 Baltimore, MD 888-344-2704
 www.columbiatechnologies.com

L06

Site:
Former Shell Bulk Termin

Client:
HEA

Job:

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
DJM/UVOST1005

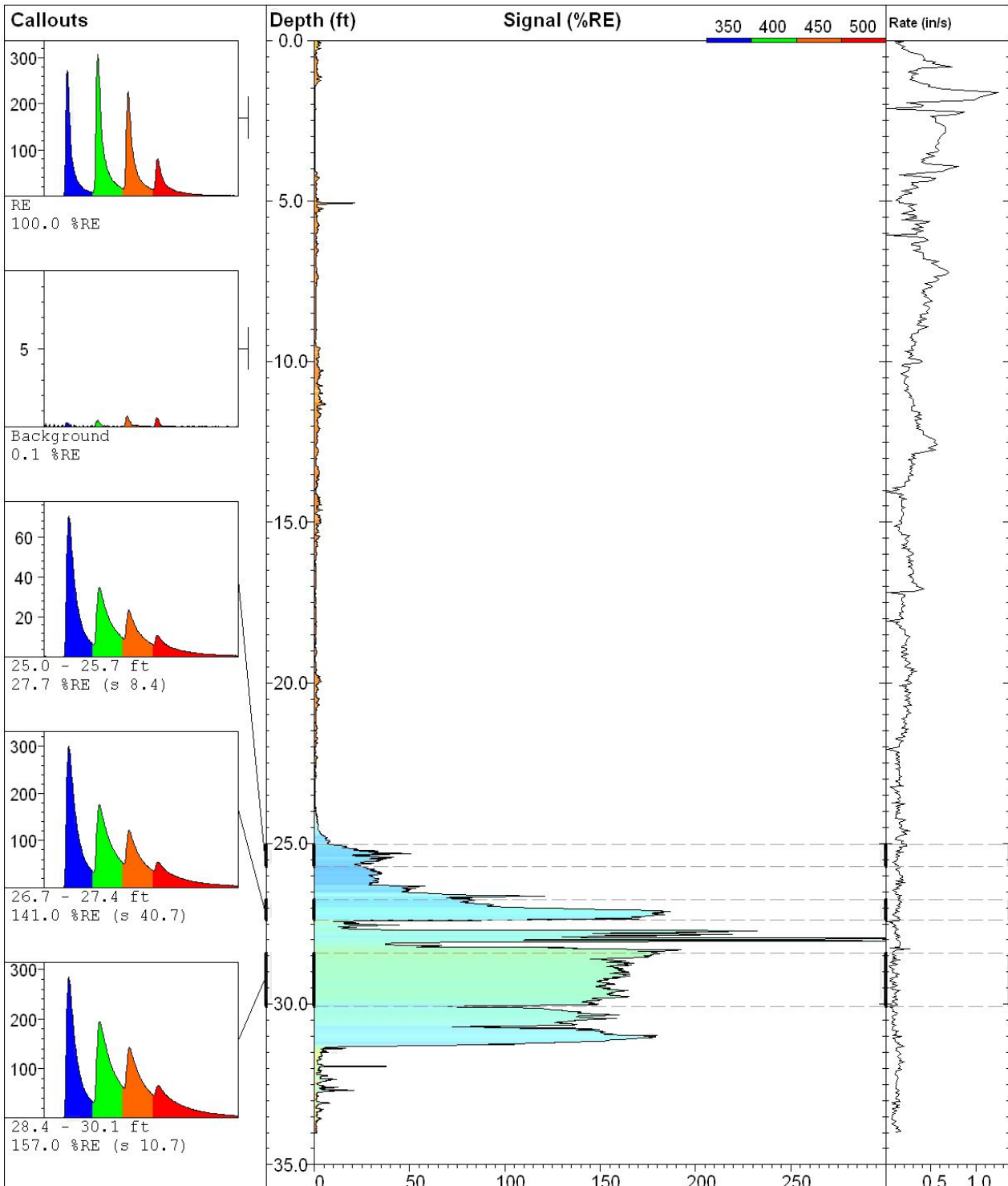
UVOST By Dakota

www.DakotaTechnologies.com

Final depth:
34.05 ft

Max signal:
369.2 % @ 30.79 ft

Date & Time:
2013-06-03 15:31 EDT



COLUMBIA Technologies
 Baltimore, MD 888-344-2704
 www.columbiatechnologies.com

L07

Site:
Former Shell Bulk Termin

Client:
HEA

Job:

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

Operator/Unit:
DJM/UVOST1005

UVOST By Dakota

www.DakotaTechnologies.com

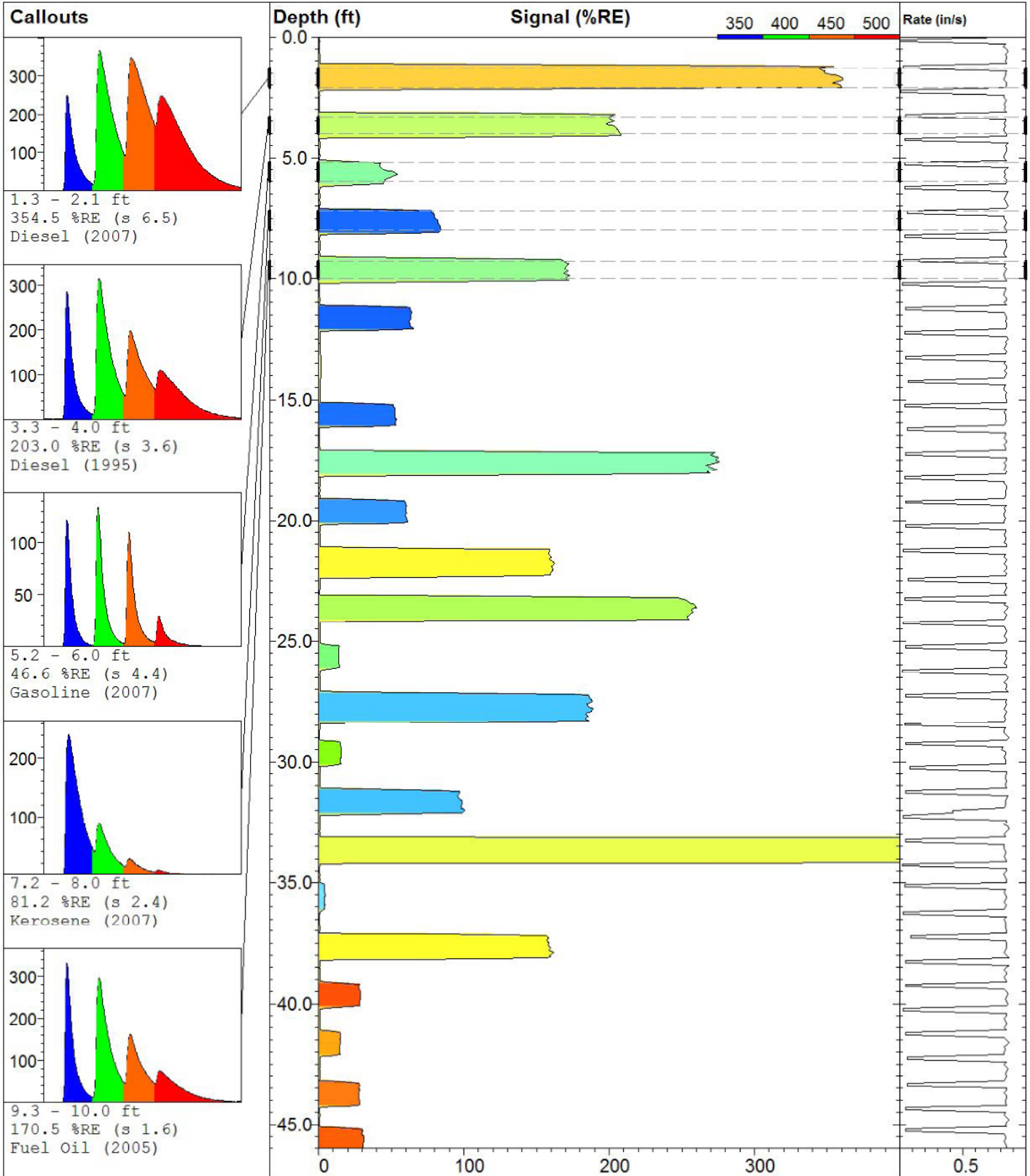
Final depth:
34.01 ft

Max signal:
351.2 % @ 27.95 ft

Date & Time:
2013-06-03 16:26 EDT

APPENDIX B

UVOST Response to Various Random Products Saturated on Wet Sand



Dakota Technologies, Inc.
 Fargo, ND (701)237-4908
 www.DakotaTechnologies.com

Various products on sand

Site:
Examples

Client:
DTI

Job:

Latitude / Datum:
Unavailable / NA

Longitude / Fix:
Unavailable / NA

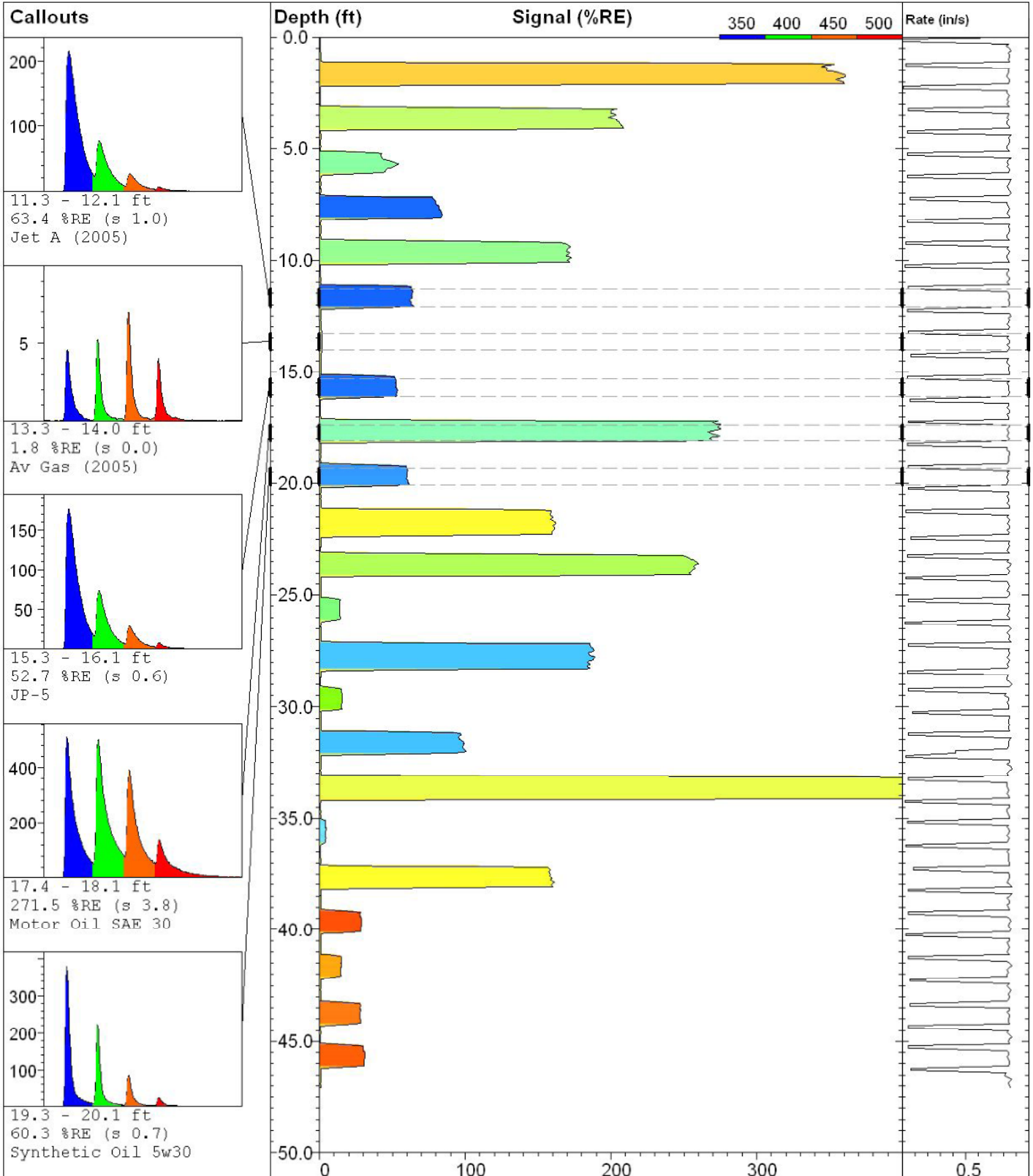
Operator/Unit:
T.Rudolph/UVOST1002

UVOST By Dakota
 www.DakotaTechnologies.com

Final depth:
47.10 ft

Max signal:
826.6 % @ 33.20 ft

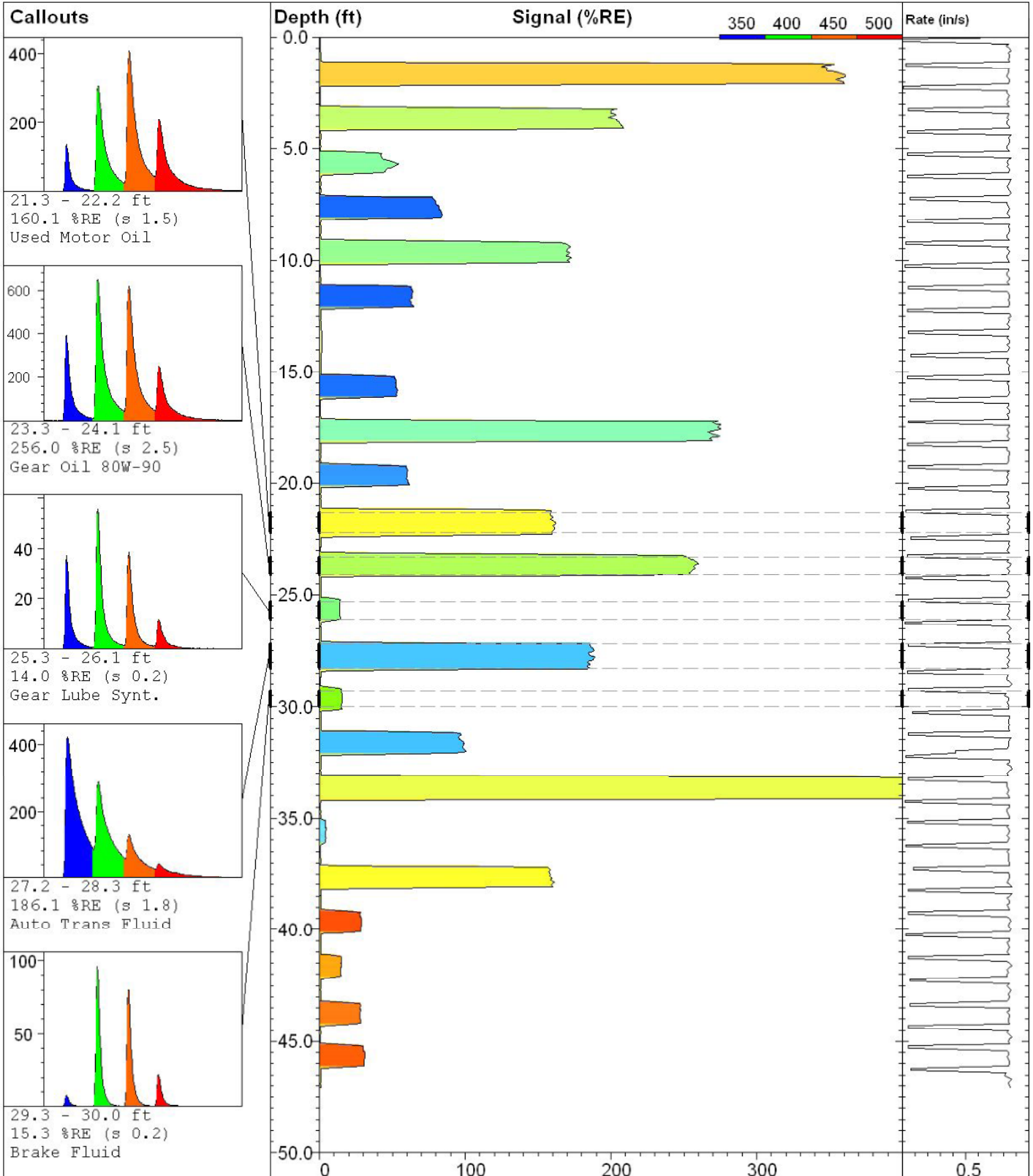
Date & Time:
2007-08-24 14:25 CDT



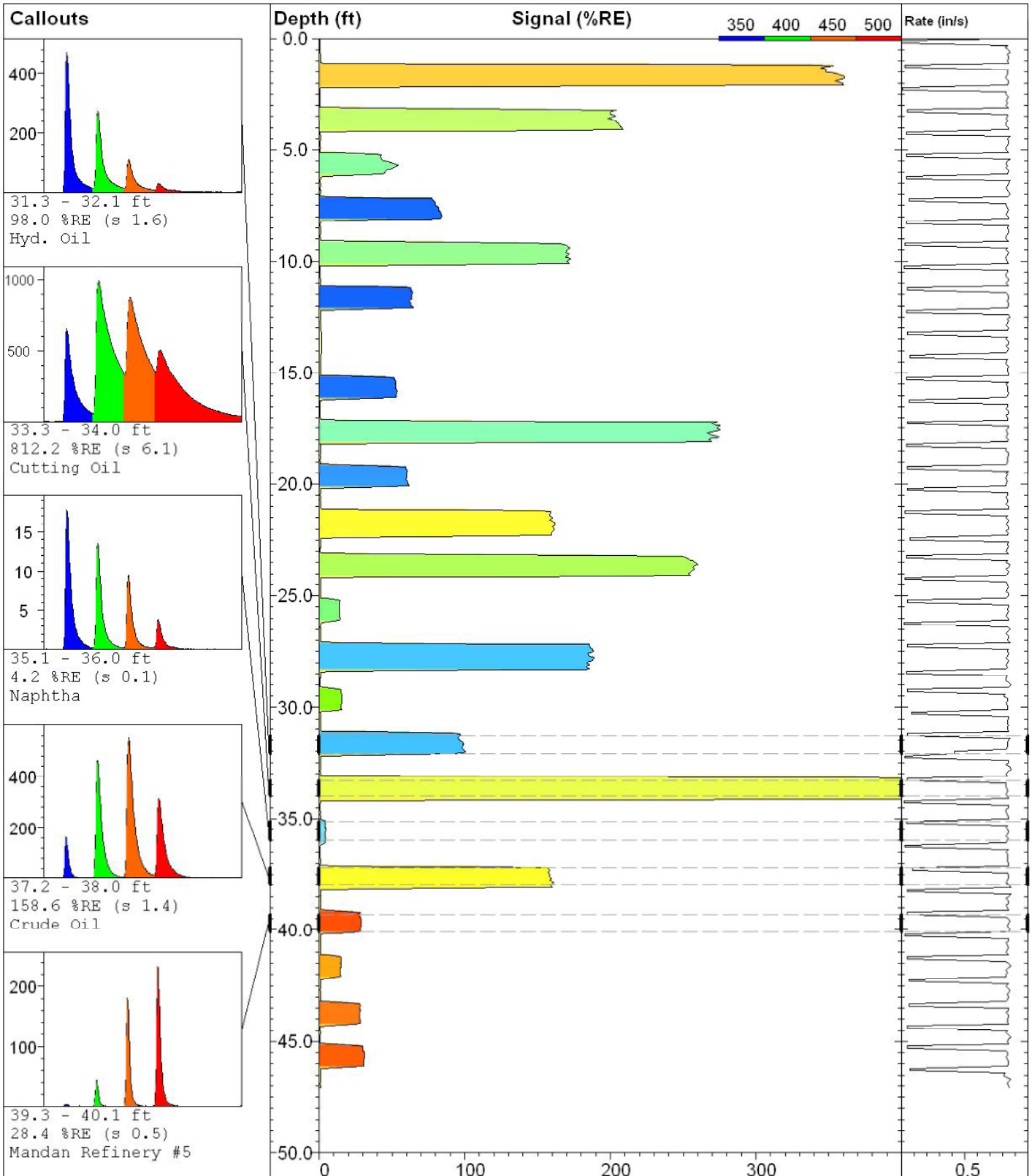
Various products on sand

UVOST By Dakota
 www.DakotaTechnologies.com

Site: Examples	Latitude / Datum: Unavailable / NA	Final depth: 47.10 ft
Client: DTI	Longitude / Fix: Unavailable / NA	Max signal: 826.6 % @ 33.20 ft
Job:	Operator/Unit: T.Rudolph/UVOST1002	Date & Time: 2007-08-24 14:25 CDT



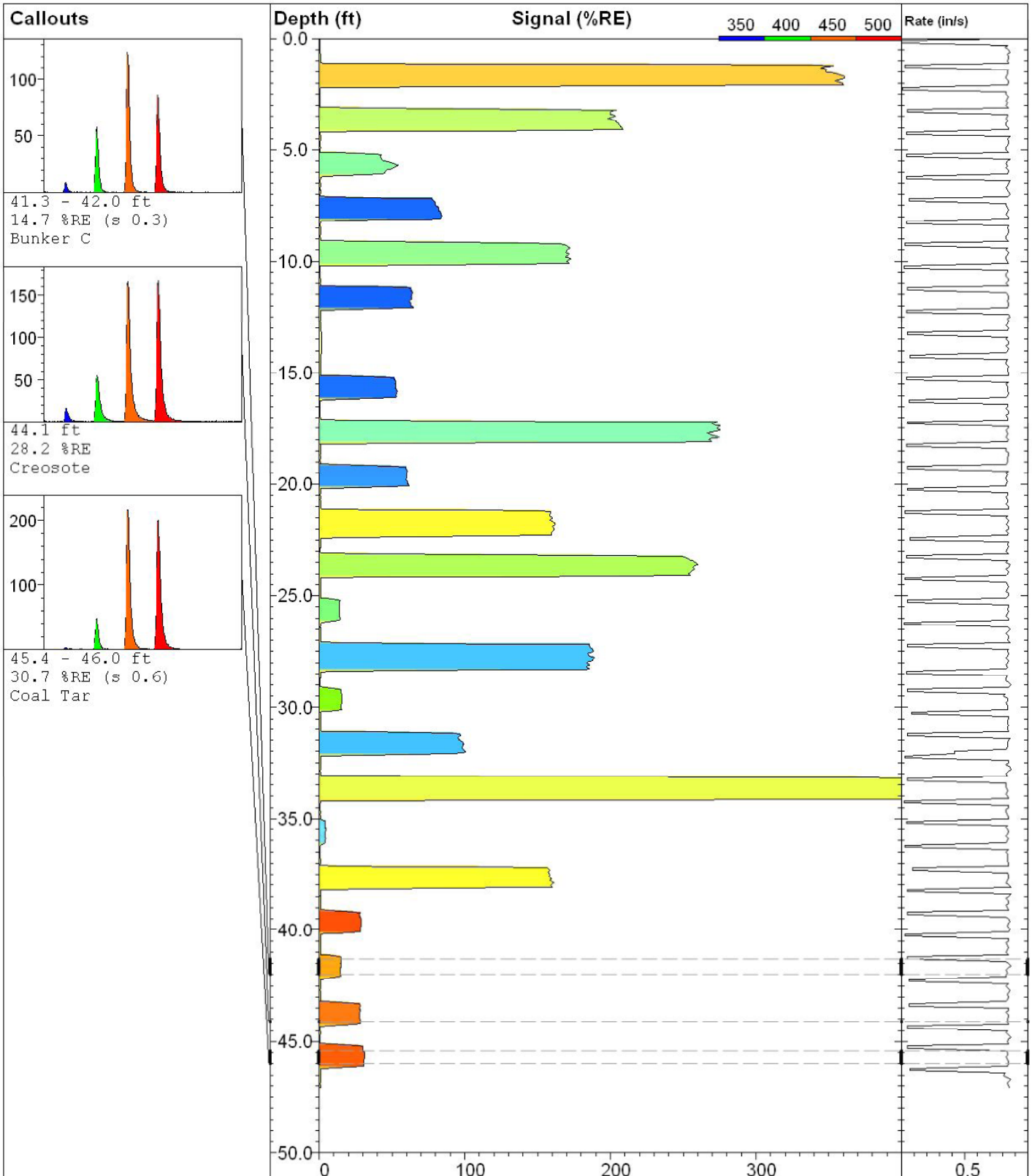
Various products on sand		UVOST By Dakota www.DakotaTechnologies.com
Site: Examples	Latitude / Datum: Unavailable / NA	Final depth: 47.10 ft
Client: DTI	Longitude / Fix: Unavailable / NA	Max signal: 826.6 % @ 33.20 ft
Job:	Operator/Unit: T.Rudolph/UVOST1002	Date & Time: 2007-08-24 14:25 CDT



Various products on sand

UVOST By Dakota
 www.DakotaTechnologies.com

<i>Site:</i> Examples	<i>Latitude / Datum:</i> Unavailable / NA	<i>Final depth:</i> 47.10 ft
<i>Client:</i> DTI	<i>Longitude / Fix:</i> Unavailable / NA	<i>Max signal:</i> 826.6 % @ 33.20 ft
<i>Job:</i>	<i>Operator/Unit:</i> T.Rudolph/UVOST1002	<i>Date & Time:</i> 2007-08-24 14:25 CDT



Various products on sand		UVOST By Dakota www.DakotaTechnologies.com
Site: Examples	Latitude / Datum: Unavailable / NA	Final depth: 47.10 ft
Client: DTI	Longitude / Fix: Unavailable / NA	Max signal: 826.6 % @ 33.20 ft
Job:	Operator/Unit: T.Rudolph/UVOST1002	Date & Time: 2007-08-24 14:25 CDT

APPENDIX B

Soil Boring Logs and

Monitoring Well Construction Diagrams

B-105/MW-101

5113-13-02 Former Shell Oil Bulk Facility 2121 West Michigan Street Indianapolis, Indiana

Drilling Contractor: Midway Services, Inc.	Drill Rig: GeoProbe
Driller: J.R. Todish License: 1946	Ground Elevation: Feet
Geologist: John R. Barnhart	Static Water Level: Feet
Date Drilled: 6/4/2013	Total Depth of borehole: 36 Feet
Boring Diameter: 2 Inches	Boring Method: Continuous

Graphic Log	Description	Depth	Sample	Recovery (feet)	Blow Count	PID (ppm)	Completion
	10YR 3/3 dark brown LOAMY TOPSOIL w/organics, moist 10YR 4/3 brown SAND and GRAVEL FILL, moist	0 5				0.0 0.0 0.0	
	10YR 5/4 yellowish brown SAND, fine to medium grained	5 10				14.8 104.1	
	10YR 5/3 brown SAND w/gravel, fine to medium grained, moist	10 15				91.0 171	
	10YR 6/3 pale brown SAND w/gravel, medium to coarse grained, very moist	15 20				104 275.5	
	mottled 10YR 5/3 brown, SATURATED at 23'	20 25				15.6 9.0	
	strong petroleum odor, sheen on oil at 25'	25 30				9.5 210.1	
	10YR 5/4 yellowish brown SAND, fine to medium to grained, SATURATED	30 35				228.2 0.9 1.5	
	Bottom of Boring 36'	35				0.9 0.5	

P:\City of Indianapolis Projects\Former Shell Bulk Oil Terminal Facility\WCDC Indianapolis Former Shell Oil Bulk Facility Limited Phase II Boring Logs\borings logs.w12



B-106/MW-102

5113-13-02 Former Shell Oil Bulk Facility 2121 West Michigan Street Indianapolis, Indiana

Drilling Contractor Midway Services, Inc.	Drill Rig GeoProbe
Driller J.R. Todish License 1946	Ground Elevation Feet
Geologist John R. Barnhart	Static Water Level Feet
Date Drilled 6/4/2013	Total Depth of borehole 34 Feet
Boring Diameter 2 Inches	Boring Method Continuous

Graphic Log	Description	Depth	Sample	Recovery (feet)	Blow Count	PID (ppm)	Completion
0	10YR 3/3 dark brown LOAMY TOPSOIL w/organics, moist	0					
1	10YR 4/1 dark gray CLAY LOAM w/gravel, very hard, firm, slightly moist	1				66.3	
2	10YR 6/1 gray SAND and GRAVEL FILL, slightly moist	5				64.0	
3	Poor Recovery 9' - 14'	10				46.8	
4	10YR 5/2 grayish brown SAND w/gravel, medium to coarse grained, moist	15				640	
5	medium grained at 20'	20				531	
6	10YR 4/2 dark grayish brown SAND w/gravel, fine to medium grained, SATURATED at 24'	25				228.5	
7	mottled 10YR 3/2 very dark grayish brown, strong petroleum odor, sheen on soil at 30'	30				665.7	
8		30				723.7	
9		30				1,877	
10		30				2,274	
11		30				956	
12		30				686	
13	Bottom of Boring 34'	35				4.5	

P:\City of Indianapolis Projects\Former Shell Bulk Oil Terminal Facility\WCDC Indianapolis Former Shell Oil Bulk Facility Limited Phase II\Boring Logs\borings_logs.w12

B-107/MW-103

5113-13-02 Former Shell Oil Bulk Facility 2121 West Michigan Street Indianapolis, Indiana

Drilling Contractor Midway Services, Inc.	Drill Rig GeoProbe
Driller J.R. Todish License 1946	Ground Elevation Feet
Geologist John R. Barnhart	Static Water Level Feet
Date Drilled 6/4/2013	Total Depth of borehole 34 Feet
Boring Diameter 2 Inches	Boring Method Continuous

Graphic Log	Description	Depth	Sample	Recovery (feet)	Blow Count	PID (ppm)	Completion
	10YR 3/3 dark brown LOAMY TOPSOIL w/organics, moist						
	10YR 4/1 dark gray CLAY LOAM w/gravel, very hard, firm, slightly moist					7.0	
	10YR 5/2 grayish brown SAND w/gravel, medium to coarse grained, moist	5				278	
		10				711	
		12				97	
	gravel and cobbles at 12'					107.8	
		15				117.0	
	10YR 6/2 light brownish gray mottled 10YR 5/4 yellowish brown SAND w/gravel, medium grained, moist					145.0	
	10YR 5/4 yellowish brown SAND w/gravel, medium grained, moist					59.1	
	mottled 10YR 5/3 brown at 20'	20				93.0	
		25				81.3	
	SATURATED at 24'					1,224	
	mottled 10YR 6/2 light brownish gray, strong petroleum odor, sheen on soil at 25'	25				1,357	
		30				1,583	
	gravel and cobbles at 28'					3,701	
		35				2,160	
		34				104.2	
	Bottom of Boring 34'						

P:\City of Indianapolis Projects\Former Shell Bulk Oil Terminal Facility\WCDC Indianapolis Former Shell Oil Bulk Facility Limited Phase II Boring Logs\borings logs.w12



B-108/MW-104

5113-13-02 Former Shell Oil Bulk Facility 2121 West Michigan Street Indianapolis, Indiana

Drilling Contractor: Midway Services, Inc.	Drill Rig: GeoProbe
Driller: J.R. Todish License: 1946	Ground Elevation: Feet
Geologist: John R. Barnhart	Static Water Level: Feet
Date Drilled: 6/4/2013	Total Depth of borehole: 34 Feet
Boring Diameter: 2 Inches	Boring Method: Continuous

Graphic Log	Description	Depth	Sample	Recovery (feet)	Blow Count	PID (ppm)	Completion
0	10YR 3/3 dark brown LOAMY TOPSOIL w/organics, moist						
10	10YR 4/1 dark gray CLAY LOAM w/gravel, very hard, firm, slightly moist					70.4	
5	10YR 5/2 grayish brown SAND w/gravel, medium to coarse grained, slightly moist	5				26.0	
10	mottled 10YR 5/3 brown at 8', slight petroleum odor	10				295	
15	gravel at 15'	15				114	
20		20				82.7	
25	SATURATED at 24', strong petroleum odor	25				107.5	
30	gravel and cobbles at 29' mottled 10YR 3/1 very dark gray, strong petroleum odor at 30'	30				163.9	
35	Bottom of Boring 34'	35				90.6	
						554.9	
						435	
						594	
						394	
						40.7	
						13.3	

P:\City of Indianapolis Projects\Former Shell Bulk Oil Terminal Facility\WCDC Indianapolis Former Shell Oil Bulk Facility Limited Phase II Boring Logs\borings logs.w12



APPENDIX C
Groundwater Sampling Data Sheets



LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Boring or Well ID: SBT-GW-MW-1A
 Sample Date: 6-6-13
 Client: Indiana Brownfields Program
 Project No: 5113-13-02
 Site Location: 201 E 2219 W. Michigan St. Indy

Sample Type: Gw-Former Shell Bulk O. (Grade Elevation: _____)
 Laboratory: Rice Analytical - Indianapolis (AirTOC Elevation: _____)
 Field Personnel: David Nye (SWL Depth: 24.58')
 Weather: Overcast
 Temp: 64°F

TD from Grade: 2.00'
 Screen Interval: _____
 Intake Depth: 43'
 Filter Method: NA
 Filter Type: NA

Pump Type: Peristaltic
 Pump Make: Geotech
 Pump Model: _____
 Filter Size: NA
 Filter Pore: NA
 Purge Volume: 1.1 gal
 Sample Time: 10:40

Sample Appearance: Clear Comments: well depth = 46.03' 2" dia

Time	Temp °C	AT % 3%	DO	ADO % 10%	pH	ΔpH % 0.1 units	Cond.	ΔCond % 3%	ORP	ΔORP % 10 mv	Turbidity	ΔTurb % 10%	Rate ml/min	WL ft
10:05	16.97		6.56		5.97		0.871		-17		157		136	24.59
10:11	16.11	5.1	2.42	63.1	7.08	1.1	0.975	11.9	52	69	0.0		140	24.59
10:14	15.97	0.9	1.69	30.2	7.09	0.01	1.01	3.6	11	41	0.0	0	126	24.59
10:17	15.84	0.8	1.89	11.8	7.10	0.01	1.03	2.0	-2	14	0.0	0	134	24.59
10:20	15.69	0.9	1.37	8.1	7.11	0.01	1.04	1.0	-3	0	0.0	0	136	24.59
10:23	15.67	0.1	1.12	18.2	7.11	0	1.04	0	1	4	0.0	0	136	24.59
10:26	15.61	0.4	1.02	8.9	7.10	0.01	1.05	1.0	6	5	0.0	0	144	24.59
10:29	15.56	0.3	1.04	2.0	7.10	0	1.05	0	9	3	0.0	0	146	24.59
10:32	15.35	1.4	1.09	4.8	7.11	0.01	1.05	0	13	4	0.0	0	148	24.59



LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Boring or Well ID: SBT-GW-MW-2 Sample Type: Gw-Former Shell Bulk O Grade Elevation: _____
Sample Date: 6-6-13 Laboratory: Rice Analytical - Indiana TOC Elevation: _____
Client: Indiana Brownfields Program Field Personnel: David Nye SWL Depth: 24.66
Project No: 5/13-13-02 Weather: overcast
Site Location: 201 E 2219 W. Michigan St. Indy Temp: 64°F

TD from Grade: 2.25' Pump Type: Peristaltic Sample Tubing: LDPE
Screen Interval: _____ Pump Make: Geotech Tubing Dia: 0.125" ID x 0.25" OD
Intake Depth: 27' Pump Model: _____ Field Meter: Horiba U-52

Filter Method: NA Filter Size: NA Purge Volume: 0.9 gal
Filter Type: NA Filter Pore: NA Sample Time: 09:10

Sample Appearance: Clear Comments: well depth = 27.11' 2" dia

Time	Temp °C	AT % 3%	DO	ADO % 10%	pH	ΔpH % 0.1 units	Cond.	ΔCond % 3%	ORP	ΔORP % 10 mv	Turbidity	ΔTurb % 10%	Rate ml/min	WL ft
08:40	17.92		9.45		6.84		1.04		-75		47.6		144	24.75
08:46	15.35	14.3	4.36	53.9	6.61	0.23	1.08	3.8	-65	10	35.6	25.2	120	24.74
08:49	15.14	1.4	3.76	13.8	6.58	0.03	1.08	0	-63	2	32.7	8.1	120	24.74
08:52	14.74	2.6	3.39	9.8	6.56	0.02	1.08	0	-63	0	31.5	3.7	116	24.74
08:55	14.70	0.3	3.12	8.0	6.55	0.01	1.08	0	-62	1	31.1	1.3	120	24.74
08:58	14.59	0.7	2.89	7.4	6.55	0	1.07	0.9	-62	0	31.0	0.3	130	24.74



LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Boring or Well ID: SBT-GW-MW-2A Sample Type: Gw-Former Shell Bulk O: Grade Elevation: _____
 Sample Date: 6-5-13 Laboratory: Pace Analytical - Indianapolis TOC Elevation: _____
 Client: Indiana Brownfields Program Field Personnel: David Nye SWL Depth: 24.40'
 Project No: 5113-13-02 Weather: mostly cloudy
 Site Location: 201 E 2219 W. Michigan St. Indy Temp: 80°F

TD from Grade: 2.05' Pump Type: Peristaltic Sample Tubing: LDPE
 Screen Interval: _____ Pump Make: Geotech Tubing Dia: 0.125" ID x 0.25" OD
 Intake Depth: 43' Pump Model: _____ Field Meter: Horiba U-52
 Filter Method: NA Filter Size: NA Purge Volume: 1 gal
 Filter Type: NA Filter Pore: NA Sample Time: 18:00

Sample Appearance: clear Comments: well depth = 46.37' 2" dia

Time	Temp °C	AT% 3%	DO	ADO% 10%	pH	ΔpH% 0.1 units	Cond.	ΔCond% 3%	ORP	AORP% 10 mv	Turbidity	ΔTurb% 10%	Rate ml/min	WL ft
17:25	22.25		7.02		7.31		1.05		105		0.0		196	24.41
17:31	18.34	17.6	1.96	72.1	7.15	0.16	1.13	7.6	110	6	0.0	0	164	24.41
17:34	17.70	3.5	1.90	3.1	7.13	0.02	1.14	0.9	111	1	0.0	0	160	24.41
17:37	16.70	5.7	1.95	2.6	7.13	0	1.18	3.5	111	0	0.0	0	136	24.41
17:40	17.15	2.7	1.77	4.2	7.13	0	1.16	1.7	112	1	0.0	0	100	24.42
17:43	17.66	3.0	1.81	2.3	7.13	0	1.16	0	114	2	0.0	0	96	24.42
17:46	17.97	1.8	1.77	2.2	7.13	0	1.16	0	116	2	0.0	0	88	24.42



LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Boring or Well ID: SBT-6W-MW-3 Sample Type: GW-Former Shell Bulk O (Grade Elevation: _____)
 Sample Date: 6-5-13 Laboratory: Rice Analytical - Indiana (Total TOC Elevation: _____)
 Client: Indiana Brownfields Program Field Personnel: David Nye SWL Depth: 25.68'
 Project No: 5113-13-02 Weather: mostly cloudy
 Site Location: 201 E 2219 W. Michigan St. Indy Temp: 78°F

TD from Grade: 2.58' Pump Type: Peristaltic Sample Tubing: LDPE
 Screen Interval: _____ Pump Make: Geotech Tubing Dia: 0.125" ID x 0.25" OD
 Intake Depth: 30' Pump Model: _____ Field Meter: Horiba U-52
 Filter Method: NA Filter Size: NA Purge Volume: 1.1 gal
 Filter Type: NA Filter Pore: NA Sample Time: 13:20

Sample Appearance: Clear Comments: well depth = 32.27' 2" dia

Time	Temp °C	ΔT % 3%	DO	ADO % 10%	pH	ΔpH % 0.1 units	Cond.	ΔCond % 3%	ORP	ΔORP % 10 mv	Turbidity	ΔTurb % 10%	Rate ml/min	WL ft
12:50	22.47		7.96		6.85		1.04		7		62.5		180	25.71
12:56	19.63		2.25		7.00		1.07		-33		43.1		174	25.71
12:59	19.18	2.3	1.77	21.3	7.00	0	1.07	0	-40	7	0.0	0	174	25.71
13:02	18.09	5.7	1.57	11.3	6.99	0.01	1.10	2.8	-44	4	0.0	0	176	25.71
13:05	17.82	1.5	1.42	9.6	6.98	0.02	1.11	0.9	-45	1	0.0	0	164	25.71
13:08	17.40	2.4	1.49	4.9	6.98	0	1.14	2.7	-46	1	0.0	0	160	25.71
13:11	16.91	2.8	1.57	5.4	6.99	0.01	1.16	1.8	-45	1	0.0	0	160	25.71



LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Boring or Well ID: SBT-GW-MW-7
 Sample Date: 6-5-13
 Client: Indiana Brownfields Program
 Project No: 5113-13-02
 Site Location: 221 & 2219 W. Michigan St. Indy

Sample Type: Gw-Former Shell Bulk O: (Grade Elevation: _____)
 Laboratory: Pace Analytical - Indianapolis (TOC Elevation: _____)
 Field Personnel: David Nye (SWL Depth: 26.381)
 Weather: mostly cloudy
 Temp: 76°F (0.1' product)

ID from Grade: 2.72'
 Screen Interval: _____
 Intake Depth: 31'
 Filter Method: NA
 Filter Type: NA

Pump Type: Peristaltic
 Pump Make: Geotech
 Pump Model: _____
 Filter Size: NA
 Filter Pore: NA
 Sample Tubing: LDPB
 Tubing Dia: 0.125" ID x 0.25" OD
 Field Meter: Horiba U-52
 Purge Volume: 0.9 gal
 Sample Time: 16:15

Sample Appearance: Clear Comments: well depth = 32.56 2" dia

Time	Temp °C	ΔT % 3%	DO	ADO % 10%	pH	ΔpH % 0.1 units	Cond.	ΔCond % 3%	ORP	AORP % 10 mv	Turbidity	ΔTurb % 10%	Rate ml/min	WL ft
15:40	25.4		4.63		7.12		0.921		-97		0.0		60	26.41
15:46	21.64	14.8	2.72	41.3	6.81	0.31	0.970	5.3	-89	8	0.0		90	26.41
15:49	20.52	5.2	2.47	9.2	6.78	0.03	0.959	1.1	-88	1	0.0	0	90	26.41
15:52	19.02	7.3	2.70	9.3	6.76	0.02	1.01	5.3	-88	0	0.0	0	70	26.41
15:55	19.42	2.1	2.51	7.0	6.75	0.01	0.992	1.8	-87	1	0.0	0	74	26.41
15:58	19.51	0.5	2.43	3.2	6.74	0.01	0.994	0.2	-87	0	0.0	0	74	26.41
16:01	19.28	1.2	2.33	4.1	6.72	0.02	0.990	0.4	-87	0	0.1		90	26.41



LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Boring or Well ID: SBT-GW-MW-101HMS/DMS Sample Type: Gas-Former Shell Bulk O: Grade Elevation: _____
 Sample Date: 6-6-13
 Laboratory: Rise Analytical - Indianapolis TOC Elevation: _____
 Client: Indiana Brownfields Program
 Field Personnel: David Nye SWL Depth: 21.68'
 Project No: 5113-13-02
 Weather: mostly cloudy
 Site Location: 221 & 2219 W. Michigan St. Indy
 Temp: 77°F

Pump Type: Peristaltic
 Pump Make: Geotech
 Pump Model: _____
 Sample Tubing: LDPE
 Tubing Dia: 0.125" ID x 0.25" OD
 Field Meter: Horiba U-52
 Filter Size: NA
 Filter Pore: NA
 Purge Volume: 1.0 gal
 Filter Method: NA
 Filter Type: NA
 Sample Time: 6:40

TD from Grade: (-0.49')
 Screen Interval: _____
 Intake Depth: 30'
 Comments: well depth = 31.04' 2" dia

Time	Temp °C	AT% 3%	DO	ADO% 10%	pH	ΔpH % 0.1 units	Cond.	ΔCond % 3%	ORP	ΔORP % 10 mv	Turbidity	ΔTurb % 10%	Rate ml/min	WL ft
<u>15:40</u>	<u>22.91</u>		<u>4.13</u>		<u>7.39</u>		<u>1.35</u>		<u>117</u>		<u>67.8</u>		<u>160</u>	<u>21.70</u>
<u>15:46</u>	<u>20.61</u>	<u>10.0</u>	<u>1.95</u>	<u>52.8</u>	<u>7.10</u>	<u>0.29</u>	<u>1.36</u>		<u>72</u>	<u>45</u>	<u>51.2</u>	<u>29.8</u>	<u>150</u>	<u>21.70</u>
<u>15:49</u>	<u>19.17</u>	<u>7.0</u>	<u>1.94</u>	<u>0.5</u>	<u>7.10</u>	<u>0</u>	<u>1.40</u>	<u>2.9</u>	<u>65</u>	<u>7</u>	<u>46.1</u>	<u>10.0</u>	<u>150</u>	<u>21.70</u>
<u>15:52</u>	<u>18.73</u>	<u>2.3</u>	<u>2.19</u>	<u>12.9</u>	<u>7.11</u>	<u>0.01</u>	<u>1.43</u>	<u>2.1</u>	<u>62</u>	<u>3</u>	<u>37.5</u>	<u>18.7</u>	<u>142</u>	<u>21.70</u>
<u>15:55</u>	<u>19.12</u>	<u>2.1</u>	<u>2.19</u>	<u>0</u>	<u>7.11</u>	<u>0</u>	<u>1.43</u>	<u>0</u>	<u>62</u>	<u>0</u>	<u>13.1</u>	<u>65.1</u>	<u>130</u>	<u>21.70</u>
<u>15:58</u>	<u>19.21</u>	<u>0.5</u>	<u>2.42</u>	<u>10.5</u>	<u>7.11</u>	<u>0</u>	<u>1.45</u>	<u>1.4</u>	<u>62</u>	<u>0</u>	<u>0.0</u>	<u>-</u>	<u>122</u>	<u>21.70</u>
<u>16:01</u>	<u>19.48</u>	<u>1.4</u>	<u>2.58</u>	<u>6.6</u>	<u>7.11</u>	<u>0</u>	<u>1.46</u>	<u>0.7</u>	<u>63</u>	<u>1</u>	<u>0.0</u>	<u>0</u>	<u>112</u>	<u>21.70</u>
<u>16:04</u>	<u>19.81</u>	<u>1.7</u>	<u>2.96</u>	<u>4.7</u>	<u>7.10</u>	<u>0.01</u>	<u>1.46</u>	<u>0</u>	<u>65</u>	<u>2</u>	<u>0.0</u>	<u>0</u>	<u>106</u>	<u>21.70</u>
<u>16:07</u>	<u>20.18</u>	<u>1.9</u>	<u>2.88</u>	<u>0.8</u>	<u>7.10</u>	<u>0</u>	<u>1.47</u>	<u>0.7</u>	<u>66</u>	<u>1</u>	<u>0.0</u>	<u>0</u>	<u>90</u>	<u>21.70</u>
<u>16:10</u>	<u>20.50</u>	<u>1.6</u>	<u>2.35</u>	<u>5.2</u>	<u>7.10</u>	<u>0</u>	<u>1.46</u>	<u>0.7</u>	<u>68</u>	<u>2</u>	<u>0.0</u>	<u>0</u>	<u>84</u>	<u>21.70</u>



LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Boring or Well ID: SBT-GW-MW-10Z Sample Type: Gw-Former Shell Bulk O: Grade Elevation: _____
 Sample Date: 6-6-13 Laboratory: Rice Analytical - Indiana TOC Elevation: _____
 Client: Indiana Brownfields Program Field Personnel: David Nye SWL Depth: 21.92'
 Project No: 513-13-02 Weather: partly cloudy 23.80 - 27.09 Pressure
 Site Location: 221 & 2219 W. Michigan St. Indy Temp: 75°F 3.29'
 TD from Grade: (-0.29') Pump Type: Peristaltic Sample Tubing: LDPE
 Screen Interval: _____ Pump Make: Geotech Tubing Dia: 0.125" ID x 0.25" OD
 Intake Depth: 291 Pump Model: _____ Field Meter: Horiba U-52
 Filter Method: NA Filter Size: NA Purge Volume: 1.39 gal
 Filter Type: NA Filter Pore: NA Sample Time: 18:25

Sample Appearance: Clear Comments: well depth = 30.61' 2" dia

Time	Temp °C	ΔT % 3%	DO	ADO % 10%	pH	ΔpH % 0.1 units	Cond.	ΔCond % 3%	ORP	AORP % 10 mv	Turbidity	ΔTurb % 10%	Rate ml/min	WL ft
17:55	25.72		4.87		6.94		0.966		-62		69.5		180	21.93
18:01	21.02	18.3	1.36	72.1	6.68	0.24	1.02	5.6	-62	6	73.6	7.4	158	21.93
18:04	20.69	1.6	1.22	10.3	6.66	0.02	1.01	1.0	-61	1	82.6	12.2	160	21.93
18:07	20.20	2.3	1.12	8.2	6.64	0.02	1.02	1.0	-61	0	90.7	9.8	158	21.93
18:10	19.77	2.1	1.09	2.7	6.62	0.02	1.02	0	-60	1	87.9	3.1	160	21.93
18:13	19.30	2.4	1.06	2.8	6.61	0.01	1.03	1.0	-60	0	80.3	8.6	168	21.93



LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Sheet 1 of 1

Boring or Well ID: SBT-GW-MW-103 Sample Type: Gw-Farmer Shell Bulk O: Grade Elevation: _____
 Sample Date: 6-7-13 Laboratory: Pace Analytical - Indianapolis TOC Elevation: _____
 Client: Indiana Brownfields Program Field Personnel: David Nye SWL Depth: 22.33'
 Project No: 5113-13-02 Weather: overcast 24.21-27.5 Product
 Site Location: 221 E 2219 W. Michigan St. Indy Temp: 65°F 3.29'

TD from Grade: (-0.27') Pump Type: Peristaltic Sample Tubing: LDPE
 Screen Interval: _____ Pump Make: Geotech Tubing Dia: 0.125" ID x 0.25" OD
 Intake Depth: 30' Pump Model: _____ Field Meter: Horiba U-52

Filter Method: NA Filter Size: NA Purge Volume: 1.6 gal
 Filter Type: NA Filter Pore: NA Sample Time: 09:15

Sample Appearance: Clear Comments: well depth = 31.65' 2" dia

Time	Temp °C	ΔT % 3%	DO	ADO % 10%	pH	ΔpH % 0.1 units	Cond.	ΔCond % 3%	ORP	ΔORP % 10 mv	Turbidity	ΔTurb % 10%	Rate ml/min	WL ft
08:45	16.77		6.10		7.10		1.08		-74		2.6		180	22.34
08:51	15.88	5.3	1.52	75.1	6.86	0.24	1.10	1.9	-99	25	0.0		140	22.34
08:54	15.60	1.8	1.32	13.2	6.85	0.01	1.11	0.9	-99	0	0.0	0	138	22.34
08:57	15.51	0.6	1.15	12.9	6.84	0.01	1.11	0	-101	2	0.0	0	140	22.34
09:00	15.42	0.6	1.11	3.5	6.84	0	1.11	0	-99	2	0.0	0	140	22.34
09:03	15.36	0.4	1.05	5.4	6.83	0.01	1.11	0	-100	1	0.0	0	140	22.34
09:06	15.38	0.1	0.95	9.5	6.82	0.01	1.11	0	-100	0	0.0	0	138	22.34



LOW-FLOW GROUNDWATER SAMPLING DATA SHEET

Boring or Well ID: SBT-GW-MW-104
 Sample Date: 6-7-13
 Client: Indiana Brownfields Program
 Project No: 5113-13-02
 Site Location: 221 & 2219 W. Michigan St. Study

Sample Type: Gw-Former Shell Bulk 0:1 Grade Elevation:
 Laboratory: Pace Analytical - Indianapolis TOC Elevation:
 Field Personnel: David Nye SWL Depth: 22.37
 Weather: overcast
 Temp: 68°F 24.25-27.55

TD from Grade: 60.47'
 Screen Interval:
 Intake Depth: 29'
 Filter Method: NA
 Filter Type: NA

Pump Type: Peristaltic Sample Tubing: LDPE
 Pump Make: Geotech Tubing Dia: 0.125" ID x 0.25" OD
 Pump Model:
 Filter Size: NA Purge Volume: 1.2 gal
 Filter Pore: NA Sample Time: 10:35

Sample Appearance: clear

Comments: well depth = 30.47 2" dia black solids

Time	Temp °C	AT% 3%	DO	ADO% 10%	pH	ApH% 0.1 units	Cond.	ΔCond% 3%	ORP	AORP% 10 mv	Turbidity	ATurb% 10%	Rate ml/min	WL ft
10:00	19.28		5.64		7.49		1.04		-83		258		158	22.38
10:06	16.77	13.0	1.38	75.5	7.21	0.28	1.09	4.8	-100	17	250	30.2	164	22.38
10:09	16.51	1.6	1.13	18.1	7.20	0.01	1.09	0	-102	2	191	23.6	160	22.38
10:12	16.36	0.9	1.07	5.3	7.20	0	1.10	0.9	-103	1	175	8.4	162	22.38
10:15	16.28	0.5	1.00	6.5	7.20	0	1.10	0	-105	2	150	14.3	164	22.38
10:18	16.07	1.3	0.95	5.0	7.19	0.01	1.10	0	-106	1	137	8.7	160	22.38
10:21	16.18	0.7	0.92	3.2	7.19	0	1.10	0	-106	0	134	2.2	162	22.38
10:24	16.29	0.7	0.93	1.1	7.19	0	1.10	0	-107	1	123	8.2	164	22.38

APPENDIX D
Laboratory Certificates of Analysis

June 12, 2013

Ms. Bonnie Sima
Heartland Environmental
3410 Mishawaka Avenue
South Bend, IN 46615

RE: Project: Frm Bulk Shell
Pace Project No.: 5081645

Dear Ms. Sima:

Enclosed are the analytical results for sample(s) received by the laboratory on June 07, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Mick Mayse

mick.mayse@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268

Illinois Certification #: 200074

Indiana Certification #: C-49-06

Kansas Certification #: E-10247

Kentucky Certification #: 0042

Louisiana/NELAC Certification #: 04076

Ohio VAP Certification #: 101170-0

Pennsylvania Certification #: 68-04991

West Virginia Certification #: 330

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Frm Bulk Shell

Pace Project No.: 5081645

Lab ID	Sample ID	Matrix	Date Collected	Date Received
5081645001	SBT-GW-MW-3	Water	06/05/13 13:20	06/07/13 11:45
5081645002	SBT-GW-MW-7	Water	06/05/13 16:15	06/07/13 11:45
5081645003	SBT-GW-MW-2A	Water	06/05/13 18:00	06/07/13 11:45
5081645004	SBT-GW-MW-2	Water	06/06/13 09:10	06/07/13 11:45
5081645005	SBT-GW-MW-1A	Water	06/06/13 10:40	06/07/13 11:45
5081645006	SBT-GW-MW-1	Water	06/06/13 12:15	06/07/13 11:45
5081645007	SBT-GW-FD-1	Water	06/06/13 12:20	06/07/13 11:45
5081645008	SBT-GW-MW-4	Water	06/06/13 14:40	06/07/13 11:45
5081645009	SBT-GW-MW-101	Water	06/06/13 16:40	06/07/13 11:45
5081645010	SBT-GW-MW-102	Water	06/06/13 18:25	06/07/13 11:45
5081645011	SBT-GW-MW-103	Water	06/07/13 09:15	06/07/13 11:45
5081645012	SBT-GW-MW-104	Water	06/07/13 10:35	06/07/13 11:45
5081645013	TRIP BLANK	Water	06/05/13 08:00	06/07/13 11:45

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SAMPLE ANALYTE COUNT

Project: Frm Bulk Shell
Pace Project No.: 5081645

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
5081645001	SBT-GW-MW-3	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645002	SBT-GW-MW-7	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645003	SBT-GW-MW-2A	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645004	SBT-GW-MW-2	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645005	SBT-GW-MW-1A	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645006	SBT-GW-MW-1	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645007	SBT-GW-FD-1	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645008	SBT-GW-MW-4	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645009	SBT-GW-MW-101	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645010	SBT-GW-MW-102	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645011	SBT-GW-MW-103	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645012	SBT-GW-MW-104	EPA 8270 by SIM LVE	CEM	20	PASI-I
		EPA 8260	GRM	73	PASI-I
5081645013	TRIP BLANK	EPA 8260	GRM	73	PASI-I

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-3	Lab ID: 5081645001	Collected: 06/05/13 13:20	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV		Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:27	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:27	208-96-8	
Anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:27	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:27	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:27	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:27	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:27	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:27	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 02:27	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:27	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:27	206-44-0	
Fluorene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:27	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:27	193-39-5	
1-Methylnaphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:27	90-12-0	N2
2-Methylnaphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:27	91-57-6	
Naphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:27	91-20-3	
Phenanthrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:27	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:27	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	56 %.		21-114	1	06/10/13 10:10	06/11/13 02:27	321-60-8	
p-Terphenyl-d14 (S)	40 %.		25-131	1	06/10/13 10:10	06/11/13 02:27	1718-51-0	
8260 MSV		Analytical Method: EPA 8260						
Acetone	ND ug/L		100	1		06/08/13 06:31	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 06:31	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 06:31	107-13-1	
Benzene	ND ug/L		5.0	1		06/08/13 06:31	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 06:31	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 06:31	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 06:31	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 06:31	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 06:31	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 06:31	78-93-3	
n-Butylbenzene	ND ug/L		5.0	1		06/08/13 06:31	104-51-8	
sec-Butylbenzene	ND ug/L		5.0	1		06/08/13 06:31	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	1		06/08/13 06:31	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 06:31	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 06:31	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 06:31	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 06:31	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 06:31	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 06:31	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 06:31	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 06:31	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 06:31	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 06:31	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 06:31	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-3	Lab ID: 5081645001	Collected: 06/05/13 13:20	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 06:31	95-50-1	
1,3-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 06:31	541-73-1	
1,4-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 06:31	106-46-7	
trans-1,4-Dichloro-2-butene	ND ug/L		100	1		06/08/13 06:31	110-57-6	
Dichlorodifluoromethane	ND ug/L		5.0	1		06/08/13 06:31	75-71-8	
1,1-Dichloroethane	ND ug/L		5.0	1		06/08/13 06:31	75-34-3	
1,2-Dichloroethane	ND ug/L		5.0	1		06/08/13 06:31	107-06-2	
1,1-Dichloroethene	ND ug/L		5.0	1		06/08/13 06:31	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 06:31	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 06:31	156-60-5	
1,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 06:31	78-87-5	
1,3-Dichloropropane	ND ug/L		5.0	1		06/08/13 06:31	142-28-9	
2,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 06:31	594-20-7	
1,1-Dichloropropene	ND ug/L		5.0	1		06/08/13 06:31	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 06:31	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 06:31	10061-02-6	
Ethylbenzene	ND ug/L		5.0	1		06/08/13 06:31	100-41-4	
Ethyl methacrylate	ND ug/L		100	1		06/08/13 06:31	97-63-2	
Hexachloro-1,3-butadiene	ND ug/L		5.0	1		06/08/13 06:31	87-68-3	
n-Hexane	ND ug/L		5.0	1		06/08/13 06:31	110-54-3	N2
2-Hexanone	ND ug/L		25.0	1		06/08/13 06:31	591-78-6	
Iodomethane	ND ug/L		10.0	1		06/08/13 06:31	74-88-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/08/13 06:31	98-82-8	
p-Isopropyltoluene	ND ug/L		5.0	1		06/08/13 06:31	99-87-6	
Methylene Chloride	ND ug/L		5.0	1		06/08/13 06:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		25.0	1		06/08/13 06:31	108-10-1	
Methyl-tert-butyl ether	ND ug/L		4.0	1		06/08/13 06:31	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/08/13 06:31	91-20-3	
n-Propylbenzene	ND ug/L		5.0	1		06/08/13 06:31	103-65-1	
Styrene	ND ug/L		5.0	1		06/08/13 06:31	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 06:31	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 06:31	79-34-5	
Tetrachloroethene	ND ug/L		5.0	1		06/08/13 06:31	127-18-4	
Toluene	ND ug/L		5.0	1		06/08/13 06:31	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 06:31	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 06:31	120-82-1	
1,1,1-Trichloroethane	ND ug/L		5.0	1		06/08/13 06:31	71-55-6	
1,1,2-Trichloroethane	ND ug/L		5.0	1		06/08/13 06:31	79-00-5	
Trichloroethene	ND ug/L		5.0	1		06/08/13 06:31	79-01-6	
Trichlorofluoromethane	ND ug/L		5.0	1		06/08/13 06:31	75-69-4	
1,2,3-Trichloropropane	ND ug/L		5.0	1		06/08/13 06:31	96-18-4	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/08/13 06:31	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/08/13 06:31	108-67-8	
Vinyl acetate	ND ug/L		50.0	1		06/08/13 06:31	108-05-4	
Vinyl chloride	ND ug/L		2.0	1		06/08/13 06:31	75-01-4	
Xylene (Total)	ND ug/L		10.0	1		06/08/13 06:31	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-3	Lab ID: 5081645001	Collected: 06/05/13 13:20	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	102 %.		79-116	1		06/08/13 06:31	1868-53-7	
4-Bromofluorobenzene (S)	103 %.		80-114	1		06/08/13 06:31	460-00-4	
Toluene-d8 (S)	103 %.		81-110	1		06/08/13 06:31	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-7	Lab ID: 5081645002	Collected: 06/05/13 16:15	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:45	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:45	208-96-8	
Anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:45	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:45	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:45	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:45	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:45	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:45	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 02:45	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:45	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:45	206-44-0	
Fluorene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:45	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 02:45	193-39-5	
1-Methylnaphthalene	3.3 ug/L		1.0	1	06/10/13 10:10	06/11/13 02:45	90-12-0	N2
2-Methylnaphthalene	4.8 ug/L		1.0	1	06/10/13 10:10	06/11/13 02:45	91-57-6	
Naphthalene	186 ug/L		10.0	10	06/10/13 10:10	06/11/13 16:35	91-20-3	
Phenanthrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:45	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 02:45	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	50 %.		21-114	1	06/10/13 10:10	06/11/13 02:45	321-60-8	
p-Terphenyl-d14 (S)	43 %.		25-131	1	06/10/13 10:10	06/11/13 02:45	1718-51-0	
8260 MSV								
Analytical Method: EPA 8260								
Acetone	ND ug/L		100	1		06/08/13 07:04	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 07:04	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 07:04	107-13-1	
Benzene	ND ug/L		5.0	1		06/08/13 07:04	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 07:04	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 07:04	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 07:04	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 07:04	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 07:04	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 07:04	78-93-3	
n-Butylbenzene	44.4 ug/L		5.0	1		06/08/13 07:04	104-51-8	
sec-Butylbenzene	21.2 ug/L		5.0	1		06/08/13 07:04	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	1		06/08/13 07:04	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 07:04	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 07:04	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 07:04	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 07:04	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 07:04	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 07:04	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 07:04	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 07:04	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 07:04	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 07:04	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 07:04	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-7	Lab ID: 5081645002	Collected: 06/05/13 16:15	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	566 ug/L		50.0	10		06/10/13 16:52	95-50-1	
1,3-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 07:04	541-73-1	
1,4-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 07:04	106-46-7	
trans-1,4-Dichloro-2-butene	ND ug/L		100	1		06/08/13 07:04	110-57-6	
Dichlorodifluoromethane	ND ug/L		5.0	1		06/08/13 07:04	75-71-8	
1,1-Dichloroethane	41.8 ug/L		5.0	1		06/08/13 07:04	75-34-3	
1,2-Dichloroethane	ND ug/L		5.0	1		06/08/13 07:04	107-06-2	
1,1-Dichloroethene	ND ug/L		5.0	1		06/08/13 07:04	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 07:04	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 07:04	156-60-5	
1,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 07:04	78-87-5	
1,3-Dichloropropane	ND ug/L		5.0	1		06/08/13 07:04	142-28-9	
2,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 07:04	594-20-7	
1,1-Dichloropropene	ND ug/L		5.0	1		06/08/13 07:04	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 07:04	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 07:04	10061-02-6	
Ethylbenzene	180 ug/L		5.0	1		06/08/13 07:04	100-41-4	
Ethyl methacrylate	ND ug/L		100	1		06/08/13 07:04	97-63-2	
Hexachloro-1,3-butadiene	ND ug/L		5.0	1		06/08/13 07:04	87-68-3	
n-Hexane	ND ug/L		5.0	1		06/08/13 07:04	110-54-3	N2
2-Hexanone	ND ug/L		25.0	1		06/08/13 07:04	591-78-6	
Iodomethane	ND ug/L		10.0	1		06/08/13 07:04	74-88-4	
Isopropylbenzene (Cumene)	38.5 ug/L		5.0	1		06/08/13 07:04	98-82-8	
p-Isopropyltoluene	148 ug/L		5.0	1		06/08/13 07:04	99-87-6	
Methylene Chloride	ND ug/L		5.0	1		06/08/13 07:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		25.0	1		06/08/13 07:04	108-10-1	
Methyl-tert-butyl ether	ND ug/L		4.0	1		06/08/13 07:04	1634-04-4	
Naphthalene	310 ug/L		50.0	10		06/10/13 16:52	91-20-3	
n-Propylbenzene	68.3 ug/L		5.0	1		06/08/13 07:04	103-65-1	
Styrene	ND ug/L		5.0	1		06/08/13 07:04	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 07:04	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 07:04	79-34-5	
Tetrachloroethene	ND ug/L		5.0	1		06/08/13 07:04	127-18-4	
Toluene	ND ug/L		5.0	1		06/08/13 07:04	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 07:04	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 07:04	120-82-1	
1,1,1-Trichloroethane	ND ug/L		5.0	1		06/08/13 07:04	71-55-6	
1,1,2-Trichloroethane	ND ug/L		5.0	1		06/08/13 07:04	79-00-5	
Trichloroethene	ND ug/L		5.0	1		06/08/13 07:04	79-01-6	
Trichlorofluoromethane	ND ug/L		5.0	1		06/08/13 07:04	75-69-4	
1,2,3-Trichloropropane	ND ug/L		5.0	1		06/08/13 07:04	96-18-4	
1,2,4-Trimethylbenzene	742 ug/L		50.0	10		06/10/13 16:52	95-63-6	
1,3,5-Trimethylbenzene	116 ug/L		5.0	1		06/08/13 07:04	108-67-8	
Vinyl acetate	ND ug/L		50.0	1		06/08/13 07:04	108-05-4	
Vinyl chloride	ND ug/L		2.0	1		06/08/13 07:04	75-01-4	
Xylene (Total)	433 ug/L		10.0	1		06/08/13 07:04	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-7	Lab ID: 5081645002	Collected: 06/05/13 16:15	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	102 %.		79-116	1		06/08/13 07:04	1868-53-7	
4-Bromofluorobenzene (S)	100 %.		80-114	1		06/08/13 07:04	460-00-4	
Toluene-d8 (S)	103 %.		81-110	1		06/08/13 07:04	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell
Pace Project No.: 5081645

Sample: SBT-GW-MW-2A	Lab ID: 5081645003	Collected: 06/05/13 18:00	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:03	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:03	208-96-8	
Anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:03	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:03	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:03	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:03	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:03	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:03	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 03:03	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:03	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:03	206-44-0	
Fluorene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:03	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:03	193-39-5	
1-Methylnaphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:03	90-12-0	N2
2-Methylnaphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:03	91-57-6	
Naphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:03	91-20-3	
Phenanthrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:03	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:03	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	44 %.		21-114	1	06/10/13 10:10	06/11/13 03:03	321-60-8	
p-Terphenyl-d14 (S)	33 %.		25-131	1	06/10/13 10:10	06/11/13 03:03	1718-51-0	
8260 MSV								
Analytical Method: EPA 8260								
Acetone	ND ug/L		100	1		06/08/13 07:38	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 07:38	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 07:38	107-13-1	
Benzene	ND ug/L		5.0	1		06/08/13 07:38	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 07:38	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 07:38	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 07:38	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 07:38	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 07:38	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 07:38	78-93-3	
n-Butylbenzene	ND ug/L		5.0	1		06/08/13 07:38	104-51-8	
sec-Butylbenzene	ND ug/L		5.0	1		06/08/13 07:38	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	1		06/08/13 07:38	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 07:38	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 07:38	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 07:38	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 07:38	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 07:38	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 07:38	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 07:38	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 07:38	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 07:38	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 07:38	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 07:38	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-2A	Lab ID: 5081645003	Collected: 06/05/13 18:00	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 07:38	95-50-1	
1,3-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 07:38	541-73-1	
1,4-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 07:38	106-46-7	
trans-1,4-Dichloro-2-butene	ND ug/L		100	1		06/08/13 07:38	110-57-6	
Dichlorodifluoromethane	ND ug/L		5.0	1		06/08/13 07:38	75-71-8	
1,1-Dichloroethane	ND ug/L		5.0	1		06/08/13 07:38	75-34-3	
1,2-Dichloroethane	ND ug/L		5.0	1		06/08/13 07:38	107-06-2	
1,1-Dichloroethene	ND ug/L		5.0	1		06/08/13 07:38	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 07:38	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 07:38	156-60-5	
1,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 07:38	78-87-5	
1,3-Dichloropropane	ND ug/L		5.0	1		06/08/13 07:38	142-28-9	
2,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 07:38	594-20-7	
1,1-Dichloropropene	ND ug/L		5.0	1		06/08/13 07:38	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 07:38	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 07:38	10061-02-6	
Ethylbenzene	ND ug/L		5.0	1		06/08/13 07:38	100-41-4	
Ethyl methacrylate	ND ug/L		100	1		06/08/13 07:38	97-63-2	
Hexachloro-1,3-butadiene	ND ug/L		5.0	1		06/08/13 07:38	87-68-3	
n-Hexane	ND ug/L		5.0	1		06/08/13 07:38	110-54-3	N2
2-Hexanone	ND ug/L		25.0	1		06/08/13 07:38	591-78-6	
Iodomethane	ND ug/L		10.0	1		06/08/13 07:38	74-88-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/08/13 07:38	98-82-8	
p-Isopropyltoluene	ND ug/L		5.0	1		06/08/13 07:38	99-87-6	
Methylene Chloride	ND ug/L		5.0	1		06/08/13 07:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		25.0	1		06/08/13 07:38	108-10-1	
Methyl-tert-butyl ether	ND ug/L		4.0	1		06/08/13 07:38	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/08/13 07:38	91-20-3	
n-Propylbenzene	ND ug/L		5.0	1		06/08/13 07:38	103-65-1	
Styrene	ND ug/L		5.0	1		06/08/13 07:38	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 07:38	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 07:38	79-34-5	
Tetrachloroethene	ND ug/L		5.0	1		06/08/13 07:38	127-18-4	
Toluene	ND ug/L		5.0	1		06/08/13 07:38	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 07:38	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 07:38	120-82-1	
1,1,1-Trichloroethane	ND ug/L		5.0	1		06/08/13 07:38	71-55-6	
1,1,2-Trichloroethane	ND ug/L		5.0	1		06/08/13 07:38	79-00-5	
Trichloroethene	ND ug/L		5.0	1		06/08/13 07:38	79-01-6	
Trichlorofluoromethane	ND ug/L		5.0	1		06/08/13 07:38	75-69-4	
1,2,3-Trichloropropane	ND ug/L		5.0	1		06/08/13 07:38	96-18-4	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/08/13 07:38	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/08/13 07:38	108-67-8	
Vinyl acetate	ND ug/L		50.0	1		06/08/13 07:38	108-05-4	
Vinyl chloride	ND ug/L		2.0	1		06/08/13 07:38	75-01-4	
Xylene (Total)	ND ug/L		10.0	1		06/08/13 07:38	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-2A	Lab ID: 5081645003	Collected: 06/05/13 18:00	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	99 %.		79-116	1		06/08/13 07:38	1868-53-7	
4-Bromofluorobenzene (S)	103 %.		80-114	1		06/08/13 07:38	460-00-4	
Toluene-d8 (S)	103 %.		81-110	1		06/08/13 07:38	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell
Pace Project No.: 5081645

Sample: SBT-GW-MW-2	Lab ID: 5081645004	Collected: 06/06/13 09:10	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:21	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:21	208-96-8	
Anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:21	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:21	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:21	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:21	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:21	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:21	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 03:21	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:21	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:21	206-44-0	
Fluorene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:21	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 03:21	193-39-5	
1-Methylnaphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:21	90-12-0	N2
2-Methylnaphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:21	91-57-6	
Naphthalene	2.7 ug/L		1.0	1	06/10/13 10:10	06/11/13 03:21	91-20-3	
Phenanthrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:21	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 03:21	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	40 %.		21-114	1	06/10/13 10:10	06/11/13 03:21	321-60-8	
p-Terphenyl-d14 (S)	40 %.		25-131	1	06/10/13 10:10	06/11/13 03:21	1718-51-0	
8260 MSV								
Analytical Method: EPA 8260								
Acetone	ND ug/L		100	1		06/08/13 08:11	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 08:11	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 08:11	107-13-1	
Benzene	102 ug/L		5.0	1		06/08/13 08:11	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 08:11	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 08:11	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 08:11	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 08:11	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 08:11	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 08:11	78-93-3	
n-Butylbenzene	ND ug/L		5.0	1		06/08/13 08:11	104-51-8	
sec-Butylbenzene	ND ug/L		5.0	1		06/08/13 08:11	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	1		06/08/13 08:11	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 08:11	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 08:11	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 08:11	108-90-7	
Chloroethane	82.2 ug/L		5.0	1		06/08/13 08:11	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 08:11	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 08:11	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 08:11	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 08:11	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 08:11	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 08:11	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 08:11	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-2	Lab ID: 5081645004	Collected: 06/06/13 09:10	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 08:11	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 08:11	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 08:11	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		06/08/13 08:11	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		06/08/13 08:11	75-71-8	
1,1-Dichloroethane	57.6	ug/L	5.0	1		06/08/13 08:11	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		06/08/13 08:11	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		06/08/13 08:11	75-35-4	
cis-1,2-Dichloroethene	22.4	ug/L	5.0	1		06/08/13 08:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 08:11	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 08:11	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		06/08/13 08:11	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 08:11	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		06/08/13 08:11	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 08:11	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 08:11	10061-02-6	
Ethylbenzene	499	ug/L	50.0	10		06/10/13 17:26	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		06/08/13 08:11	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		06/08/13 08:11	87-68-3	
n-Hexane	ND	ug/L	5.0	1		06/08/13 08:11	110-54-3	N2
2-Hexanone	ND	ug/L	25.0	1		06/08/13 08:11	591-78-6	
Iodomethane	ND	ug/L	10.0	1		06/08/13 08:11	74-88-4	
Isopropylbenzene (Cumene)	9.6	ug/L	5.0	1		06/08/13 08:11	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		06/08/13 08:11	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		06/08/13 08:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		06/08/13 08:11	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		06/08/13 08:11	1634-04-4	
Naphthalene	5.5	ug/L	5.0	1		06/08/13 08:11	91-20-3	
n-Propylbenzene	ND	ug/L	5.0	1		06/08/13 08:11	103-65-1	
Styrene	ND	ug/L	5.0	1		06/08/13 08:11	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 08:11	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 08:11	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		06/08/13 08:11	127-18-4	
Toluene	ND	ug/L	5.0	1		06/08/13 08:11	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 08:11	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 08:11	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		06/08/13 08:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		06/08/13 08:11	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		06/08/13 08:11	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		06/08/13 08:11	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		06/08/13 08:11	96-18-4	
1,2,4-Trimethylbenzene	48.8	ug/L	5.0	1		06/08/13 08:11	95-63-6	
1,3,5-Trimethylbenzene	14.6	ug/L	5.0	1		06/08/13 08:11	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		06/08/13 08:11	108-05-4	
Vinyl chloride	4.7	ug/L	2.0	1		06/08/13 08:11	75-01-4	
Xylene (Total)	1100	ug/L	100	10		06/10/13 17:26	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-2		Lab ID: 5081645004	Collected: 06/06/13 09:10	Received: 06/07/13 11:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	101 %.		79-116	1		06/08/13 08:11	1868-53-7	
4-Bromofluorobenzene (S)	100 %.		80-114	1		06/08/13 08:11	460-00-4	
Toluene-d8 (S)	104 %.		81-110	1		06/08/13 08:11	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell
Pace Project No.: 5081645

Sample: SBT-GW-MW-1A **Lab ID: 5081645005** Collected: 06/06/13 10:40 Received: 06/07/13 11:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:39	83-32-9	
Acenaphthylene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:39	208-96-8	
Anthracene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:39	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:39	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:39	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:39	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:39	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:39	207-08-9	
Chrysene	ND	ug/L	0.50	1	06/10/13 10:10	06/11/13 03:39	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:39	53-70-3	
Fluoranthene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:39	206-44-0	
Fluorene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:39	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:39	193-39-5	
1-Methylnaphthalene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:39	90-12-0	N2
2-Methylnaphthalene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:39	91-57-6	
Naphthalene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:39	91-20-3	
Phenanthrene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:39	85-01-8	
Pyrene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:39	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	46 %		21-114	1	06/10/13 10:10	06/11/13 03:39	321-60-8	
p-Terphenyl-d14 (S)	30 %		25-131	1	06/10/13 10:10	06/11/13 03:39	1718-51-0	

8260 MSV Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	1		06/08/13 08:45	67-64-1	
Acrolein	ND	ug/L	50.0	1		06/08/13 08:45	107-02-8	
Acrylonitrile	ND	ug/L	100	1		06/08/13 08:45	107-13-1	
Benzene	ND	ug/L	5.0	1		06/08/13 08:45	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		06/08/13 08:45	108-86-1	
Bromochloromethane	ND	ug/L	5.0	1		06/08/13 08:45	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		06/08/13 08:45	75-27-4	
Bromoform	ND	ug/L	5.0	1		06/08/13 08:45	75-25-2	
Bromomethane	ND	ug/L	5.0	1		06/08/13 08:45	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		06/08/13 08:45	78-93-3	
n-Butylbenzene	ND	ug/L	5.0	1		06/08/13 08:45	104-51-8	
sec-Butylbenzene	ND	ug/L	5.0	1		06/08/13 08:45	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		06/08/13 08:45	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		06/08/13 08:45	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		06/08/13 08:45	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		06/08/13 08:45	108-90-7	
Chloroethane	ND	ug/L	5.0	1		06/08/13 08:45	75-00-3	
Chloroform	ND	ug/L	5.0	1		06/08/13 08:45	67-66-3	
Chloromethane	ND	ug/L	5.0	1		06/08/13 08:45	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		06/08/13 08:45	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		06/08/13 08:45	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		06/08/13 08:45	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		06/08/13 08:45	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		06/08/13 08:45	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-1A	Lab ID: 5081645005	Collected: 06/06/13 10:40	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 08:45	95-50-1	
1,3-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 08:45	541-73-1	
1,4-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 08:45	106-46-7	
trans-1,4-Dichloro-2-butene	ND ug/L		100	1		06/08/13 08:45	110-57-6	
Dichlorodifluoromethane	ND ug/L		5.0	1		06/08/13 08:45	75-71-8	
1,1-Dichloroethane	ND ug/L		5.0	1		06/08/13 08:45	75-34-3	
1,2-Dichloroethane	ND ug/L		5.0	1		06/08/13 08:45	107-06-2	
1,1-Dichloroethene	ND ug/L		5.0	1		06/08/13 08:45	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 08:45	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 08:45	156-60-5	
1,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 08:45	78-87-5	
1,3-Dichloropropane	ND ug/L		5.0	1		06/08/13 08:45	142-28-9	
2,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 08:45	594-20-7	
1,1-Dichloropropene	ND ug/L		5.0	1		06/08/13 08:45	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 08:45	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 08:45	10061-02-6	
Ethylbenzene	ND ug/L		5.0	1		06/08/13 08:45	100-41-4	
Ethyl methacrylate	ND ug/L		100	1		06/08/13 08:45	97-63-2	
Hexachloro-1,3-butadiene	ND ug/L		5.0	1		06/08/13 08:45	87-68-3	
n-Hexane	ND ug/L		5.0	1		06/08/13 08:45	110-54-3	N2
2-Hexanone	ND ug/L		25.0	1		06/08/13 08:45	591-78-6	
Iodomethane	ND ug/L		10.0	1		06/08/13 08:45	74-88-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/08/13 08:45	98-82-8	
p-Isopropyltoluene	ND ug/L		5.0	1		06/08/13 08:45	99-87-6	
Methylene Chloride	ND ug/L		5.0	1		06/08/13 08:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		25.0	1		06/08/13 08:45	108-10-1	
Methyl-tert-butyl ether	ND ug/L		4.0	1		06/08/13 08:45	1634-04-4	
Naphthalene	ND ug/L		5.0	1		06/08/13 08:45	91-20-3	
n-Propylbenzene	ND ug/L		5.0	1		06/08/13 08:45	103-65-1	
Styrene	ND ug/L		5.0	1		06/08/13 08:45	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 08:45	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 08:45	79-34-5	
Tetrachloroethene	ND ug/L		5.0	1		06/08/13 08:45	127-18-4	
Toluene	ND ug/L		5.0	1		06/08/13 08:45	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 08:45	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 08:45	120-82-1	
1,1,1-Trichloroethane	ND ug/L		5.0	1		06/08/13 08:45	71-55-6	
1,1,2-Trichloroethane	ND ug/L		5.0	1		06/08/13 08:45	79-00-5	
Trichloroethene	ND ug/L		5.0	1		06/08/13 08:45	79-01-6	
Trichlorofluoromethane	ND ug/L		5.0	1		06/08/13 08:45	75-69-4	
1,2,3-Trichloropropane	ND ug/L		5.0	1		06/08/13 08:45	96-18-4	
1,2,4-Trimethylbenzene	ND ug/L		5.0	1		06/08/13 08:45	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	1		06/08/13 08:45	108-67-8	
Vinyl acetate	ND ug/L		50.0	1		06/08/13 08:45	108-05-4	
Vinyl chloride	ND ug/L		2.0	1		06/08/13 08:45	75-01-4	
Xylene (Total)	ND ug/L		10.0	1		06/10/13 15:11	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-1A	Lab ID: 5081645005	Collected: 06/06/13 10:40	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	101 %.		79-116	1		06/08/13 08:45	1868-53-7	
4-Bromofluorobenzene (S)	102 %.		80-114	1		06/08/13 08:45	460-00-4	
Toluene-d8 (S)	103 %.		81-110	1		06/08/13 08:45	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-1	Lab ID: 5081645006	Collected: 06/06/13 12:15	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:57	83-32-9	
Acenaphthylene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:57	208-96-8	
Anthracene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:57	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:57	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:57	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:57	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:57	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:57	207-08-9	
Chrysene	ND	ug/L	0.50	1	06/10/13 10:10	06/11/13 03:57	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:57	53-70-3	
Fluoranthene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:57	206-44-0	
Fluorene	1.1	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:57	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.10	1	06/10/13 10:10	06/11/13 03:57	193-39-5	
1-Methylnaphthalene	17.4	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:57	90-12-0	N2
2-Methylnaphthalene	25.1	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:57	91-57-6	
Naphthalene	211	ug/L	20.0	20	06/10/13 10:10	06/11/13 16:53	91-20-3	
Phenanthrene	1.1	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:57	85-01-8	
Pyrene	ND	ug/L	1.0	1	06/10/13 10:10	06/11/13 03:57	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	53	%	21-114	1	06/10/13 10:10	06/11/13 03:57	321-60-8	
p-Terphenyl-d14 (S)	45	%	25-131	1	06/10/13 10:10	06/11/13 03:57	1718-51-0	
8260 MSV								
Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	1		06/08/13 09:19	67-64-1	
Acrolein	ND	ug/L	50.0	1		06/08/13 09:19	107-02-8	
Acrylonitrile	ND	ug/L	100	1		06/08/13 09:19	107-13-1	
Benzene	85.6	ug/L	5.0	1		06/08/13 09:19	71-43-2	
Bromobenzene	ND	ug/L	5.0	1		06/08/13 09:19	108-86-1	
Bromochloromethane	ND	ug/L	5.0	1		06/08/13 09:19	74-97-5	
Bromodichloromethane	ND	ug/L	5.0	1		06/08/13 09:19	75-27-4	
Bromoform	ND	ug/L	5.0	1		06/08/13 09:19	75-25-2	
Bromomethane	ND	ug/L	5.0	1		06/08/13 09:19	74-83-9	
2-Butanone (MEK)	ND	ug/L	25.0	1		06/08/13 09:19	78-93-3	
n-Butylbenzene	44.5	ug/L	5.0	1		06/08/13 09:19	104-51-8	
sec-Butylbenzene	37.5	ug/L	5.0	1		06/08/13 09:19	135-98-8	
tert-Butylbenzene	ND	ug/L	5.0	1		06/08/13 09:19	98-06-6	
Carbon disulfide	ND	ug/L	10.0	1		06/08/13 09:19	75-15-0	
Carbon tetrachloride	ND	ug/L	5.0	1		06/08/13 09:19	56-23-5	
Chlorobenzene	ND	ug/L	5.0	1		06/08/13 09:19	108-90-7	
Chloroethane	ND	ug/L	5.0	1		06/08/13 09:19	75-00-3	
Chloroform	ND	ug/L	5.0	1		06/08/13 09:19	67-66-3	
Chloromethane	ND	ug/L	5.0	1		06/08/13 09:19	74-87-3	
2-Chlorotoluene	ND	ug/L	5.0	1		06/08/13 09:19	95-49-8	
4-Chlorotoluene	ND	ug/L	5.0	1		06/08/13 09:19	106-43-4	
Dibromochloromethane	ND	ug/L	5.0	1		06/08/13 09:19	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	5.0	1		06/08/13 09:19	106-93-4	
Dibromomethane	ND	ug/L	5.0	1		06/08/13 09:19	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-1	Lab ID: 5081645006	Collected: 06/06/13 12:15	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	21.9 ug/L		5.0	1		06/08/13 09:19	95-50-1	
1,3-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 09:19	541-73-1	
1,4-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 09:19	106-46-7	
trans-1,4-Dichloro-2-butene	ND ug/L		100	1		06/08/13 09:19	110-57-6	
Dichlorodifluoromethane	ND ug/L		5.0	1		06/08/13 09:19	75-71-8	
1,1-Dichloroethane	ND ug/L		5.0	1		06/08/13 09:19	75-34-3	
1,2-Dichloroethane	ND ug/L		5.0	1		06/08/13 09:19	107-06-2	
1,1-Dichloroethene	ND ug/L		5.0	1		06/08/13 09:19	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 09:19	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 09:19	156-60-5	
1,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 09:19	78-87-5	
1,3-Dichloropropane	ND ug/L		5.0	1		06/08/13 09:19	142-28-9	
2,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 09:19	594-20-7	
1,1-Dichloropropene	ND ug/L		5.0	1		06/08/13 09:19	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 09:19	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 09:19	10061-02-6	
Ethylbenzene	362 ug/L		50.0	10		06/10/13 18:00	100-41-4	
Ethyl methacrylate	ND ug/L		100	1		06/08/13 09:19	97-63-2	
Hexachloro-1,3-butadiene	ND ug/L		5.0	1		06/08/13 09:19	87-68-3	
n-Hexane	ND ug/L		5.0	1		06/08/13 09:19	110-54-3	N2
2-Hexanone	ND ug/L		25.0	1		06/08/13 09:19	591-78-6	
Iodomethane	ND ug/L		10.0	1		06/08/13 09:19	74-88-4	
Isopropylbenzene (Cumene)	82.2 ug/L		5.0	1		06/08/13 09:19	98-82-8	
p-Isopropyltoluene	9.8 ug/L		5.0	1		06/08/13 09:19	99-87-6	
Methylene Chloride	ND ug/L		5.0	1		06/08/13 09:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		25.0	1		06/08/13 09:19	108-10-1	
Methyl-tert-butyl ether	ND ug/L		4.0	1		06/08/13 09:19	1634-04-4	
Naphthalene	289 ug/L		50.0	10		06/10/13 18:00	91-20-3	
n-Propylbenzene	144 ug/L		5.0	1		06/08/13 09:19	103-65-1	
Styrene	ND ug/L		5.0	1		06/08/13 09:19	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 09:19	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		5.0	1		06/08/13 09:19	79-34-5	
Tetrachloroethene	ND ug/L		5.0	1		06/08/13 09:19	127-18-4	
Toluene	ND ug/L		5.0	1		06/08/13 09:19	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 09:19	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		5.0	1		06/08/13 09:19	120-82-1	
1,1,1-Trichloroethane	ND ug/L		5.0	1		06/08/13 09:19	71-55-6	
1,1,2-Trichloroethane	ND ug/L		5.0	1		06/08/13 09:19	79-00-5	
Trichloroethene	ND ug/L		5.0	1		06/08/13 09:19	79-01-6	
Trichlorofluoromethane	ND ug/L		5.0	1		06/08/13 09:19	75-69-4	
1,2,3-Trichloropropane	ND ug/L		5.0	1		06/08/13 09:19	96-18-4	
1,2,4-Trimethylbenzene	579 ug/L		50.0	10		06/10/13 18:00	95-63-6	
1,3,5-Trimethylbenzene	20.5 ug/L		5.0	1		06/08/13 09:19	108-67-8	
Vinyl acetate	ND ug/L		50.0	1		06/08/13 09:19	108-05-4	
Vinyl chloride	ND ug/L		2.0	1		06/08/13 09:19	75-01-4	
Xylene (Total)	592 ug/L		10.0	1		06/08/13 09:19	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-1	Lab ID: 5081645006	Collected: 06/06/13 12:15	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	104 %.		79-116	1		06/08/13 09:19	1868-53-7	
4-Bromofluorobenzene (S)	99 %.		80-114	1		06/08/13 09:19	460-00-4	
Toluene-d8 (S)	104 %.		81-110	1		06/08/13 09:19	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-FD-1	Lab ID: 5081645007	Collected: 06/06/13 12:20	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:15	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:15	208-96-8	
Anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:15	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:15	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:15	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:15	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:15	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:15	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 04:15	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:15	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:15	206-44-0	
Fluorene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:15	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:15	193-39-5	
1-Methylnaphthalene	15.4 ug/L		1.0	1	06/10/13 10:10	06/11/13 04:15	90-12-0	N2
2-Methylnaphthalene	22.4 ug/L		1.0	1	06/10/13 10:10	06/11/13 04:15	91-57-6	
Naphthalene	192 ug/L		20.0	20	06/10/13 10:10	06/11/13 17:11	91-20-3	
Phenanthrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:15	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:15	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	46 %.		21-114	1	06/10/13 10:10	06/11/13 04:15	321-60-8	
p-Terphenyl-d14 (S)	35 %.		25-131	1	06/10/13 10:10	06/11/13 04:15	1718-51-0	

8260 MSV Analytical Method: EPA 8260

Acetone	ND ug/L		100	1		06/08/13 09:52	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 09:52	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 09:52	107-13-1	
Benzene	91.6 ug/L		5.0	1		06/08/13 09:52	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 09:52	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 09:52	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 09:52	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 09:52	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 09:52	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 09:52	78-93-3	
n-Butylbenzene	47.9 ug/L		5.0	1		06/08/13 09:52	104-51-8	
sec-Butylbenzene	39.9 ug/L		5.0	1		06/08/13 09:52	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	1		06/08/13 09:52	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 09:52	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 09:52	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 09:52	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 09:52	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 09:52	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 09:52	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 09:52	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 09:52	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 09:52	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 09:52	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 09:52	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-FD-1	Lab ID: 5081645007	Collected: 06/06/13 12:20	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	23.4	ug/L	5.0	1		06/08/13 09:52	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 09:52	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 09:52	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		06/08/13 09:52	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		06/08/13 09:52	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		06/08/13 09:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		06/08/13 09:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		06/08/13 09:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 09:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 09:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 09:52	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		06/08/13 09:52	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 09:52	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		06/08/13 09:52	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 09:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 09:52	10061-02-6	
Ethylbenzene	595	ug/L	50.0	10		06/10/13 18:34	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		06/08/13 09:52	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		06/08/13 09:52	87-68-3	
n-Hexane	ND	ug/L	5.0	1		06/08/13 09:52	110-54-3	N2
2-Hexanone	ND	ug/L	25.0	1		06/08/13 09:52	591-78-6	
Iodomethane	ND	ug/L	10.0	1		06/08/13 09:52	74-88-4	
Isopropylbenzene (Cumene)	86.2	ug/L	5.0	1		06/08/13 09:52	98-82-8	
p-Isopropyltoluene	10.9	ug/L	5.0	1		06/08/13 09:52	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		06/08/13 09:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		06/08/13 09:52	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		06/08/13 09:52	1634-04-4	
Naphthalene	318	ug/L	50.0	10		06/10/13 18:34	91-20-3	
n-Propylbenzene	151	ug/L	5.0	1		06/08/13 09:52	103-65-1	
Styrene	ND	ug/L	5.0	1		06/08/13 09:52	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 09:52	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 09:52	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		06/08/13 09:52	127-18-4	
Toluene	ND	ug/L	5.0	1		06/08/13 09:52	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 09:52	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 09:52	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		06/08/13 09:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		06/08/13 09:52	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		06/08/13 09:52	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		06/08/13 09:52	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		06/08/13 09:52	96-18-4	
1,2,4-Trimethylbenzene	631	ug/L	50.0	10		06/10/13 18:34	95-63-6	
1,3,5-Trimethylbenzene	22.9	ug/L	5.0	1		06/08/13 09:52	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		06/08/13 09:52	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		06/08/13 09:52	75-01-4	
Xylene (Total)	682	ug/L	100	10		06/10/13 18:34	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-FD-1	Lab ID: 5081645007	Collected: 06/06/13 12:20	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	102 %.		79-116	1		06/08/13 09:52	1868-53-7	
4-Bromofluorobenzene (S)	99 %.		80-114	1		06/08/13 09:52	460-00-4	
Toluene-d8 (S)	104 %.		81-110	1		06/08/13 09:52	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell
Pace Project No.: 5081645

Sample: SBT-GW-MW-4	Lab ID: 5081645008	Collected: 06/06/13 14:40	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV		Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510						
Acenaphthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:33	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:33	208-96-8	
Anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:33	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:33	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:33	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:33	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:33	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:33	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 04:33	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:33	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:33	206-44-0	
Fluorene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:33	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:33	193-39-5	
1-Methylnaphthalene	4.6 ug/L		1.0	1	06/10/13 10:10	06/11/13 04:33	90-12-0	N2
2-Methylnaphthalene	3.6 ug/L		1.0	1	06/10/13 10:10	06/11/13 04:33	91-57-6	
Naphthalene	14.0 ug/L		1.0	1	06/10/13 10:10	06/11/13 04:33	91-20-3	
Phenanthrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:33	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:33	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	50 %.		21-114	1	06/10/13 10:10	06/11/13 04:33	321-60-8	
p-Terphenyl-d14 (S)	44 %.		25-131	1	06/10/13 10:10	06/11/13 04:33	1718-51-0	
8260 MSV		Analytical Method: EPA 8260						
Acetone	ND ug/L		100	1		06/08/13 10:26	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 10:26	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 10:26	107-13-1	
Benzene	ND ug/L		5.0	1		06/08/13 10:26	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 10:26	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 10:26	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 10:26	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 10:26	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 10:26	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 10:26	78-93-3	
n-Butylbenzene	ND ug/L		5.0	1		06/08/13 10:26	104-51-8	
sec-Butylbenzene	ND ug/L		5.0	1		06/08/13 10:26	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	1		06/08/13 10:26	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 10:26	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 10:26	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 10:26	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 10:26	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 10:26	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 10:26	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 10:26	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 10:26	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 10:26	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 10:26	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 10:26	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-4	Lab ID: 5081645008	Collected: 06/06/13 14:40	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 10:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 10:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 10:26	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		06/08/13 10:26	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		06/08/13 10:26	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		06/08/13 10:26	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		06/08/13 10:26	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		06/08/13 10:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 10:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 10:26	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 10:26	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		06/08/13 10:26	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 10:26	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		06/08/13 10:26	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 10:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 10:26	10061-02-6	
Ethylbenzene	10.8	ug/L	5.0	1		06/08/13 10:26	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		06/08/13 10:26	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		06/08/13 10:26	87-68-3	
n-Hexane	ND	ug/L	5.0	1		06/08/13 10:26	110-54-3	N2
2-Hexanone	ND	ug/L	25.0	1		06/08/13 10:26	591-78-6	
Iodomethane	ND	ug/L	10.0	1		06/08/13 10:26	74-88-4	
Isopropylbenzene (Cumene)	9.8	ug/L	5.0	1		06/08/13 10:26	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		06/08/13 10:26	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		06/08/13 10:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		06/08/13 10:26	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		06/08/13 10:26	1634-04-4	
Naphthalene	29.9	ug/L	5.0	1		06/08/13 10:26	91-20-3	
n-Propylbenzene	14.3	ug/L	5.0	1		06/08/13 10:26	103-65-1	
Styrene	ND	ug/L	5.0	1		06/08/13 10:26	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 10:26	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 10:26	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		06/08/13 10:26	127-18-4	
Toluene	ND	ug/L	5.0	1		06/08/13 10:26	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 10:26	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 10:26	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		06/08/13 10:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		06/08/13 10:26	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		06/08/13 10:26	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		06/08/13 10:26	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		06/08/13 10:26	96-18-4	
1,2,4-Trimethylbenzene	17.0	ug/L	5.0	1		06/08/13 10:26	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		06/08/13 10:26	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		06/08/13 10:26	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		06/08/13 10:26	75-01-4	
Xylene (Total)	77.6	ug/L	10.0	1		06/08/13 10:26	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-4	Lab ID: 5081645008	Collected: 06/06/13 14:40	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	103 %.		79-116	1		06/08/13 10:26	1868-53-7	
4-Bromofluorobenzene (S)	103 %.		80-114	1		06/08/13 10:26	460-00-4	
Toluene-d8 (S)	105 %.		81-110	1		06/08/13 10:26	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-101	Lab ID: 5081645009	Collected: 06/06/13 16:40	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:51	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:51	208-96-8	
Anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:51	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:51	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:51	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:51	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:51	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:51	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 04:51	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:51	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:51	206-44-0	
Fluorene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:51	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 04:51	193-39-5	
1-Methylnaphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:51	90-12-0	N2
2-Methylnaphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:51	91-57-6	
Naphthalene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:51	91-20-3	
Phenanthrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:51	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 04:51	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	55 %.		21-114	1	06/10/13 10:10	06/11/13 04:51	321-60-8	
p-Terphenyl-d14 (S)	49 %.		25-131	1	06/10/13 10:10	06/11/13 04:51	1718-51-0	

8260 MSV Analytical Method: EPA 8260

Acetone	ND ug/L		100	1		06/08/13 11:00	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 11:00	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 11:00	107-13-1	
Benzene	ND ug/L		5.0	1		06/08/13 11:00	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 11:00	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 11:00	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 11:00	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 11:00	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 11:00	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 11:00	78-93-3	
n-Butylbenzene	ND ug/L		5.0	1		06/08/13 11:00	104-51-8	
sec-Butylbenzene	ND ug/L		5.0	1		06/08/13 11:00	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	1		06/08/13 11:00	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 11:00	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 11:00	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 11:00	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 11:00	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 11:00	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 11:00	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 11:00	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 11:00	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 11:00	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 11:00	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 11:00	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-101	Lab ID: 5081645009	Collected: 06/06/13 16:40	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 11:00	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 11:00	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 11:00	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		06/08/13 11:00	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		06/08/13 11:00	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		06/08/13 11:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		06/08/13 11:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		06/08/13 11:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 11:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 11:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 11:00	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		06/08/13 11:00	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 11:00	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		06/08/13 11:00	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 11:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 11:00	10061-02-6	
Ethylbenzene	ND	ug/L	5.0	1		06/08/13 11:00	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		06/08/13 11:00	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		06/08/13 11:00	87-68-3	
n-Hexane	ND	ug/L	5.0	1		06/08/13 11:00	110-54-3	N2
2-Hexanone	ND	ug/L	25.0	1		06/08/13 11:00	591-78-6	
Iodomethane	ND	ug/L	10.0	1		06/08/13 11:00	74-88-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/08/13 11:00	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	1		06/08/13 11:00	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		06/08/13 11:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		06/08/13 11:00	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		06/08/13 11:00	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/08/13 11:00	91-20-3	
n-Propylbenzene	ND	ug/L	5.0	1		06/08/13 11:00	103-65-1	
Styrene	ND	ug/L	5.0	1		06/08/13 11:00	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 11:00	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 11:00	79-34-5	
Tetrachloroethene	8.2	ug/L	5.0	1		06/08/13 11:00	127-18-4	
Toluene	ND	ug/L	5.0	1		06/08/13 11:00	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 11:00	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 11:00	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		06/08/13 11:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		06/08/13 11:00	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		06/08/13 11:00	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		06/08/13 11:00	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		06/08/13 11:00	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		06/08/13 11:00	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		06/08/13 11:00	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		06/08/13 11:00	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		06/08/13 11:00	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		06/08/13 11:00	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-101	Lab ID: 5081645009	Collected: 06/06/13 16:40	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	102 %.		79-116	1		06/08/13 11:00	1868-53-7	
4-Bromofluorobenzene (S)	103 %.		80-114	1		06/08/13 11:00	460-00-4	
Toluene-d8 (S)	103 %.		81-110	1		06/08/13 11:00	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-102	Lab ID: 5081645010	Collected: 06/06/13 18:25	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 05:45	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 05:45	208-96-8	
Anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 05:45	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 05:45	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 05:45	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 05:45	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 05:45	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 05:45	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 05:45	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 05:45	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 05:45	206-44-0	
Fluorene	1.1 ug/L		1.0	1	06/10/13 10:10	06/11/13 05:45	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 05:45	193-39-5	
1-Methylnaphthalene	27.4 ug/L		1.0	1	06/10/13 10:10	06/11/13 05:45	90-12-0	N2
2-Methylnaphthalene	42.6 ug/L		1.0	1	06/10/13 10:10	06/11/13 05:45	91-57-6	
Naphthalene	246 ug/L		20.0	20	06/10/13 10:10	06/11/13 17:29	91-20-3	
Phenanthrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 05:45	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 05:45	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	55 %.		21-114	1	06/10/13 10:10	06/11/13 05:45	321-60-8	
p-Terphenyl-d14 (S)	48 %.		25-131	1	06/10/13 10:10	06/11/13 05:45	1718-51-0	
8260 MSV								
Analytical Method: EPA 8260								
Acetone	ND ug/L		100	1		06/08/13 12:40	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 12:40	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 12:40	107-13-1	
Benzene	133 ug/L		5.0	1		06/08/13 12:40	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 12:40	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 12:40	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 12:40	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 12:40	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 12:40	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 12:40	78-93-3	
n-Butylbenzene	46.9 ug/L		5.0	1		06/08/13 12:40	104-51-8	
sec-Butylbenzene	54.2 ug/L		5.0	1		06/08/13 12:40	135-98-8	
tert-Butylbenzene	8.8 ug/L		5.0	1		06/08/13 12:40	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 12:40	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 12:40	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 12:40	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 12:40	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 12:40	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 12:40	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 12:40	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 12:40	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 12:40	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 12:40	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 12:40	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-102	Lab ID: 5081645010	Collected: 06/06/13 18:25	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 12:40	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 12:40	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 12:40	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		06/08/13 12:40	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		06/08/13 12:40	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		06/08/13 12:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		06/08/13 12:40	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		06/08/13 12:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 12:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 12:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 12:40	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		06/08/13 12:40	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 12:40	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		06/08/13 12:40	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 12:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 12:40	10061-02-6	
Ethylbenzene	7870	ug/L	250	50		06/10/13 19:08	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		06/08/13 12:40	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		06/08/13 12:40	87-68-3	
n-Hexane	ND	ug/L	5.0	1		06/08/13 12:40	110-54-3	N2
2-Hexanone	ND	ug/L	25.0	1		06/08/13 12:40	591-78-6	
Iodomethane	ND	ug/L	10.0	1		06/08/13 12:40	74-88-4	
Isopropylbenzene (Cumene)	169	ug/L	5.0	1		06/08/13 12:40	98-82-8	
p-Isopropyltoluene	60.8	ug/L	5.0	1		06/08/13 12:40	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		06/08/13 12:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		06/08/13 12:40	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		06/08/13 12:40	1634-04-4	
Naphthalene	301	ug/L	250	50		06/10/13 19:08	91-20-3	
n-Propylbenzene	293	ug/L	5.0	1		06/08/13 12:40	103-65-1	
Styrene	ND	ug/L	5.0	1		06/08/13 12:40	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 12:40	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 12:40	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		06/08/13 12:40	127-18-4	
Toluene	ND	ug/L	5.0	1		06/08/13 12:40	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 12:40	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 12:40	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		06/08/13 12:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		06/08/13 12:40	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		06/08/13 12:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		06/08/13 12:40	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		06/08/13 12:40	96-18-4	
1,2,4-Trimethylbenzene	2010	ug/L	250	50		06/10/13 19:08	95-63-6	
1,3,5-Trimethylbenzene	591	ug/L	250	50		06/10/13 19:08	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		06/08/13 12:40	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		06/08/13 12:40	75-01-4	
Xylene (Total)	25000	ug/L	500	50		06/10/13 19:08	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-102		Lab ID: 5081645010	Collected: 06/06/13 18:25	Received: 06/07/13 11:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	104 %.		79-116	1		06/08/13 12:40	1868-53-7	
4-Bromofluorobenzene (S)	92 %.		80-114	1		06/08/13 12:40	460-00-4	
Toluene-d8 (S)	106 %.		81-110	1		06/08/13 12:40	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-103	Lab ID: 5081645011	Collected: 06/07/13 09:15	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 06:03	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 06:03	208-96-8	
Anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:03	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:03	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:03	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:03	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:03	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:03	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 06:03	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:03	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 06:03	206-44-0	
Fluorene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 06:03	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:03	193-39-5	
1-Methylnaphthalene	12.6 ug/L		1.0	1	06/10/13 10:10	06/11/13 06:03	90-12-0	N2
2-Methylnaphthalene	20.9 ug/L		1.0	1	06/10/13 10:10	06/11/13 06:03	91-57-6	
Naphthalene	503 ug/L		20.0	20	06/10/13 10:10	06/11/13 17:47	91-20-3	
Phenanthrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 06:03	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 06:03	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	56 %.		21-114	1	06/10/13 10:10	06/11/13 06:03	321-60-8	
p-Terphenyl-d14 (S)	48 %.		25-131	1	06/10/13 10:10	06/11/13 06:03	1718-51-0	

8260 MSV Analytical Method: EPA 8260

Acetone	ND ug/L		100	1		06/08/13 13:14	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 13:14	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 13:14	107-13-1	
Benzene	133 ug/L		5.0	1		06/08/13 13:14	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 13:14	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 13:14	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 13:14	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 13:14	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 13:14	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 13:14	78-93-3	
n-Butylbenzene	40.2 ug/L		5.0	1		06/08/13 13:14	104-51-8	
sec-Butylbenzene	53.3 ug/L		5.0	1		06/08/13 13:14	135-98-8	
tert-Butylbenzene	11.3 ug/L		5.0	1		06/08/13 13:14	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 13:14	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 13:14	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 13:14	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 13:14	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 13:14	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 13:14	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 13:14	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 13:14	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 13:14	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 13:14	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 13:14	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-103	Lab ID: 5081645011	Collected: 06/07/13 09:15	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:14	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:14	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:14	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		06/08/13 13:14	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		06/08/13 13:14	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		06/08/13 13:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		06/08/13 13:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		06/08/13 13:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 13:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 13:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 13:14	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		06/08/13 13:14	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 13:14	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		06/08/13 13:14	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 13:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 13:14	10061-02-6	
Ethylbenzene	5900	ug/L	125	25		06/10/13 19:41	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		06/08/13 13:14	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		06/08/13 13:14	87-68-3	
n-Hexane	ND	ug/L	5.0	1		06/08/13 13:14	110-54-3	N2
2-Hexanone	ND	ug/L	25.0	1		06/08/13 13:14	591-78-6	
Iodomethane	ND	ug/L	10.0	1		06/08/13 13:14	74-88-4	
Isopropylbenzene (Cumene)	272	ug/L	5.0	1		06/08/13 13:14	98-82-8	
p-Isopropyltoluene	64.2	ug/L	5.0	1		06/08/13 13:14	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		06/08/13 13:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		06/08/13 13:14	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		06/08/13 13:14	1634-04-4	
Naphthalene	685	ug/L	125	25		06/10/13 19:41	91-20-3	
n-Propylbenzene	514	ug/L	125	25		06/10/13 19:41	103-65-1	
Styrene	ND	ug/L	5.0	1		06/08/13 13:14	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 13:14	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 13:14	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		06/08/13 13:14	127-18-4	
Toluene	183	ug/L	5.0	1		06/08/13 13:14	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:14	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:14	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		06/08/13 13:14	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		06/08/13 13:14	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		06/08/13 13:14	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		06/08/13 13:14	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		06/08/13 13:14	96-18-4	
1,2,4-Trimethylbenzene	3750	ug/L	125	25		06/10/13 19:41	95-63-6	
1,3,5-Trimethylbenzene	1100	ug/L	125	25		06/10/13 19:41	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		06/08/13 13:14	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		06/08/13 13:14	75-01-4	
Xylene (Total)	25400	ug/L	2500	250		06/11/13 15:28	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-103	Lab ID: 5081645011	Collected: 06/07/13 09:15	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	102 %.		79-116	1		06/08/13 13:14	1868-53-7	
4-Bromofluorobenzene (S)	91 %.		80-114	1		06/08/13 13:14	460-00-4	
Toluene-d8 (S)	106 %.		81-110	1		06/08/13 13:14	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell
Pace Project No.: 5081645

Sample: SBT-GW-MW-104	Lab ID: 5081645012	Collected: 06/07/13 10:35	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAHLV								
Analytical Method: EPA 8270 by SIM LVE Preparation Method: EPA 3510								
Acenaphthene	1.9 ug/L		1.0	1	06/10/13 10:10	06/11/13 06:22	83-32-9	
Acenaphthylene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 06:22	208-96-8	
Anthracene	0.22 ug/L		0.10	1	06/10/13 10:10	06/11/13 06:22	120-12-7	
Benzo(a)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:22	56-55-3	
Benzo(a)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:22	50-32-8	
Benzo(b)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:22	205-99-2	
Benzo(g,h,i)perylene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:22	191-24-2	
Benzo(k)fluoranthene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:22	207-08-9	
Chrysene	ND ug/L		0.50	1	06/10/13 10:10	06/11/13 06:22	218-01-9	
Dibenz(a,h)anthracene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:22	53-70-3	
Fluoranthene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 06:22	206-44-0	
Fluorene	2.5 ug/L		1.0	1	06/10/13 10:10	06/11/13 06:22	86-73-7	
Indeno(1,2,3-cd)pyrene	ND ug/L		0.10	1	06/10/13 10:10	06/11/13 06:22	193-39-5	
1-Methylnaphthalene	17.8 ug/L		1.0	1	06/10/13 10:10	06/11/13 06:22	90-12-0	N2
2-Methylnaphthalene	8.9 ug/L		1.0	1	06/10/13 10:10	06/11/13 06:22	91-57-6	
Naphthalene	5.6 ug/L		1.0	1	06/10/13 10:10	06/11/13 06:22	91-20-3	
Phenanthrene	2.9 ug/L		1.0	1	06/10/13 10:10	06/11/13 06:22	85-01-8	
Pyrene	ND ug/L		1.0	1	06/10/13 10:10	06/11/13 06:22	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	47 %.		21-114	1	06/10/13 10:10	06/11/13 06:22	321-60-8	
p-Terphenyl-d14 (S)	42 %.		25-131	1	06/10/13 10:10	06/11/13 06:22	1718-51-0	
8260 MSV								
Analytical Method: EPA 8260								
Acetone	ND ug/L		100	1		06/08/13 13:47	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 13:47	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 13:47	107-13-1	
Benzene	ND ug/L		5.0	1		06/08/13 13:47	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 13:47	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 13:47	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 13:47	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 13:47	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 13:47	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 13:47	78-93-3	
n-Butylbenzene	20.7 ug/L		5.0	1		06/08/13 13:47	104-51-8	
sec-Butylbenzene	29.4 ug/L		5.0	1		06/08/13 13:47	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	1		06/08/13 13:47	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 13:47	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 13:47	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 13:47	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 13:47	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 13:47	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 13:47	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 13:47	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 13:47	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 13:47	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 13:47	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 13:47	74-95-3	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-104	Lab ID: 5081645012	Collected: 06/07/13 10:35	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
1,2-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:47	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:47	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:47	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1		06/08/13 13:47	110-57-6	
Dichlorodifluoromethane	ND	ug/L	5.0	1		06/08/13 13:47	75-71-8	
1,1-Dichloroethane	ND	ug/L	5.0	1		06/08/13 13:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	1		06/08/13 13:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	1		06/08/13 13:47	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 13:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	1		06/08/13 13:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 13:47	78-87-5	
1,3-Dichloropropane	ND	ug/L	5.0	1		06/08/13 13:47	142-28-9	
2,2-Dichloropropane	ND	ug/L	5.0	1		06/08/13 13:47	594-20-7	
1,1-Dichloropropene	ND	ug/L	5.0	1		06/08/13 13:47	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 13:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	5.0	1		06/08/13 13:47	10061-02-6	
Ethylbenzene	41.3	ug/L	5.0	1		06/08/13 13:47	100-41-4	
Ethyl methacrylate	ND	ug/L	100	1		06/08/13 13:47	97-63-2	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	1		06/08/13 13:47	87-68-3	
n-Hexane	ND	ug/L	5.0	1		06/08/13 13:47	110-54-3	N2
2-Hexanone	ND	ug/L	25.0	1		06/08/13 13:47	591-78-6	
Iodomethane	ND	ug/L	10.0	1		06/08/13 13:47	74-88-4	
Isopropylbenzene (Cumene)	31.4	ug/L	5.0	1		06/08/13 13:47	98-82-8	
p-Isopropyltoluene	10.0	ug/L	5.0	1		06/08/13 13:47	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		06/08/13 13:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		06/08/13 13:47	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		06/08/13 13:47	1634-04-4	
Naphthalene	15.2	ug/L	5.0	1		06/08/13 13:47	91-20-3	
n-Propylbenzene	30.5	ug/L	5.0	1		06/08/13 13:47	103-65-1	
Styrene	ND	ug/L	5.0	1		06/08/13 13:47	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 13:47	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 13:47	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		06/08/13 13:47	127-18-4	
Toluene	ND	ug/L	5.0	1		06/08/13 13:47	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:47	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 13:47	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		06/08/13 13:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		06/08/13 13:47	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		06/08/13 13:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		06/08/13 13:47	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		06/08/13 13:47	96-18-4	
1,2,4-Trimethylbenzene	46.6	ug/L	5.0	1		06/08/13 13:47	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		06/08/13 13:47	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		06/08/13 13:47	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		06/08/13 13:47	75-01-4	
Xylene (Total)	114	ug/L	10.0	1		06/08/13 13:47	1330-20-7	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: SBT-GW-MW-104	Lab ID: 5081645012	Collected: 06/07/13 10:35	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Surrogates								
Dibromofluoromethane (S)	101 %.		79-116	1		06/08/13 13:47	1868-53-7	
4-Bromofluorobenzene (S)	100 %.		80-114	1		06/08/13 13:47	460-00-4	
Toluene-d8 (S)	105 %.		81-110	1		06/08/13 13:47	2037-26-5	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: TRIP BLANK	Lab ID: 5081645013	Collected: 06/05/13 08:00	Received: 06/07/13 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
Acetone	ND ug/L		100	1		06/08/13 14:21	67-64-1	
Acrolein	ND ug/L		50.0	1		06/08/13 14:21	107-02-8	
Acrylonitrile	ND ug/L		100	1		06/08/13 14:21	107-13-1	
Benzene	ND ug/L		5.0	1		06/08/13 14:21	71-43-2	
Bromobenzene	ND ug/L		5.0	1		06/08/13 14:21	108-86-1	
Bromochloromethane	ND ug/L		5.0	1		06/08/13 14:21	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1		06/08/13 14:21	75-27-4	
Bromoform	ND ug/L		5.0	1		06/08/13 14:21	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/08/13 14:21	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	1		06/08/13 14:21	78-93-3	
n-Butylbenzene	ND ug/L		5.0	1		06/08/13 14:21	104-51-8	
sec-Butylbenzene	ND ug/L		5.0	1		06/08/13 14:21	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	1		06/08/13 14:21	98-06-6	
Carbon disulfide	ND ug/L		10.0	1		06/08/13 14:21	75-15-0	
Carbon tetrachloride	ND ug/L		5.0	1		06/08/13 14:21	56-23-5	
Chlorobenzene	ND ug/L		5.0	1		06/08/13 14:21	108-90-7	
Chloroethane	ND ug/L		5.0	1		06/08/13 14:21	75-00-3	
Chloroform	ND ug/L		5.0	1		06/08/13 14:21	67-66-3	
Chloromethane	ND ug/L		5.0	1		06/08/13 14:21	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	1		06/08/13 14:21	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	1		06/08/13 14:21	106-43-4	
Dibromochloromethane	ND ug/L		5.0	1		06/08/13 14:21	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	1		06/08/13 14:21	106-93-4	
Dibromomethane	ND ug/L		5.0	1		06/08/13 14:21	74-95-3	
1,2-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 14:21	95-50-1	
1,3-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 14:21	541-73-1	
1,4-Dichlorobenzene	ND ug/L		5.0	1		06/08/13 14:21	106-46-7	
trans-1,4-Dichloro-2-butene	ND ug/L		100	1		06/08/13 14:21	110-57-6	
Dichlorodifluoromethane	ND ug/L		5.0	1		06/08/13 14:21	75-71-8	
1,1-Dichloroethane	ND ug/L		5.0	1		06/08/13 14:21	75-34-3	
1,2-Dichloroethane	ND ug/L		5.0	1		06/08/13 14:21	107-06-2	
1,1-Dichloroethene	ND ug/L		5.0	1		06/08/13 14:21	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 14:21	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		5.0	1		06/08/13 14:21	156-60-5	
1,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 14:21	78-87-5	
1,3-Dichloropropane	ND ug/L		5.0	1		06/08/13 14:21	142-28-9	
2,2-Dichloropropane	ND ug/L		5.0	1		06/08/13 14:21	594-20-7	
1,1-Dichloropropene	ND ug/L		5.0	1		06/08/13 14:21	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 14:21	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		5.0	1		06/08/13 14:21	10061-02-6	
Ethylbenzene	ND ug/L		5.0	1		06/08/13 14:21	100-41-4	
Ethyl methacrylate	ND ug/L		100	1		06/08/13 14:21	97-63-2	
Hexachloro-1,3-butadiene	ND ug/L		5.0	1		06/08/13 14:21	87-68-3	
n-Hexane	ND ug/L		5.0	1		06/08/13 14:21	110-54-3	N2
2-Hexanone	ND ug/L		25.0	1		06/08/13 14:21	591-78-6	
Iodomethane	ND ug/L		10.0	1		06/08/13 14:21	74-88-4	
Isopropylbenzene (Cumene)	ND ug/L		5.0	1		06/08/13 14:21	98-82-8	

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ANALYTICAL RESULTS

Project: Frm Bulk Shell

Pace Project No.: 5081645

Sample: TRIP BLANK		Lab ID: 5081645013	Collected: 06/05/13 08:00	Received: 06/07/13 11:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260						
p-Isopropyltoluene	ND	ug/L	5.0	1		06/08/13 14:21	99-87-6	
Methylene Chloride	ND	ug/L	5.0	1		06/08/13 14:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	1		06/08/13 14:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	4.0	1		06/08/13 14:21	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/08/13 14:21	91-20-3	
n-Propylbenzene	ND	ug/L	5.0	1		06/08/13 14:21	103-65-1	
Styrene	ND	ug/L	5.0	1		06/08/13 14:21	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 14:21	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	1		06/08/13 14:21	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	1		06/08/13 14:21	127-18-4	
Toluene	ND	ug/L	5.0	1		06/08/13 14:21	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 14:21	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	1		06/08/13 14:21	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1		06/08/13 14:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	1		06/08/13 14:21	79-00-5	
Trichloroethene	ND	ug/L	5.0	1		06/08/13 14:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	5.0	1		06/08/13 14:21	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	5.0	1		06/08/13 14:21	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	1		06/08/13 14:21	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	1		06/08/13 14:21	108-67-8	
Vinyl acetate	ND	ug/L	50.0	1		06/08/13 14:21	108-05-4	
Vinyl chloride	ND	ug/L	2.0	1		06/08/13 14:21	75-01-4	
Xylene (Total)	ND	ug/L	10.0	1		06/08/13 14:21	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	96 %.		79-116	1		06/08/13 14:21	1868-53-7	
4-Bromofluorobenzene (S)	103 %.		80-114	1		06/08/13 14:21	460-00-4	
Toluene-d8 (S)	104 %.		81-110	1		06/08/13 14:21	2037-26-5	

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QUALITY CONTROL DATA

Project: Frm Bulk Shell
Pace Project No.: 5081645

QC Batch: MSV/54057 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 5081645001, 5081645002, 5081645003, 5081645004, 5081645005, 5081645006, 5081645007, 5081645008, 5081645009, 5081645010, 5081645011, 5081645012, 5081645013

METHOD BLANK: 928709 Matrix: Water
Associated Lab Samples: 5081645001, 5081645002, 5081645003, 5081645004, 5081645005, 5081645006, 5081645007, 5081645008, 5081645009, 5081645010, 5081645011, 5081645012, 5081645013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	5.0	06/08/13 05:57	
1,1,1-Trichloroethane	ug/L	ND	5.0	06/08/13 05:57	
1,1,2,2-Tetrachloroethane	ug/L	ND	5.0	06/08/13 05:57	
1,1,2-Trichloroethane	ug/L	ND	5.0	06/08/13 05:57	
1,1-Dichloroethane	ug/L	ND	5.0	06/08/13 05:57	
1,1-Dichloroethene	ug/L	ND	5.0	06/08/13 05:57	
1,1-Dichloropropene	ug/L	ND	5.0	06/08/13 05:57	
1,2,3-Trichlorobenzene	ug/L	ND	5.0	06/08/13 05:57	
1,2,3-Trichloropropane	ug/L	ND	5.0	06/08/13 05:57	
1,2,4-Trichlorobenzene	ug/L	ND	5.0	06/08/13 05:57	
1,2,4-Trimethylbenzene	ug/L	ND	5.0	06/08/13 05:57	
1,2-Dibromoethane (EDB)	ug/L	ND	5.0	06/08/13 05:57	
1,2-Dichlorobenzene	ug/L	ND	5.0	06/08/13 05:57	
1,2-Dichloroethane	ug/L	ND	5.0	06/08/13 05:57	
1,2-Dichloropropane	ug/L	ND	5.0	06/08/13 05:57	
1,3,5-Trimethylbenzene	ug/L	ND	5.0	06/08/13 05:57	
1,3-Dichlorobenzene	ug/L	ND	5.0	06/08/13 05:57	
1,3-Dichloropropane	ug/L	ND	5.0	06/08/13 05:57	
1,4-Dichlorobenzene	ug/L	ND	5.0	06/08/13 05:57	
2,2-Dichloropropane	ug/L	ND	5.0	06/08/13 05:57	
2-Butanone (MEK)	ug/L	ND	25.0	06/08/13 05:57	
2-Chlorotoluene	ug/L	ND	5.0	06/08/13 05:57	
2-Hexanone	ug/L	ND	25.0	06/08/13 05:57	
4-Chlorotoluene	ug/L	ND	5.0	06/08/13 05:57	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	25.0	06/08/13 05:57	
Acetone	ug/L	ND	100	06/08/13 05:57	
Acrolein	ug/L	ND	50.0	06/08/13 05:57	
Acrylonitrile	ug/L	ND	100	06/08/13 05:57	
Benzene	ug/L	ND	5.0	06/08/13 05:57	
Bromobenzene	ug/L	ND	5.0	06/08/13 05:57	
Bromochloromethane	ug/L	ND	5.0	06/08/13 05:57	
Bromodichloromethane	ug/L	ND	5.0	06/08/13 05:57	
Bromoform	ug/L	ND	5.0	06/08/13 05:57	
Bromomethane	ug/L	ND	5.0	06/08/13 05:57	
Carbon disulfide	ug/L	ND	10.0	06/08/13 05:57	
Carbon tetrachloride	ug/L	ND	5.0	06/08/13 05:57	
Chlorobenzene	ug/L	ND	5.0	06/08/13 05:57	
Chloroethane	ug/L	ND	5.0	06/08/13 05:57	
Chloroform	ug/L	ND	5.0	06/08/13 05:57	
Chloromethane	ug/L	ND	5.0	06/08/13 05:57	
cis-1,2-Dichloroethene	ug/L	ND	5.0	06/08/13 05:57	

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QUALITY CONTROL DATA

Project: Frm Bulk Shell
Pace Project No.: 5081645

METHOD BLANK: 928709

Matrix: Water

Associated Lab Samples: 5081645001, 5081645002, 5081645003, 5081645004, 5081645005, 5081645006, 5081645007, 5081645008, 5081645009, 5081645010, 5081645011, 5081645012, 5081645013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,3-Dichloropropene	ug/L	ND	5.0	06/08/13 05:57	
Dibromochloromethane	ug/L	ND	5.0	06/08/13 05:57	
Dibromomethane	ug/L	ND	5.0	06/08/13 05:57	
Dichlorodifluoromethane	ug/L	ND	5.0	06/08/13 05:57	
Ethyl methacrylate	ug/L	ND	100	06/08/13 05:57	
Ethylbenzene	ug/L	ND	5.0	06/08/13 05:57	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	06/08/13 05:57	
Iodomethane	ug/L	ND	10.0	06/08/13 05:57	
Isopropylbenzene (Cumene)	ug/L	ND	5.0	06/08/13 05:57	
Methyl-tert-butyl ether	ug/L	ND	4.0	06/08/13 05:57	
Methylene Chloride	ug/L	ND	5.0	06/08/13 05:57	
n-Butylbenzene	ug/L	ND	5.0	06/08/13 05:57	
n-Hexane	ug/L	ND	5.0	06/08/13 05:57	N2
n-Propylbenzene	ug/L	ND	5.0	06/08/13 05:57	
Naphthalene	ug/L	ND	5.0	06/08/13 05:57	
p-Isopropyltoluene	ug/L	ND	5.0	06/08/13 05:57	
sec-Butylbenzene	ug/L	ND	5.0	06/08/13 05:57	
Styrene	ug/L	ND	5.0	06/08/13 05:57	
tert-Butylbenzene	ug/L	ND	5.0	06/08/13 05:57	
Tetrachloroethene	ug/L	ND	5.0	06/08/13 05:57	
Toluene	ug/L	ND	5.0	06/08/13 05:57	
trans-1,2-Dichloroethene	ug/L	ND	5.0	06/08/13 05:57	
trans-1,3-Dichloropropene	ug/L	ND	5.0	06/08/13 05:57	
trans-1,4-Dichloro-2-butene	ug/L	ND	100	06/08/13 05:57	
Trichloroethene	ug/L	ND	5.0	06/08/13 05:57	
Trichlorofluoromethane	ug/L	ND	5.0	06/08/13 05:57	
Vinyl acetate	ug/L	ND	50.0	06/08/13 05:57	
Vinyl chloride	ug/L	ND	2.0	06/08/13 05:57	
Xylene (Total)	ug/L	ND	10.0	06/08/13 05:57	
4-Bromofluorobenzene (S)	%	101	80-114	06/08/13 05:57	
Dibromofluoromethane (S)	%	100	79-116	06/08/13 05:57	
Toluene-d8 (S)	%	103	81-110	06/08/13 05:57	

LABORATORY CONTROL SAMPLE: 928710

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.0	100	61-135	
1,1,1-Trichloroethane	ug/L	50	52.5	105	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	51.1	102	66-126	
1,1,2-Trichloroethane	ug/L	50	47.1	94	77-130	
1,1-Dichloroethane	ug/L	50	52.7	105	75-130	
1,1-Dichloroethene	ug/L	50	53.7	107	68-127	
1,1-Dichloropropene	ug/L	50	50.1	100	78-130	
1,2,3-Trichlorobenzene	ug/L	50	47.2	94	70-130	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Frm Bulk Shell

Pace Project No.: 5081645

LABORATORY CONTROL SAMPLE: 928710

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,3-Trichloropropane	ug/L	50	46.7	93	58-142	
1,2,4-Trichlorobenzene	ug/L	50	47.4	95	68-131	
1,2,4-Trimethylbenzene	ug/L	50	54.8	110	69-127	
1,2-Dibromoethane (EDB)	ug/L	50	48.1	96	76-125	
1,2-Dichlorobenzene	ug/L	50	53.2	106	75-123	
1,2-Dichloroethane	ug/L	50	49.5	99	75-128	
1,2-Dichloropropane	ug/L	50	45.9	92	74-121	
1,3,5-Trimethylbenzene	ug/L	50	54.1	108	70-126	
1,3-Dichlorobenzene	ug/L	50	51.9	104	74-122	
1,3-Dichloropropane	ug/L	50	48.1	96	74-123	
1,4-Dichlorobenzene	ug/L	50	51.6	103	76-120	
2,2-Dichloropropane	ug/L	50	52.1	104	50-137	
2-Butanone (MEK)	ug/L	250	198	79	58-139	
2-Chlorotoluene	ug/L	50	55.2	110	74-122	
2-Hexanone	ug/L	250	225	90	54-140	
4-Chlorotoluene	ug/L	50	56.3	113	77-123	
4-Methyl-2-pentanone (MIBK)	ug/L	250	207	83	58-138	
Acetone	ug/L	250	203	81	49-150	
Acrolein	ug/L	1000	975	97	41-200	
Acrylonitrile	ug/L	1000	855	86	63-137	
Benzene	ug/L	50	50.1	100	74-122	
Bromobenzene	ug/L	50	50.2	100	72-127	
Bromochloromethane	ug/L	50	47.4	95	63-132	
Bromodichloromethane	ug/L	50	47.1	94	62-136	
Bromoform	ug/L	50	45.4	91	44-134	
Bromomethane	ug/L	50	38.2	76	22-181	
Carbon disulfide	ug/L	100	110	110	59-132	
Carbon tetrachloride	ug/L	50	51.4	103	56-137	
Chlorobenzene	ug/L	50	54.0	108	78-123	
Chloroethane	ug/L	50	51.3	103	60-144	
Chloroform	ug/L	50	51.5	103	78-126	
Chloromethane	ug/L	50	44.0	88	42-134	
cis-1,2-Dichloroethene	ug/L	50	50.6	101	75-122	
cis-1,3-Dichloropropene	ug/L	50	44.9	90	64-126	
Dibromochloromethane	ug/L	50	47.7	95	58-128	
Dibromomethane	ug/L	50	48.7	97	73-125	
Dichlorodifluoromethane	ug/L	50	54.5	109	35-181	
Ethyl methacrylate	ug/L	200	184	92	69-133	
Ethylbenzene	ug/L	50	53.0	106	66-133	
Hexachloro-1,3-butadiene	ug/L	50	52.7	105	59-145	
Iodomethane	ug/L	100	89.1	89	21-170	
Isopropylbenzene (Cumene)	ug/L	50	52.9	106	69-124	
Methyl-tert-butyl ether	ug/L	100	101	101	69-122	
Methylene Chloride	ug/L	50	49.8	100	68-132	
n-Butylbenzene	ug/L	50	54.2	108	70-126	
n-Hexane	ug/L	50	45.7	91	51-125 N2	
n-Propylbenzene	ug/L	50	54.9	110	71-122	
Naphthalene	ug/L	50	49.7	99	68-127	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Frm Bulk Shell
Pace Project No.: 5081645

LABORATORY CONTROL SAMPLE: 928710

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
p-Isopropyltoluene	ug/L	50	55.5	111	72-132	
sec-Butylbenzene	ug/L	50	56.6	113	70-128	
Styrene	ug/L	50	53.0	106	74-126	
tert-Butylbenzene	ug/L	50	51.6	103	51-118	
Tetrachloroethene	ug/L	50	50.4	101	69-130	
Toluene	ug/L	50	50.3	101	72-122	
trans-1,2-Dichloroethene	ug/L	50	52.9	106	72-124	
trans-1,3-Dichloropropene	ug/L	50	44.2	88	64-121	
trans-1,4-Dichloro-2-butene	ug/L	200	191	96	56-133	
Trichloroethene	ug/L	50	50.6	101	76-126	
Trichlorofluoromethane	ug/L	50	56.2	112	76-149	
Vinyl acetate	ug/L	200	167	83	70-130	
Vinyl chloride	ug/L	50	39.5	79	59-126	
Xylene (Total)	ug/L	150	154	103	70-124	
4-Bromofluorobenzene (S)	%			98	80-114	
Dibromofluoromethane (S)	%			101	79-116	
Toluene-d8 (S)	%			101	81-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 928711 928712

Parameter	Units	5081645009		MS	MSD	MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
1,1,1,2-Tetrachloroethane	ug/L	ND	50	50	50.6	51.4	101	103	50-132	2	20		
1,1,1-Trichloroethane	ug/L	ND	50	50	54.6	54.8	109	110	60-138	0	20		
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	52.8	51.0	106	102	55-128	3	20		
1,1,2-Trichloroethane	ug/L	ND	50	50	52.0	50.7	104	101	61-139	2	20		
1,1-Dichloroethane	ug/L	ND	50	50	55.6	54.1	111	108	57-147	3	20		
1,1-Dichloroethene	ug/L	ND	50	50	55.9	55.1	112	110	55-145	1	20		
1,1-Dichloropropene	ug/L	ND	50	50	52.9	51.4	106	103	55-147	3	20		
1,2,3-Trichlorobenzene	ug/L	ND	50	50	47.0	43.5	94	87	31-141	8	20		
1,2,3-Trichloropropane	ug/L	ND	50	50	50.7	45.6	101	91	58-133	11	20		
1,2,4-Trichlorobenzene	ug/L	ND	50	50	45.2	40.6	90	81	25-143	11	20		
1,2,4-Trimethylbenzene	ug/L	ND	50	50	54.6	53.2	108	106	18-149	2	20		
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	50.0	50.1	100	100	63-129	0	20		
1,2-Dichlorobenzene	ug/L	ND	50	50	53.8	52.4	108	105	38-136	3	20		
1,2-Dichloroethane	ug/L	ND	50	50	52.6	50.4	105	101	62-138	4	20		
1,2-Dichloropropane	ug/L	ND	50	50	47.8	47.4	96	95	59-130	1	20		
1,3,5-Trimethylbenzene	ug/L	ND	50	50	54.1	52.3	108	105	20-147	3	20		
1,3-Dichlorobenzene	ug/L	ND	50	50	51.2	48.5	101	96	28-141	5	20		
1,3-Dichloropropane	ug/L	ND	50	50	51.1	49.7	102	99	62-127	3	20		
1,4-Dichlorobenzene	ug/L	ND	50	50	52.5	49.1	104	97	30-139	7	20		
2,2-Dichloropropane	ug/L	ND	50	50	52.3	51.2	105	102	37-139	2	20		
2-Butanone (MEK)	ug/L	ND	250	250	214	203	86	81	37-156	5	20		
2-Chlorotoluene	ug/L	ND	50	50	55.1	53.3	110	107	27-142	3	20		
2-Hexanone	ug/L	ND	250	250	250	243	100	97	44-143	3	20		
4-Chlorotoluene	ug/L	ND	50	50	54.5	52.7	109	105	27-144	3	20		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	250	250	223	222	89	89	46-144	0	20		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Frm Bulk Shell

Pace Project No.: 5081645

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 928711 928712											
Parameter	Units	5081645009 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Acetone	ug/L	ND	250	250	224	218	89	87	39-156	2	20
Acrolein	ug/L	ND	1000	1000	843	819	84	82	33-200	3	20
Acrylonitrile	ug/L	ND	1000	1000	926	898	93	90	48-149	3	20
Benzene	ug/L	ND	50	50	52.1	51.2	104	102	62-129	2	20
Bromobenzene	ug/L	ND	50	50	50.2	49.2	100	98	39-140	2	20
Bromochloromethane	ug/L	ND	50	50	49.3	49.2	99	98	49-142	0	20
Bromodichloromethane	ug/L	ND	50	50	49.1	47.9	98	96	50-142	2	20
Bromoform	ug/L	ND	50	50	45.8	44.7	92	89	36-125	2	20
Bromomethane	ug/L	ND	50	50	35.7	37.7	71	75	13-179	5	20
Carbon disulfide	ug/L	ND	100	100	114	112	114	112	45-142	1	20
Carbon tetrachloride	ug/L	ND	50	50	51.3	52.1	103	104	46-142	2	20
Chlorobenzene	ug/L	ND	50	50	57.1	56.1	112	110	49-136	2	20
Chloroethane	ug/L	ND	50	50	52.6	52.8	105	106	47-160	0	20
Chloroform	ug/L	ND	50	50	53.4	53.5	107	107	54-150	0	20
Chloromethane	ug/L	ND	50	50	44.9	45.2	90	90	30-148	1	20
cis-1,2-Dichloroethene	ug/L	ND	50	50	52.9	51.4	106	103	60-135	3	20
cis-1,3-Dichloropropene	ug/L	ND	50	50	45.6	44.2	91	88	52-123	3	20
Dibromochloromethane	ug/L	ND	50	50	48.3	49.7	97	99	48-125	3	20
Dibromomethane	ug/L	ND	50	50	51.9	50.8	104	102	59-134	2	20
Dichlorodifluoromethane	ug/L	ND	50	50	54.6	55.4	109	111	24-197	2	20
Ethyl methacrylate	ug/L	ND	200	200	194	191	97	96	55-139	1	20
Ethylbenzene	ug/L	ND	50	50	54.1	52.4	108	105	28-153	3	20
Hexachloro-1,3-butadiene	ug/L	ND	50	50	50.2	50.1	100	100	10-176	0	20
Iodomethane	ug/L	ND	100	100	90.5	91.0	90	91	17-157	1	20
Isopropylbenzene (Cumene)	ug/L	ND	50	50	55.0	54.5	108	107	18-152	1	20
Methyl-tert-butyl ether	ug/L	ND	100	100	109	107	109	107	63-130	2	20
Methylene Chloride	ug/L	ND	50	50	50.6	51.3	101	103	45-156	1	20
n-Butylbenzene	ug/L	ND	50	50	53.3	50.0	105	98	10-161	6	20
n-Hexane	ug/L	ND	50	50	48.9	48.0	98	96	33-144	2	20 N2
n-Propylbenzene	ug/L	ND	50	50	55.6	53.4	108	103	16-150	4	20
Naphthalene	ug/L	ND	50	50	50.8	49.3	102	99	39-140	3	20
p-Isopropyltoluene	ug/L	ND	50	50	54.9	53.4	109	106	10-163	3	20
sec-Butylbenzene	ug/L	ND	50	50	58.7	58.0	113	112	10-160	1	20
Styrene	ug/L	ND	50	50	53.9	52.8	108	106	36-139	2	20
tert-Butylbenzene	ug/L	ND	50	50	52.1	51.4	104	103	12-134	1	20
Tetrachloroethene	ug/L	8.2	50	50	58.8	57.5	101	99	33-151	2	20
Toluene	ug/L	ND	50	50	52.0	51.3	104	103	50-132	1	20
trans-1,2-Dichloroethene	ug/L	ND	50	50	56.4	53.5	113	107	40-153	5	20
trans-1,3-Dichloropropene	ug/L	ND	50	50	45.4	44.2	91	88	48-122	3	20
trans-1,4-Dichloro-2-butene	ug/L	ND	200	200	186	182	93	91	32-139	2	20
Trichloroethene	ug/L	ND	50	50	55.7	53.7	107	103	50-143	4	20
Trichlorofluoromethane	ug/L	ND	50	50	58.3	59.4	117	119	60-175	2	20
Vinyl acetate	ug/L	ND	200	200	144	142	72	71	70-130	2	20
Vinyl chloride	ug/L	ND	50	50	40.5	39.8	81	80	44-145	2	20
Xylene (Total)	ug/L	ND	150	150	160	156	106	104	29-145	2	20
4-Bromofluorobenzene (S)	%						102	101	80-114		
Dibromofluoromethane (S)	%						103	101	79-116		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Frm Bulk Shell

Pace Project No.: 5081645

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 928711												928712	
Parameter	Units	5081645009 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual	
			Spike Conc.	Spike Conc.						RPD	RPD		
Toluene-d8 (S)	%						102	102	81-110				

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QUALITY CONTROL DATA

Project: Frm Bulk Shell
Pace Project No.: 5081645

QC Batch: OEXT/33001 Analysis Method: EPA 8270 by SIM LVE
QC Batch Method: EPA 3510 Analysis Description: 8270 Water PAH LV by SIM MSSV
Associated Lab Samples: 5081645001, 5081645002, 5081645003, 5081645004, 5081645005, 5081645006, 5081645007, 5081645008, 5081645009, 5081645010, 5081645011, 5081645012

METHOD BLANK: 928966 Matrix: Water
Associated Lab Samples: 5081645001, 5081645002, 5081645003, 5081645004, 5081645005, 5081645006, 5081645007, 5081645008, 5081645009, 5081645010, 5081645011, 5081645012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	1.0	06/11/13 01:51	N2
2-Methylnaphthalene	ug/L	ND	1.0	06/11/13 01:51	
Acenaphthene	ug/L	ND	1.0	06/11/13 01:51	
Acenaphthylene	ug/L	ND	1.0	06/11/13 01:51	
Anthracene	ug/L	ND	0.10	06/11/13 01:51	
Benzo(a)anthracene	ug/L	ND	0.10	06/11/13 01:51	
Benzo(a)pyrene	ug/L	ND	0.10	06/11/13 01:51	
Benzo(b)fluoranthene	ug/L	ND	0.10	06/11/13 01:51	
Benzo(g,h,i)perylene	ug/L	ND	0.10	06/11/13 01:51	
Benzo(k)fluoranthene	ug/L	ND	0.10	06/11/13 01:51	
Chrysene	ug/L	ND	0.50	06/11/13 01:51	
Dibenz(a,h)anthracene	ug/L	ND	0.10	06/11/13 01:51	
Fluoranthene	ug/L	ND	1.0	06/11/13 01:51	
Fluorene	ug/L	ND	1.0	06/11/13 01:51	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.10	06/11/13 01:51	
Naphthalene	ug/L	ND	1.0	06/11/13 01:51	
Phenanthrene	ug/L	ND	1.0	06/11/13 01:51	
Pyrene	ug/L	ND	1.0	06/11/13 01:51	
2-Fluorobiphenyl (S)	%	53	21-114	06/11/13 01:51	
p-Terphenyl-d14 (S)	%	74	25-131	06/11/13 01:51	

LABORATORY CONTROL SAMPLE: 928967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/L	10	5.1	51	29-112	N2
2-Methylnaphthalene	ug/L	10	4.9	49	29-110	
Acenaphthene	ug/L	10	6.0	60	39-117	
Acenaphthylene	ug/L	10	6.4	64	40-120	
Anthracene	ug/L	10	7.4	74	48-126	
Benzo(a)anthracene	ug/L	10	8.0	80	51-134	
Benzo(a)pyrene	ug/L	10	7.6	76	48-141	
Benzo(b)fluoranthene	ug/L	10	7.7	77	49-139	
Benzo(g,h,i)perylene	ug/L	10	7.2	72	44-134	
Benzo(k)fluoranthene	ug/L	10	7.9	79	48-140	
Chrysene	ug/L	10	8.1	81	53-136	
Dibenz(a,h)anthracene	ug/L	10	7.2	72	44-132	
Fluoranthene	ug/L	10	7.7	77	50-135	
Fluorene	ug/L	10	6.6	66	44-124	
Indeno(1,2,3-cd)pyrene	ug/L	10	7.2	72	45-132	
Naphthalene	ug/L	10	5.2	52	30-112	

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QUALITY CONTROL DATA

Project: Frm Bulk Shell
Pace Project No.: 5081645

LABORATORY CONTROL SAMPLE: 928967

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/L	10	7.3	73	47-128	
Pyrene	ug/L	10	7.8	78	50-134	
2-Fluorobiphenyl (S)	%			53	21-114	
p-Terphenyl-d14 (S)	%			76	25-131	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 928968 928969

Parameter	Units	5081645009		MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.								
1-Methylnaphthalene	ug/L	ND	10	10	10	5.3	5.7	53	57	10-135	7	20	N2
2-Methylnaphthalene	ug/L	ND	10	10	10	5.2	5.5	52	55	16-116	6	20	
Acenaphthene	ug/L	ND	10	10	10	5.9	6.5	59	65	28-116	10	20	
Acenaphthylene	ug/L	ND	10	10	10	6.2	6.9	62	69	34-115	10	20	
Anthracene	ug/L	ND	10	10	10	7.0	7.5	70	75	39-121	8	20	
Benzo(a)anthracene	ug/L	ND	10	10	10	5.8	7.2	58	72	31-127	21	20	R1
Benzo(a)pyrene	ug/L	ND	10	10	10	3.1	5.4	31	54	10-121	52	20	R1
Benzo(b)fluoranthene	ug/L	ND	10	10	10	3.4	5.7	34	57	10-119	50	20	R1
Benzo(g,h,i)perylene	ug/L	ND	10	10	10	2.3	3.8	23	38	10-108	49	20	R1
Benzo(k)fluoranthene	ug/L	ND	10	10	10	3.4	5.6	34	56	10-118	50	20	R1
Chrysene	ug/L	ND	10	10	10	5.8	7.0	58	70	32-127	20	20	
Dibenz(a,h)anthracene	ug/L	ND	10	10	10	2.4	3.9	24	39	10-104	45	20	R1
Fluoranthene	ug/L	ND	10	10	10	7.2	7.7	72	77	38-131	7	20	
Fluorene	ug/L	ND	10	10	10	6.5	7.2	65	72	33-121	11	20	
Indeno(1,2,3-cd)pyrene	ug/L	ND	10	10	10	2.4	3.9	24	39	10-108	47	20	R1
Naphthalene	ug/L	ND	10	10	10	5.5	5.9	55	59	16-119	7	20	
Phenanthrene	ug/L	ND	10	10	10	7.0	7.6	69	76	32-130	10	20	
Pyrene	ug/L	ND	10	10	10	7.3	7.7	73	77	39-131	6	20	
2-Fluorobiphenyl (S)	%							56	62	21-114		20	
p-Terphenyl-d14 (S)	%							52	58	25-131		20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 928970 928971

Parameter	Units	5081674008		MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.								
1-Methylnaphthalene	ug/L	ND	10.9	10.9	10.5	5.3	5.2	48	49	10-135	1	20	N2
2-Methylnaphthalene	ug/L	ND	10.9	10.9	10.5	5.1	5.0	47	48	16-116	1	20	
Acenaphthene	ug/L	ND	10.9	10.9	10.5	6.0	6.0	55	57	28-116	0	20	
Acenaphthylene	ug/L	ND	10.9	10.9	10.5	6.2	6.2	57	59	34-115	0	20	
Anthracene	ug/L	ND	10.9	10.9	10.5	6.8	6.8	63	65	39-121	0	20	
Benzo(a)anthracene	ug/L	ND	10.9	10.9	10.5	6.3	6.2	58	59	31-127	1	20	
Benzo(a)pyrene	ug/L	ND	10.9	10.9	10.5	4.2	4.1	38	39	10-121	0	20	
Benzo(b)fluoranthene	ug/L	ND	10.9	10.9	10.5	4.5	4.5	41	43	10-119	0	20	
Benzo(g,h,i)perylene	ug/L	ND	10.9	10.9	10.5	2.9	3.0	27	29	10-108	4	20	
Benzo(k)fluoranthene	ug/L	ND	10.9	10.9	10.5	4.4	4.3	40	41	10-118	1	20	
Chrysene	ug/L	ND	10.9	10.9	10.5	6.2	6.2	57	59	32-127	0	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Frm Bulk Shell

Pace Project No.: 5081645

Parameter	Units	5081674008		928970		928971		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
Dibenz(a,h)anthracene	ug/L	ND	10.9	10.5	3.0	3.1	27	30	10-104	6	20			
Fluoranthene	ug/L	ND	10.9	10.5	7.0	6.9	64	65	38-131	1	20			
Fluorene	ug/L	ND	10.9	10.5	6.4	6.4	59	61	33-121	1	20			
Indeno(1,2,3-cd)pyrene	ug/L	ND	10.9	10.5	3.0	3.1	28	29	10-108	3	20			
Naphthalene	ug/L	ND	10.9	10.5	5.3	5.3	49	50	16-119	1	20			
Phenanthrene	ug/L	ND	10.9	10.5	7.0	6.9	64	66	32-130	1	20			
Pyrene	ug/L	ND	10.9	10.5	7.0	7.0	65	66	39-131	1	20			
2-Fluorobiphenyl (S)	%						51	55	21-114		20			
p-Terphenyl-d14 (S)	%						49	51	25-131		20			

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Frm Bulk Shell
Pace Project No.: 5081645

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

ANALYTE QUALIFIERS

N2 The lab does not hold TNI accreditation for this parameter.

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Frm Bulk Shell
Pace Project No.: 5081645

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
5081645001	SBT-GW-MW-3	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645002	SBT-GW-MW-7	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645003	SBT-GW-MW-2A	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645004	SBT-GW-MW-2	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645005	SBT-GW-MW-1A	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645006	SBT-GW-MW-1	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645007	SBT-GW-FD-1	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645008	SBT-GW-MW-4	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645009	SBT-GW-MW-101	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645010	SBT-GW-MW-102	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645011	SBT-GW-MW-103	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645012	SBT-GW-MW-104	EPA 3510	OEXT/33001	EPA 8270 by SIM LVE	MSSV/12725
5081645001	SBT-GW-MW-3	EPA 8260	MSV/54057		
5081645002	SBT-GW-MW-7	EPA 8260	MSV/54057		
5081645003	SBT-GW-MW-2A	EPA 8260	MSV/54057		
5081645004	SBT-GW-MW-2	EPA 8260	MSV/54057		
5081645005	SBT-GW-MW-1A	EPA 8260	MSV/54057		
5081645006	SBT-GW-MW-1	EPA 8260	MSV/54057		
5081645007	SBT-GW-FD-1	EPA 8260	MSV/54057		
5081645008	SBT-GW-MW-4	EPA 8260	MSV/54057		
5081645009	SBT-GW-MW-101	EPA 8260	MSV/54057		
5081645010	SBT-GW-MW-102	EPA 8260	MSV/54057		
5081645011	SBT-GW-MW-103	EPA 8260	MSV/54057		
5081645012	SBT-GW-MW-104	EPA 8260	MSV/54057		
5081645013	TRIP BLANK	EPA 8260	MSV/54057		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: Heartland Env.	Report To: Nivas Vijay	Company Name:	Attention:	Invoice No.: 1469632	Page: 1 of 2
Address: 340 Milwaukee Ave.	Copy To:	Address:	Company Name:	REGULATORY AGENCY	
South Bend, IN 46615	Purchase Order No.:	NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/>	RCRA <input type="checkbox"/> UST <input type="checkbox"/>	OTHER <input type="checkbox"/>	
Email To:	Project Name:	Site Location:	STATE:		
Phone:	Requested Due Date/TAT: 3 Day				
Fax:					
Requested Due Date/TAT: 3 Day					

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives	Analysis Test ↑ Y/N ↓	Requested Analysis Filtered (Y/N)	Temp In °C	Received on	Sealed Cooler (Y/N)	Custody (Y/N)	Samples Intact (Y/N)	
			COMPOSITE START	COMPOSITE END/GRAB												
1	SBT-GW-MW-3	Drinking Water DW	DATE: 6-5-13	TIME: 13:20			Unpreserved		X							
2	SBT-GW-MW-7	Water WT	DATE: 6-5-13	TIME: 16:15			HCl		X							
3	SBT-GW-MW-2A	Waste Water WW	DATE: 6-5-13	TIME: 18:00			HNO ₃		X							
4	SBT-GW-MW-2	Product P	DATE: 6-6-13	TIME: 09:10			H ₂ SO ₄		X							
5	SBT-GW-MW-1A	Soil/Solid SL	DATE: 6-6-13	TIME: 10:40			HNO ₃		X							
6	SBT-GW-MW-1	Oil OL	DATE: 6-6-13	TIME: 12:15			NaOH		X							
7	SBT-GW-FD-1	Wipe WP	DATE: 6-6-13	TIME: 12:20			Na ₂ O ₃		X							
8	SBT-GW-MW-4	Air AR	DATE: 6-6-13	TIME: 14:40			Other		X							
9	SBT-GW-MW-101	Tissue TS	DATE: 6-6-13	TIME: 16:40					X							
10	SBT-GW-MW-101 MS	Other OT	DATE: 6-6-13	TIME: 16:40					X							
11	SBT-GW-MW-101 MSD		DATE: 6-6-13	TIME: 16:40					X							
12	SBT-GW-MW-102		DATE: 6-6-13	TIME: 18:25					X							

RELINQUISHED BY / AFFILIATION		ACCEPTED BY / AFFILIATION		SAMPLE CONDITIONS	
DATE: 6-7-13	TIME: 11:45	DATE: 6-7-13	TIME: 11:45	Temp In °C: 12.0°C	Received on: Y
ADDITIONAL COMMENTS		SIGNATURE OF SAMPLER: <i>David Dye</i>		Sealed Cooler (Y/N): N	
DATE: 6-7-13		SIGNATURE OF SAMPLER: <i>David Dye</i>		Custody (Y/N): N	
TIME: 11:45		DATE SIGNED (MM/DD/YY): 6-7-13		Samples Intact (Y/N): Y	

ORIGINAL

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: <i>Heartland</i>	Report To: <i>Nivas Vijay</i>	Attention:	Company Name:	Page: <i>2</i> of <i>2</i>	1469634
Address: <i>310 Msharaka Ave</i>	Copy To:	Address:	REGULATORY AGENCY		
<i>So. Blvd. IN 46185</i>	Purchase Order No.:	Reference:	<input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER		
Email To:	Project Name:	Pace Project Manager:	<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER		
Phone:	Project Number:	Pace Profile #:	Site Location		
Fax:			STATE:		
Requested Due Date/TAT: <i>3 Day</i>					

ITEM #	Section D Required Client Information	Matrix Codes MATRIX J CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives						Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
			COMPOSITE START	COMPOSITE END/GRAB				DATE	TIME	DATE	TIME	DATE	TIME			
1	<i>SBT-GW-MW-103</i>	Drinking Water					5	Unpreserved								
2	<i>SBT-GW-MW-104</i>	Waste Water					5	H ₂ SO ₄								
3	<i>Trip blank</i>	Water					2	HNO ₃								
4		Wastes Water						HCl								
5		Product						NaOH								
6		Oil						Na ₂ S ₂ O ₃								
7		Soil/Solid						Other								
8		Wipe														
9		Air														
10		Tissue														
11		Other														
12																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	Temp In °C	Received on	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	<i>David Ego Heartland</i>	<i>6-7-13</i>	<i>11:45</i>	<i>cy f</i>	<i>6-7-13</i>	<i>1145</i>		<i>102.00</i>	<i>y</i>	<i>n</i>	<i>y</i>

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: *David Ego*
 SIGNATURE of SAMPLER: *David Ego*
 DATE Signed (MM/DD/YYYY): *6-7-13*

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.
 F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Face Analytical

Client Name: Heartland Env

Project # 5081645

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Date/Time 5035A kits placed in freezer

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 1 2 3 4 6 A B C D E Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 1.2°C, 0.6°C Ice Visible in Sample Containers: yes no

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: CP 6-7-13

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	5.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6. <u>3 Day</u>
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
-Includes date/time/ID/Analysis		
All containers needing acid/base pres have been checked?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	9. (Circle) HNO3 H2SO4 NaOH HCl
exceptions: VOA, coliform, TOC, G&G		
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	10.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Project Manager Review		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Correct Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14.

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

[Signature]

Date: 6/7/13

Sample Container Count

CLIENT: Heartland Env



COC PAGE 1 of 2
 COC ID# 1469632

Project # 9081645

Sample Line Item	DG9H	AG1U	WG9U	AG0U	R	4/6	BP2N	BP2U	BP2S	BP3N	BP3U	BP3S	AG3S	AG1H	VG9H	Comments
1	2															
2	1															
3	1															
4	1															
5	1															
6	1															
7	1															
8	1															
9	8															
10	2															
11	1															
12	1															

Container Codes	DG9H	40mL HCL	amber vial	AG0U	100mL	unpreserved	amber glass	BP1N	1 liter	HNO3	plastic	DG9P	40mL	TSP	amber vial
AG1U	1 liter	unpreserved	amber glass	AG1H	1 liter	HCL	amber glass	BP1S	1 liter	H2SO4	plastic	DG9S	40mL	H2SO4	amber vial
WG9U	4oz	clear	soil jar	AG1S	1 liter	H2SO4	amber glass	BP1U	1 liter	unpreserved	plastic	DG9T	40mL	Na Thio	amber vial
R	terra	core	kit	AG1T	1 liter	Na Thiosulfate	amber gl	BP1Z	1 liter	NaOH, Zn, Ac		DG9U	40mL	unpreserved	amber vial
BP2N	500mL	HNO3	plastic	AG2N	500mL	HNO3	amber glass	BP2A	500mL	NaOH, Asc	Acid plastic		Wipe/Swab		
BP2U	500mL	unpreserved	plastic	AG2S	500mL	H2SO4	amber glass	BP2O	500mL	NaOH	plastic	JGFU	4oz	unpreserved	amber wide
BP2S	500mL	H2SO4	plastic	AG2U	500mL	unpreserved	amber gla	BP2Z	500mL	NaOH, Zn	Ac		Summa	Can	
BP3N	250mL	HNO3	plastic	AG3U	250mL	unpreserved	amber gla	AF	Air	Filter		VG9H	40mL	HCL	clear vial
BP3U	250mL	unpreserved	plastic	BG1H	1 liter	HCL	clear glass	BP3C	250mL	NaOH	plastic	VG9T	40mL	Na Thio.	clear vial
BP3S	250mL	H2SO4	plastic	BG1S	1 liter	H2SO4	clear glass	BP3Z	250mL	NaOH, Zn	Ac plastic	VG9U	40mL	unpreserved	clear vial
AG3S	250mL	H2SO4	glass	BG1T	1 liter	Na Thiosulfate	clear gla	C	Air	Cassettes		VSG	Headspace	septa vial & HCL	
AG1S	1 liter	H2SO4	amber glass	BG1U	1 liter	unpreserved	glass	DG9B	40mL	Na Bisulfate	amber vial	WGFX	4oz	wide jar	w/hexane wipe
BP1U	1 liter	unpreserved	plastic	BP1A	1 liter	NaOH, Asc	Acid plastic	DG9M	40mL	MeOH	clear vial	ZPLC	Ziploc	Bag	

APPENDIX E
ABSMaterials, Inc. OSorb Documentation



In Situ: Injection Osorb™

Swelling Glass Materials and Devices for the 21st Century

Osorb is engineered to rapidly swell and absorb "O"rganic molecules:

- Natural Oils
- Natural Gas
- Acetone
- Liquid Fuels
- Pharmaceuticals
- Chlorinated Solvents
- Pesticides
- Atrazine
- BTEX compounds
- MTBE
- Trichloroethylene
- Perchloroethylene
- Alcohols



Osorb Glass Products:

Osorb™

Iron-Osorb™

Iron-Osorb TCE+™

IronMax-Osorb™

Tracer-Osorb™

Contaminants can then be recaptured with heat and Osorb can be reused.

Osorb does not react to water.

Carries up to 8 times own weight in VOCs.

Fast recovery of organic materials.

In situ injection to destroy plumes.
(TCE, PCE, MTBE and other VOCs)

Winner: MIT Clean Energy Prize 2009
(For Innovation in Cleaning Hydrocarbons)

Winner: NorTech Innovation of Year 2009
(Advanced Materials)



Iron-Osorb Injection TCE Plume July 2009.



Osorb™

Captures volatile organic molecules: Solvents, BTEX, Biofuels, Organic Acids, Drug Compounds, Insecticides and Herbicides. Osorb can be restored with simple heating.

Iron-Osorb TCE+™

Adds nano-palladium and other rare metals to Iron-Osorb increasing the sensitivity to low concentrations. Effectively destroys concentrations from up to 3,000+ppb to sub 5ppb.

Iron-Osorb™

Embedded with Iron to capture and destroys VOCs underground. Can continue to destroy incoming material from plumes for many months, or in some cases years.

IronMax-Osorb™

"Heavy Armor" Osorb. It will quickly destroy several times its own weight in chlorinates. Effective DNAPL treatment tool, or as a "surge protection" material against potential highly concentrated pulses.



ABS Materials has the expertise to manufacture and mill Osorb glass and developed carrier fluids for most soils, fractured hard rock, or preference-path solutions.



Speciality Osorbs

Tracer-Osorb: UV laced for illumination
Acid-Osorb: Acidic bonding capacity
X-Osorb: Explosives bonding capacity
Remains in situ: Injection of Iron-Osorb and Iron-Osorb TCE+ is meant to leave a permanent soft barrier agent in situ. The glass is capable of lasting many years.

VOC-EATER™: ABS also has ex situ solutions for toxic waters up to 40gpm, and soon over 100gpm.

Industrial Recovery: Osorb can be used for a variety of continuous recovery processes including fuels recovery, biofuel separations, organic acid recovery, or other industrial VOC capture.

Entombment: Pure Osorb mixed with in situ concrete or other slurries can serve as a capture mechanism for long term entombment of targeted species.

Osorb is a glass. It has no reaction to water, metals, salts, large organic materials, and functions at up to 180°C and in all pH < 10. ABS Materials will work with clients to determine if the engineered solution needed is suited to Osorb glass materials.

Osorb[®] glass materials for advanced water treatment

YSU Sustainable Energy Forum

June 5, 2012



Stephen Spoonamore, CEO

www.absmaterials.com

330-234-7661

A platform technology for: **Molecule capture, Catalytic scaffolding, Remediation**



What is it?

- Organosilica created via modified sol-gel process
- **Cleans up 1000s of environmental toxins**
- Swells up to 9x dry weight to capture organics (repels water)
- Swelling is mechanical, not chemical (regenerative)

Osorb[®] effectiveness



Chlorinated Solvents	Osorb Absorption	Metal Osorb Reduction	Drugs/Pesticides	Osorb Absorption
trichloroethylene (TCE)	***	Yes	atrazine	***
perchloroethylene (PCE)	***	Yes	triclosan	***
dichloroethylene (DCE)	**	Yes	fluoxetine (prozac)	***
vinyl chloride (VC)	**	Yes	ibuprofen	**
trichloromethane (Chloroform)	**	Yes	diphenhydramene (benadryl)	**
carbon tetrachloride	**	Yes	estradiol (birth control)	***
dichloromethane	**	No	imiprazine (antidepressant)	***

Aromatic Compounds	Osorb Absorption	Metal Osorb Reduction	Alcohols	Osorb Absorption
toluene	***	No	methanol	*
naphthalene	***	No	ethanol	*
phenol	**	No	butanol	**
benzene	***	No	hexanol	***
ethylbenzene	***	No		
nitrobenzene	***	No		
trinitrotoluene	***	Yes		
chlorobenzene	***	Yes		
phthalate esters	***	No		
PCBs (poly chlorinated benzenes)	***	Yes		
bisphenol A	**	No		

Osorb Absorption

*** >99%

** >75%

* >30%

Osorb[®] for water remediation



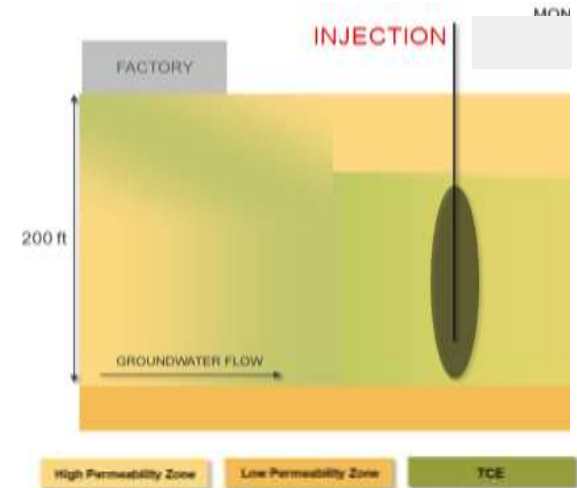
Best in Class & top-LEED scoring water solutions



Pump-and-treat VOCEater[™]



Rain Garden Soil Amendments



Underground Injections



Downwell VOC Socks[®]



Produced Water Units (PWAbsorbents, Inc.)