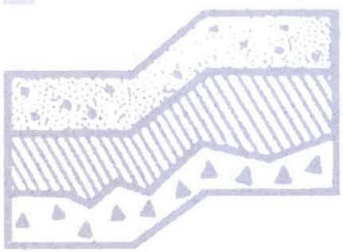
Environmental Services
Remedial Investigation/
Feasibility Study/Remedial Action Summary

SBMC West
2360 West Commodore Way
Seattle, Washington
VCP NW2643

Project No. T-6751



Terra Associates, Inc.

Prepared for:

SBMC West, LLC
Seattle, Washington

July 2, 2013

TERRA ASSOCIATES, Inc.

Consultants in Geotechnical Engineering, Geology
and
Environmental Earth Sciences

July 2, 2013
Project No. T-6751

Mr. Brooke Stabbert
SBMC West, LLC
2284 West Commodore Way, Suite 100
Seattle, Washington 98199

Subject: Environmental Services
Remedial Investigation/Feasibility Study/Remedial Action Summary
SBMC West
2360 West Commodore Way
Seattle, Washington
VCP NW2643

Dear Mr. Stabbert:

This report documents our observations and the results of analytical testing of representative soil samples on the subject site. We provided environmental services on this project starting on July 19, 2012. Our services included reviewing existing reports for the project, monitoring four remedial excavations, providing supplemental environmental consulting services, supplemental site exploration and groundwater sampling, and the preparation of this report summarizing the data collected in 2012.

The attached report describes our study in detail. We trust the information presented is sufficient for your current needs. If you have any questions or require additional information, please call.

Sincerely yours,
TERRA ASSOCIATES, INC.

Charles R. Lie, L.E.G., L.H.G.
Project Manager

cc: Mr. Eugene Freeman, WDOE NWRO

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Environmental Services
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1.0 INTRODUCTION

This report presents a summary of our environmental services at SBMC West during the summer and fall of 2012. The SBMC West site has been accepted into the voluntary cleanup program and is listed under the prior name of ER and JR Sutter. The voluntary cleanup number for the site is NW2643. The site was formerly a boat yard and has both an upland component as well as docks that extend out into Salmon Bay, a freshwater body that connects Lake Union and Puget Sound. The upland portion of the site is currently in use for maritime related commercial businesses and a printing business. The shoreline portion of the site is used for the display and moorage of pleasure boats.

Site Name: SBMC West (formerly ER and JR Sutter)
Site Address: 2460 West Commodore Way
Seattle Washington 98199
Tax Parcel: 2771605300

Owner: SBMC West, LLC
2284 West Commodore Way, Suite 100
Seattle, Washington 98199
Mr. Brooke Stabbert, (206) 963-9057

Consultant: Terra Associates, Inc.
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Kirkland, Washington 98034
Mr. Charles R. Lie, L.E.G., L.H.G., (425) 821-7777

This report addresses only the upland portion of the project site. The site is located along the Salmon Bay water way. Sediments are not addressed in this report.

A Phase I ESA and a Phase II ESA for the site was prepared by Environmental Associates, Inc. The prior Phase II ESA report identified three areas of concern with confirmed soil contamination. The prior Phase II ESA covered a broad range of contaminants of concern to address the existing Ecology database entry for the site that showed a wide variety of synthetic compounds as being present.

The areas of concern (AOCs) are summarized below.

AOC 1 – Gasoline and Heating Oil UST

This area is along the south side of the northern building. EAI identified a gasoline UST through anecdotal information. Elevated benzene was encountered in the soils and groundwater in Boring B-9 located adjacent to the suspected gasoline UST area. A vent line was present at the location of the former heating oil UST.

With the exception of the soils in B-9, the remedial excavations at AOC 1 removed the soils with the elevated hydrocarbons and benzene.

AOC 2 – Former Crane Foundation Area

A boring at the location of a former crane foundation had slightly elevated hydrocarbons. No USTs were identified as being present at this location.

The remedial excavation at this location removed the soils with the elevated PAHs and hydrocarbons.

AOC 3 – Local Area of Polycyclic Aromatic Hydrocarbons (PAH) Contamination

This area is a concrete apron near the northeast corner of the site adjacent to Salmon Bay. Two borings at this location had slightly elevated PAHs present in near-surface soil samples. No USTs were identified as being present at this location.

The remedial excavation at this location removed the soils with the elevated PAHs and hydrocarbons.

Arsenic and Pesticides

In addition, slightly elevated arsenic was found in three of the temporary wells and the herbicide MCPP was found in two of the temporary wells drilled for the Phase II ESA. Resampling found no MCPPP in the two monitoring wells built at the location of the prior temporary wells.

Slightly elevated arsenic is present in one of the existing monitoring wells. The arsenic is believed to be naturally occurring. Groundwater monitoring has shown that the site groundwater is anoxic, this is a condition that allows naturally occurring arsenic to go into solution.

Remedial Action

As discussed in this report, the areas with the documented soils that exceeded the MTCA Method A cleanup level were excavated and removed from the site. The petroleum contaminated soils (PCS) was removed from the site and routed to the municipal waste stream of Republic Services. Confirmation samples showed that the sidewalls and bases of the excavations met MTCA Method A cleanup levels. One sample with a slightly elevated level of benzene was left in place to avoid undermining the foundation of an existing building. The testing at each AOC is discussed in more detail in the body of this report.

Scope of Work

Our scope of our work for this project included:

- Review of the Ecology file for the project site.
- Review of a Phase I Environmental Assessment (ESA), prepared by Environmental Associates, Inc., dated July 18, 2006.
- Review of a report entitled Subsurface Sampling and Testing, prepared by Environmental Associates, Inc., dated July 17, 2006.
- Observation and field screening of soils during remedial excavation at three areas of concern.
- Collection of representative samples from remedial excavations and stockpiles on-site for analytical testing.
- Assistance in the off-site disposal of the excavated PCS.
- The drilling of six new borings and construction of monitoring wells in each boring.
- Sampling of groundwater from each monitoring well.
- Preparation of this report.

The following sections of this report detail our site observations and the results of analytical testing.

2.0 SITE DESCRIPTION

2.1 Surface

The site is located at 2360 West Commodore Way in Seattle, Washington. The site location is shown on Figures 1 and 2. Figure 3 is an ALTA map prepared for the site that serves as an index location map and shows the locations of the explorations and Areas of Concern AOC 1, AOC 2, and AOC 3.

In general, the site has a gentle slope down towards the north. Overall relief across the site is about ten feet. The site is developed with two buildings. The building along the southern margin of the site is an office building built in 1965. The office building has two stories and includes a warehouse area used by a printing company for printing. The office building has a footprint of 6,000 square feet.

The northern building was built in 1950 and is in use as workshop space for several businesses. There are several additions to this building. A boat upholstery business, a paddle board manufacturer, and a boat maintenance company occupy spaces within the northern building. There is also a small mezzanine area that has an apartment. The northern building has a footprint of about 6,500 square feet.

The northern margin of the site is a concrete wall that is a bulkhead that separates the upland portion of the site from Salmon Bay. The portion of the site that extends out beneath Salmon Bay is in use for the moorage of yachts.

No boatyard activity occurs on the site at this time. No boatyard activities are planned to occur on-site.

The upland portion of the site is completely covered with impervious surfaces consisting of either roofs or paved surfaces. There are no USTs known to exist on-site at this time. There are no ASTs on-site for the storage of fuel. No boat fueling occurs on-site. The site is served by municipal sewers.

The adjacent land uses are summarized below:

North	Boat moorage and Salmon Bay
East	Commercial and retail buildings
West	Commercial and retail buildings
South	Commercial and retail buildings

2.2 Subsurface

Subsurface conditions at the site consist of glacially derived sediments. Soil conditions have been explored and documented by EAI through their direct push explorations and temporary borings and by Terra Associates, Inc. through direct observations of excavations and supplemental explorations. In AOC 1, we observed that dense native soils were within a foot of existing grades. The native soils consisted of silty fine sand. A pocket of fill was encountered in the southwest corner of the large excavation for AOC 1. The heating oil UST cavity was found to consist of an excavation into the dense native silts. The fill in the heating oil UST cavity and in the presumed gasoline UST cavity consisted of miscellaneous materials including wood debris, asphalt debris, and in the case of the heating oil UST cavity, a material that appeared to be a cemented slag.

In AOC 2 and 3, the ground surface was found to be underlain by fill soils that extended down to a depth of three to four feet. Beneath the fill soils, the excavations encountered the same dense native soils observed in AOC 1.

2.3 Geology

The site is located in a glacial drift upland area. The Geologic Map of Northwest Seattle, 2005, by Booth D. B et al, shows the site as being underlain by map unit Qpf, pre-Fraser deposits. The deposits consist of sands, silts, and gravels.

2.4 Groundwater

Groundwater is present beneath the site at a depth of three to six feet below existing grade. Static water levels that have been measured on-site are presented in Table 1. Table 1 follows the text of this report. The static water level will vary with the seasons. The level of Salmon Bay, the discharge point of the groundwater, is regulated by the Army Corps of Engineers at the nearby locks. The level of the lake is lowered by about one-foot each winter to reduce storm damage on waterfront properties. The static water level will vary with the seasons based upon the precipitation and the level of Salmon Bay.

The seepage in AOC 1 was found to enter the excavation from the base of the excavation below about ten feet. The seepage in AOC 2 and 3 was within the fill along the top of the dense native soils.

The monitoring wells have not been surveyed. Using elevations extrapolated from the site survey, the approximately gradient of the groundwater is 0.01 feet per foot towards the north. Based on the grain size of the sediments, groundwater movement through the site will be slow.

3.0 PRIOR REPORTS

3.1 Environmental Associates Inc. Phase I ESA, dated July 17, 2006

This report includes the common elements of a Phase I ESA as outlined by ASTM E 1524-05. The report covers both the upland the aquatic portions of the site. The report concludes that there are the following recognized environmental conditions:

1. The historic presence of two USTs and at least one fuel dispensing pump island which were noted near the southwest corner of the 1950 vintage warehouse building.
2. The historic storage of heating oil in an UST located adjacent to the south of the 1950 vintage warehouse building.
3. Potential risk for adverse environmental impacts to soil, groundwater, surface water, and sediments at the property relating the apparent long-term improper handling, storage, and disposal of hazardous materials at the property.
4. Unknown/unassessed location and condition of a 500-gallon UST which was reportedly decommissioned on the property adjacent to the west of the subject property.
5. Potential impacts to the sediments on the property from sandblasting grit generated on the adjacent Marco facility.

3.2 Environmental Associates, Inc. Report, dated March 28, 2008

This report includes the results of site exploration and analysis of soils and groundwater samples based on the RECs listed in 4.1 and the Ecology database at the time of the explorations. The report covers both the upland the aquatic portions of the site. The report concludes with the following issues.

1. Abandoned UST/benzene in soil and groundwater in vicinity of B-9.
2. Lube oil, diesel, and/or PAHs in soils and/or groundwater in B-7, B-11, B-12, and B-14.
3. MCPP (Chlorinated Acid Herbicide) in groundwater in B-5 and B-6.
4. Dissolved arsenic in groundwater in B-9, B-10, and B-12.

3.3 Ecology Confirmed and Contaminated Sites List/Ecology Project File

We printed a CSCSL site summary for ER and JR Sutter, the prior name for the site, on September 9, 2012. The following chart shows the site summary that was established in 1990.

Contaminant	Media					
	Groundwater	Surface Water	Soil	Sediment	Air	Bedrock
Conventional Contaminants, Inorganic	C	C	C	C	C	
Conventional contaminants, organic	C	C	C	C	C	
Halogenated organics	C	C	C	C	C	
Metals other	C	C	C	C	C	
Metals priority pollutants	C	C	C	C	C	
Non-halogenated\solvents	C	C	C	C	C	
Pesticides Unspecified	S	S	S	S	S	
Petroleum products unspecified	C	C	C	C	C	
Tributlytin				C		

The "C" entry indicates that the contaminant and impacted media has been confirmed through testing. The "S" entry indicates that the contaminant is suspected to have impacted the individual media listed.

On October 10, 2012, Terra Associates, Inc. reviewed the file at the Northwest Regional Office of the Washington State Department of Ecology. The file contains no prior site assessment reports that list actual on-site soil, groundwater, or sediment testing. Most of the file is documentation of site visits related to past boatyard activities on-site and what appear to be poor site management practices by a former tenant, Anderson Marine Repair. The boatyard activities on-site are listed as ending in August of 2003.

A Site Hazard Assessment worksheet completed for the project address lists the media and contaminants presented above and give the site a Washington Ranking Method (WARM) priority 1 ranking. A memo from Debbie Lunt of Ecology dated October 12, 1990 reports "The files for this site do not include any data on sediments, soil, groundwater, or air. It appears that the site was ranked purely on the basis of potential contamination." A subsequent memo dated February 28, 1991 by Mike Spencer of Ecology requests for a rescoring of the site. There were no follow up memos that indicate the site was revisited to rescore or verify the database entries.

There is no subsequent sampling of site soils or groundwater to verify the contaminants listed above. There are no subsequent memos re-ranking the site or supporting the original summary of the site presented above and the ranking methodology used to reach a WARM of 1.

The August 29, 2012 Hazardous Site List shows the ER and JR Sutter site as having a WARM ranking of 1.

4.0 EXPOSURE ROUTE ANALYSIS-EXISTING CONDITIONS

4.1 Terrestrial Ecological Evaluation

The site located immediately adjacent to a water body. No undeveloped land is present within a 500-foot radius. Thus as allowed in WAC 173-340-7491 (1)(c) (i) the site is excluded from a terrestrial ecological evaluation. The impacts to surface water are discussed later in the groundwater element of the site.

4.2 Direct Contact

Direct Contact was the most likely exposure route for soils.

4.3 Vapor Pathway

The chemical of greatest concern with gasoline is benzene. As shown in the data collected on-site, there may have been a risk of benzene vapor intrusion into the older 1950 era building on-site. The fine grained soils that underlie the site will decrease the potential for vapor intrusion.

4.4 Groundwater

The groundwater pathway did not include any drinking water resources. The groundwater beneath the site discharges to Salmon Bay. Salmon Bay is not considered a potential drinking water resource. Salmon Bay is part of the Lake Union body of water.

5.0 CLEANUP OPTIONS

5.1 General

It is the goal of SBMC West, LLC to obtain a No Further Action Determination for the site. The purpose of the NFA is to allow conventional bank financing of the real estate. The current analytical data shows that the soils that exceeded MTCA cleanup levels were removed during the remedial action. Only one sample exceeded the MTCA cleanup requirements. This is discussed in Section 5.2.1. The points of compliance for soils are at all locations on-site. The points of compliance for the groundwater are the northern end of the upland portion of the site as discussed in Section 5.2.2 of this report.

5.2 Remediation/Cleanup Levels

5.2.1 Soils

The cleanup level of the remedial action is the Method A soil cleanup values of the MTCA for gasoline and its constituents, diesel and oil range hydrocarbons, metals, and poly cyclic aromatic hydrocarbons (PAHs). The only analyte that has been found to exceed the MTCA Method A cleanup value in final confirmation samples has been benzene in AOC 1. These values are shown below in Table 1.

Table 1
Soil Cleanup Levels
SBMC West

Compounds of Concern	MTCA Cleanup Level parts per million (ppm)	Notes
TPH oil range	2,000	Also Table 830-1 in the MTCA
TPH diesel range	2,000	
TPH gasoline range	30	
Benzene	0.03	
Ethyl Benzene	6.0	
Toluene	7.0	
Xylenes	9.0	
PAHs	varies	See tables for Method B values.
cPAHs	0.1	See Table 708-2 in the MTCA for TEF values.

5.2.2 Groundwater

The remediation level for the groundwater on-site is Method B cleanup level for surface water for benzene of 27 ppb. The site is not in an area that influences drinking water resources. Salmon Bay is not considered to be a drinking water resource. The cleanup level for benzene is the surface water standards from Section 131.36 of the National Toxics Rule. The values shown below in bold are the proposed cleanup levels for groundwater based on surface water criteria. The point of compliance is the northern edge of the upland area along the margin of the bulkhead. Groundwater Monitoring Wells MW-3, MW-4, and MW-5 represent the points of compliance for groundwater. Sampling of the surface water was done during the sample event of May 2013 to document the actual condition of the surface water immediately adjacent to the bulkhead on-site. No sheens on the purge water have been observed during groundwater sampling documented in this report.

Table 1
Groundwater Cleanup Levels
SBMC West

Compounds of Concern	Cleanup Level parts per million (ppm)	Notes
TPH oil range	**No visible sheen**	Surface water standards
TPH diesel range	**No visible sheen**	
TPH gasoline range	**No visible sheen**	
Benzene	27 **(1.2)**	MTCA B groundwater (**National Toxics Rule**)
cPAHs	**0.03** (0.1)	**MTCA B surface water** (MTCA A groundwater)
Arsenic	**190** (5-10)	**Surface Water Standards** (MTCA A groundwater and proposed MTCA groundwater)

5.3 Options Reviewed For This Project

We have reviewed the following options for remedial action at this site:

Table 3
Remedial Options

Option	Advantage	Disadvantage
1. Capping	*Expedient and least expensive solution.*	*Will require institutional controls and a restrictive covenant. A disproportionate cost analysis would be required.*
2. In situ treatment with oxidizing agents	*Reduces the quantity of waste generated.*	*With the location of the site along Salmon Bay, in situ oxidation would require hydraulic controls to contain the oxidizer and secondary compounds on-site.*
3. In situ enhanced bio degradation	*Reduces the quantity of waste generated.*	*This option is partially in use for AOC 1 to reduce the benzene level through the use of calcium peroxide placed into the remedial action excavation backfill zone. This option was not considered to be timely to address heavy oil and PAH concerns in soils.*
4. Bio venting	*Reduces the quantity of waste generated.*	*Would require the injection of air into the subsurface. With low permeability of site soils this technology is not expected to achieve Method A cleanup values. Not considered to be viable for this site.*
5. Vapor extraction	*Reduces the quantity of waste generated.*	*The site soils have a low permeability. Not considered to be viable for this site.*
6. Excavation and off-site disposal or treatment	***Provides a permanent solution.***	***This option was chosen due to the accessibility of the impacted site soils and the expediency of the option.***
7 Excavation and on-site treatment	*Reuses material and reduces export of wastes.*	*There is insufficient room on-site or the neighborhood to perform land farming. Costs would exceed the cost of excavation and off-site treatment. Would require closing traffic lanes and sidewalks and the shoring of the temporary excavation. Not considered to be viable for this site.*
8. No action	*No immediate costs.*	*Will require cleanup at a later date. Will not satisfy the owners need for a No Further Action Determination. Will not allow conventional financing of the real estate.*

5.4 Excavate and Off-site Export of PCS Option – Expanded Discussion

This is Option 5 in Table 1.5.1 General

This discussion breaks the site into a series of areas in the general order that they were encountered in the excavations. These areas are shown on Figure 3. These areas correspond with Issues 1 and 2 discussed in Section 3.2 of this report.

5.5 AOC 1

The location of AOC 1 is shown on Figure 3. Figures 4 and 5 shows the extent of the excavation, the prior and recent borings, and the location of the performance and final confirmation samples. Excavations in this area started on July 19, 2012 and extended through August 6, 2012. The heating oil UST cavity was found and soils with elevated TPH were found and removed. The final sidewall samples were below cleanup levels and the cavity was backfilled.

The excavation for the gasoline UST did not find a UST or UST cavity at the locations shown in the referenced report. The remedial excavation started at the location of EAI Boring B-9. B-9 was identified by the surface patch and backfill of bentonite. The excavation proceeded towards the south following a zone with elevated gasoline range hydrocarbons. The native soils consisted of a silty fine sand and silt with some clay. Approximately 50 feet south of the mapped UST location, a loose backfilled cavity was encountered that may have been the former UST location. The soil contamination did not extend south, upgradient from the apparent cavity. The depth of the excavation was about 13 feet.

The final excavation sidewalls were sampled and found to be below cleanup levels for gasoline range hydrocarbons. The excavation did not extend north to include the slightly elevated levels of benzene found in Boring B-9. This would have impacted the foundation of the adjacent building. The level of benzene is less than twice the cleanup level and can be allowed to remain in place under the Model Toxics Control Act.

The excavation was backfilled with recycled concrete compacted in place. The recycled concrete consists of a sand and gravel size mixture of crushed concrete. No concrete rubble is present in the backfill. To assist in a final polishing of the soil and groundwater in the gasoline UST excavation, 1,000 pounds of a slow release oxygen material, TersOx, was mixed into the soils below the static water level. TersOx is a calcium peroxide material. This will increase the dissolved oxygen level and enhance biodegradation of any residual gasoline that may have been present.

The excavation removed 839 tons of petroleum contaminated soils (PCS). Soil samples were tested for TPH, metals, and PAHs. All samples, both performance and final soil samples taken during the excavation are presented on Table 2A, 2B, 2C, and 2D. Table 2E presents only the final confirmation soil samples for the suspected gasoline UST excavation. The tables are appended to this report at the end of the text.

5.6 AOC 2

The location of AOC 2 is shown on Figure 3. Figure 6 shows the extent of the excavation, the prior and recent borings, and the location of the performance and final confirmation samples.

Excavations at this area started on August 16 and concluded on August 20. This excavation extended down to about six feet below existing grade and removed the documented soils with elevated hydrocarbons. No USTs were encountered. It appears that the elevated hydrocarbons were a result of a local surface spill of oil range hydrocarbons sometime in the past prior to the construction of the concrete apron. The final sidewall and base samples were all below cleanup levels.

This excavation removed 85.72 tons of PCS.

The excavation was backfilled with recycled concrete compacted in place. The recycled concrete consists of a sand and gravel mixture. No concrete rubble is present in the backfill.

All samples, both performance and final soil samples taken during the excavation are presented on Table 3A. The tables are appended to this report at the end of the text. Sample 820-3 had a TPH in the diesel range of 1,400 ppm. To address Table 830-1, the sample was also tested for PAHs, volatiles, metals, and PCBs. No PCBs or volatile compounds were present. For brevity, these two suites of contaminants are not summarized in the tabulated results. The lab report is attached to this report.

5.7 AOC 3

The location of AOC 3 is shown on Figure 3. Figure 7 shows the extent of the excavation, the prior and recent borings, and the location of the performance and final confirmation samples.

Excavations at this area started on August 10 and concluded on August 15. This excavation extended down to about six feet below existing grade and removed the documented soils with elevated PAHs. No USTs were encountered. It appears that the elevated PAHs were a result of a local surface spill of oil range hydrocarbons sometime in the past prior to the construction of the concrete apron. The final sidewall and base samples were all below cleanup levels.

All samples, both performance and final soil samples taken during the excavation are presented on Tables 4A and 3B. The tables are appended to this report at the end of the text.

This excavation removed 228 tons of PCS.

The excavation was backfilled with recycled concrete compacted in place. The recycled concrete consists of a sand and gravel mixture. No concrete rubble is present in the backfill.

5.8 Soil Export

The truck tickets documenting soil report are attached in Appendix C. A total of 839 tons of PCS was removed from the site as part of the remedial action.

5.9 Supplemental Groundwater Sampling

On October 17, 2012, six monitoring wells were constructed on-site to allow direct sampling in areas where prior groundwater samples from temporary wells had encountered elevated contaminants of concern. As stated in the EAI report, it was concluded that the use of temporary wells may have included sampling relicts that provided positive hits of the contaminants of concern. The EAI report recommended permanent monitoring wells be constructed to document the actual groundwater conditions. Groundwater sampling procedures are discussed in Appendix A. The groundwater testing summary is summarized on Tables 4 A through 4 D. The groundwater wells were constructed in close proximity to prior temporary wells used by EAI in their assessment of the site conditions.

In addition, sample points have been established to monitor the quality of the surface water along the northern margin of the site to document the possible impacts to surface water quality from the site.

6.0 DISCUSSION/CONCLUSIONS

6.1 AOC 1 – Heating Oil UST

Based on sidewall and base testing of the former heating oil UST cavity, it is our opinion that the soils impacted by the presumed release of heating oil have been removed from the site and properly disposed of. The slag-like material found in the backfilled cavity had elevated lead as seen in sample AOC1 E. The level of lead was 527 ppm. The slag-like material and all other cavity backfill materials were removed incidental to remediation. The final sidewalls were all native soils. The final sidewall samples were also tested for total lead and were found to be below cleanup level. It is our opinion that the heating oil UST cavity does not require any further action.

6.2 AOC 1 – Suspected Gasoline UST Zone

Based on sidewall and base testing of the former heating oil UST cavity, it is our opinion that the soils impacted by the presumed release of gasoline range hydrocarbons have been removed from the site and properly disposed of. The only sample that did not meet MTCA Method A was the sample in Boring B-9 at a depth of 11 feet that had a benzene level of 0.038 ppm. The excavation could not proceed to that area due to the adjacent building foundations. This level of benzene is less than twice the published cleanup value and is one of 12 final samples. All of the other final samples meet the MTCA cleanup value of 0.03 ppm. It is our opinion that the soils in suspected gasoline UST zone do not require further action at this time.

The excavation did not find a UST at the location shown on Plate 3 of the EAI report dated July 17, 2006. The excavation did not encounter any pipes that appeared to be distribution or vent pipes commonly associated with USTs. A distinct loosely backfilled zone was found in the southwest corner of the remedial excavation that exhibited the highest PID readings during the excavation process. A scan for larger metallic objects and metal pipes was done using standard utility locating equipment and a Ground Penetrating Radar unit. No evidence of supply or vent pipes were found outside of the remedial excavation zone shown on Figure 4.

To polish the groundwater in the vicinity of the confirmed zone of gasoline release, 1,080 pounds of TersOx was mixed in with the backfill soils to provide a long-term source of oxygen for enhanced bioremediation.

6.3 AOC 2

Based on sidewall and base testing of the remedial excavation, it is our opinion that the soils impacted by the presumed release of oil range hydrocarbons have been removed from the site and properly disposed of.

6.4 AOC 3

Based on sidewall and base testing of the remedial excavation, it is our opinion that the soils impacted by the presumed release of oil range hydrocarbons have been removed from the site and properly disposed of.

6.5 Overall Upland Site Conditions

General

Based on the testing done for this project, it is our opinion that the site should be reevaluated. The contaminants that were found to be present were hydrocarbons, a local pocket of fill with elevated lead and PAHs. The arsenic is considered to be naturally occurring. None of the other contaminants shown in the ISIS summary were found to be present in the upland portion of the site.

Benzene

It is our opinion that the levels of benzene found in MW-1 will decrease through natural attenuation over the next several years. The most recent level of benzene met the remediation level of 27 ppb and the benzene levels at the point of compliance for surface water met the National Toxics Rule at the monitoring wells along the bulkhead.

Arsenic

The levels of arsenic in groundwater on-site from all monitoring points have been less than 30 percent of the surface water standard for arsenic of 160 ppb for maximum levels of discharge to surface water bodies. No soil samples exceeded the cleanup level for arsenic.

6.6 Conclusion

Based on the testing documented in this report, it is our opinion that the upland portion of the site should be removed from the HSL and that the upland portion of the site should be granted an NFA status. The status of the northern submerged portion of the site should be reevaluated based on actual testing contained in the prior report by EAI.

7.0 LIMITATIONS

The findings, conclusions, and recommendations presented in this report are based on our documented site observations, review of historical and regulatory information, interviews, and review of the referenced historic resources. Other information related to past site uses or current site conditions may exist. Our conclusions in part are based on information provided or prepared by others.

If the existing site uses change, or if further information on the site becomes available, Terra Associates, Inc. should review the information, as it may affect our conclusions.

We prepared our conclusions and recommendations in accordance with generally accepted professional engineering practices. This report is the copyrighted property of Terra Associates, Inc. and is intended for specific application to the SBMC West project in Seattle, Washington. This report is for the exclusive use of SBMC West, LLC and their authorized representatives.

8.0 REFERENCES

Environmental Associates Inc., Phase I ESA, dated July 18, 2006

Environmental Associates Inc., Subsurface Sampling and Testing, July 17, 2006

King County, Lake Union Water Quality, accessed April 8, 2013
http://green.kingcounty.gov/lakes/LakeUnion.aspx

Chapter 173-201A WAC, WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF WASHINGTON

Washington State Department of Ecology, Draft Guidance for Remediation of

Petroleum Contaminated Sites, Publication No. 10-09-057, dated November 2010

Table 1
Static Water levels

Well Number	Total Depth	Surface Elevation	Stick Down	Top of PVC Elev.	10/17/2012		1/4/13	
					Depth	Elevation	Depth	Elevation
MW-1	14.3	23.5	0.34	23.16	3.69	19.47	2.77	20.39
MW-2	14.5	23.5	0.38	23.12	3.77	19.35	3.05	20.07
MW-3	14.5	22	0.37	21.63	4.26	17.37	4.79	16.84
MW-4	14.5	22.25	0.47	21.78	3.45	18.33	3.97	17.81
MW-5	14.8	21	0.46	20.54	2.58	17.96	2.55	17.99
MW-6	14.61	26	0.45	25.55	5.72	19.83	4.83	20.72

Well Number	Total Depth	Surface Elevation	Stick Down	Top of PVC Elev.	5/28/13	
					Depth	Elevation
MW-1	14.3	23.5	0.34	23.16	3.14	20.02
MW-2	14.5	23.5	0.38	23.12	2.92	20.2
MW-3	14.5	22	0.37	21.63	4.22	17.41
MW-4	14.5	22.25	0.47	21.78	2.78	19
MW-5	14.8	21	0.46	20.54	1.73	18.81
MW-6	14.61	26	0.45	25.55	5.12	20.43

Table 2A
AOC 1 Samples
Petroleum Hydrocarbons-Heating Oil UST
Performance and Final Samples

Sample	Date	Sample type	Depth	TPH diesel	TPH oil	TPH gasoline	Benzene	Toluene	Ethyl benzene	Xylenes
SP M	7-19-12	SP/R	N/A	64	250U	62	0.02U	0.02U	0.063	0.13
SP E	7-19-12	SP/R	N/A	50U	250U	10	0.02U	0.02U	0.02U	0.06U
SP W	7-19-12	SP/R	N/A	50U	250U	10	0.02U	0.02U	0.02U	0.06U
AOC 1 W	7-19-12	SW/F	4	50U	250U	NT	NT	NT	NT	NT
AOC 1 S	7-19-12	SW/R	4	50	250U	NT	NT	NT	NT	NT

Table 2A (continued)
AOC 1 Samples
Petroleum Hydrocarbons-Heating Oil UST
Performance and Final Samples

Sample	Date	Sample type	Depth	TPH diesel	TPH oil	TPH gasoline	Benzene	Toluene	Ethyl benzene	Xylenes
AOC 1E	7-23-12	SW/R	4	50U	250U	NT	NT	NT	NT	NT
AOC 1E	7-23-12	SW/R	4	1,400	250U	NT	0.03U	0.05U	0.05U	0.015U
AOC 1N	7-23-12	SW/F	4	50U	250U	NT	NT	NT	NT	NT
AOC 1S	7-23-12	SW/F	4	1,200	250U	NT	NT	NT	NT	NT
AOC 1 BASE	7-23-12	B/F	7	50U	250U	NT	NT	NT	NT	NT
MTCA A				2,000	2,000	30	0.03	7	6	9

Notes: All units are parts per million (ppm).
U modified indicates the analyte was not present at the numerical detection limit.
Shaded cells exceed MTCA Method A cleanup level.
SW indicates the sample was a sidewall confirmation sample.
B indicates the sample was a base sample.
R indicates the soils represented by the test were exported.
F indicates that the sample was the final sample.

Table 2B
AOC 1 Samples
Petroleum Hydrocarbons-Suspected Gasoline UST
Performance and Final Samples

Sample	Date	Sample Type	Depth	TPH Diesel	TPH Oil	TPH Gasoline	Benzene	Toluene	Ethyl benzene	Xylenes
TP-1	7-19-12	SW/F	8.5	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-1	7-19-12	SW/F	4	NT	NT	2U	0.02U	0.02U	0.02U	0.06U

Table 2B (continued)
AOC 1 Samples
Petroleum Hydrocarbons-Suspected Gasoline UST
Performance and Final Samples

Sample	Date	Sample Type	Depth	TPH Diesel	TPH Oil	TPH Gasoline	Benzene	Toluene	Ethyl benzene	Xylenes
S-2	7-23-12	B/F	8.5	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-3	7-23-12	SW/R	4	NT	NT	200	0.02U	0.02U	0.02U	0.64
S-4	7-23-12	SW/R	6	NT	NT	2U	0.11	0.02U	0.068	0.06U
S-5	7-23-12	SW/F	6	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-6	7-24-12	SW/F	8	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-7	7-24-12	SW/R	5.5	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-8	7-24-12	SW/R	6.5	NT	NT	2U	0.092	0.02U	0.02U	0.06U
S-9	7-24-12	SW/R	5.5	NT	NT	290	0.96	1.6	3.8	13
S-10	7-24-12	SW/R	8	NT	NT	4.0	1.3	0.048	0.02U	0.06U
S-11	7-24-12	SW/R	8	NT	NT	3.8	1.1	0.03	0.093	0.06U
S-12	7-26-12	SW/R	8	50U	250U	2U	0.46	0.02U	0.02U	0.06U
S-13	7-26-12	B/F	11	50U	250U	2U	0.02U	0.02U	0.02U	0.06U
S-14	7-30-12	SW/F	10	NT	NT	2U	0.026	0.02U	0.02U	0.06U
S-15	7-31-12	B/R	10	NT	NT	2U	0.14	0.02U	0.02U	0.06U
S-16	8-1-12	SW/F	10	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-17	**8-1-12**	**SW/F**	**10**	NT	NT	**2U**	**0.02U**	**0.02U**	**0.02U**	**0.06U**
S-18	**8-1-12**	**SW/R**	**10**	NT	NT	**2U**	**0.14**	**0.02U**	**0.044**	**0.06U**
S-19	**8-1-12**	**SW/R**	**10**	NT	NT	**2U**	**0.55**	**0.02U**	**0.02U**	**0.06U**
S-20	**8-2-12**	**SW/F**	**-10**	NT	NT	**2U**	**0.02U**	**0.02U**	**0.02U**	**0.06U**
S-21	**8-2-12**	**SW/F**	**-10**	NT	NT	**2U**	**0.02U**	**0.02U**	**0.02U**	**0.06U**
S-22	**8-2-12**	**SW/F**	**-10**	NT	NT	**2U**	**0.02U**	**0.02U**	**0.02U**	**0.06U**
MTCA A				2,000	2,000	**30**	**0.03**	**7**	**6**	**9**

Table 2C
AOC 1 Samples
Total Metals – Heating Oil UST

Sample	Date	Sample type	Depth	Arsenic	Chrome	Chrome 6	Selenium	Silver	Cadmium	Barium	Mercury	Lead
SP E	7-19-12	SP/R	N/A	NT	NT	NT	NT	NT	NT	NT	NT	2.44
SP M		SP/R	N/A	NT	NT	NT	NT	NT	NT	NT	NT	12.7
SP W		SP/R	N/A	NT	NT	NT	NT	NT	NT	NT	NT	10.5
AOC1 E	7-19-12	SW/R	4	6.39	1,310	NT	1U	1U	1.24	625	0.1 U	527
AOC1N	7-23-12	SW/F	4	NT	NT	5U	NT	NT	NT	NT	NT	2.78
AOC1 E		SW/F	4	NT	NT	5U	NT	NT	NT	NT	NT	1.94
AOC 1 S		SW/F	4	NT	NT	5U	NT	NT	NT	NT	NT	2.64
AOC 1 B		B/F	7	NT	NT	5U	NT	NT	NT	NT	NT	2.54
MTCA A				20	2,000	19	*400*	*400*	2.0	*16,000*	2.0	250

Notes: All units are parts per million (ppm).
U modifier indicates that the analyte was not present at the stated detection limit.
Cleanup values shown are MTCA Method A, values in italics are Method B.

Table 2D
AOC 1 Samples
Total Metals – Suspected Gasoline UST

Sample	Date	Sample type	Depth	Lead
S-10	7-25-12	**SW/R**	**8**	4.12
S-11		**SW/R**	**8**	1.82
S-12	7-26	**SW/R**	**8**	1.03
S-13	7-26	**B/F**	**11**	4.06
MTCA				250

Notes: All units are parts per million (ppm).
U modifier indicates that the analyte was not present at the stated detection limit.
Cleanup values shown are MTCA Method A.

Table 2E
AOC 1 Samples
TCLP Metals

Sample	Date	Sample Type	Depth	Arsenic	Chrome	Selenium	Silver	Cadmium	Barium	Mercury	Lead
AOC1 E	7-23-12	SW		1U	1U	1U	1U	1U	1.5	0.1U	1U
RCRA LIMITS				5	5	1	5	1	100	0.2	5

Table 2F
AOC 1 Samples-Heating Oil UST Soils
PAH Analysis

Sample	Date	Sample Type	Depth	Acenaphthene	Fluorine	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Naphthalene
AOC1 E	7-23-12	SW		0.023	0.18	0.078	0.18	0.017	0.033	0.014	0.01U
MTCA				NP	4,800	NP	NP	24,000	3,200	2,400	5.0

Notes: For brevity, only the compounds that were detected are listed.
All units are parts per million (ppm).
Cleanup value for Naphthalene is MTCA Method A, other cleanup values are Method B.
NP indicates that no cleanup level is posted for the analyte.

Table 2G
AOC 1 Samples
Petroleum Hydrocarbons Heating Oil UST
Final Samples Only

Sample	Date	Sample Type	Depth	TPH Diesel	TPH Oil	TPH Gasoline	Benzene	Toluene	Ethyl benzene	xylenes
AOC 1 W	7-19-12	SW	4	50U	250U	NT	NT	NT	NT	NT
AOC 1 S		SW	4	50	250U	NT	NT	NT	NT	NT
AOC 1E		SW	4	50U	250U	NT	NT	NT	NT	NT

Table 2G (continued)
AOC 1 Samples
Petroleum Hydrocarbons Heating Oil UST
Final Samples Only

Sample	Date	Sample Type	Depth	TPH Diesel	TPH Oil	TPH Gasoline	Benzene	Toluene	Ethyl benzene	xylenes
AOC 1E	7-23-12	SW	4	1,400	250U	NT	0.03U	0.05U	0.05U	0.015U
AOC 1N		SW	4	50U	250U	NT	NT	NT	NT	NT
AOC 1S		SW	4	1,200	250U	NT	NT	NT	NT	NT
AOC 1 BASE		B	7	50U	250U	NT	NT	NT	NT	NT
MTCA A				2,000	2,000	30	0.03	7	6	9

Table 2H
AOC 1 Samples
Petroleum Hydrocarbons Suspected Gasoline UST
Final Samples Only

Sample	Date	Sample type	Depth	TPH Diesel	TPH Oil	TPH Gasoline	Benzene	Toluene	Ethyl benzene	xylenes
TP-1	7-19-12	SW	8.5	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-1		SW	4	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-2	7-23-12	B/F	8	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-5		SW	6	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-6	7-24-12	SW	8	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-13		B/F	11	50U	250U	2U	0.02U	0.02U	0.02U	0.06U
S-14	7-30-12	SW/F	10	NT	NT	2U	0.026	0.02U	0.02U	0.06U
S-16	8-1-12	SW/F	10	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-17		SW/F	10	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
Table 2H, continued S-20	8-2-12	SW/F	10	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
S-21		SW/F	10	NT	NT	2U	0.02U	0.02U	0.02U	0.06U

Table 2H (continued)
AOC 1 Samples
Petroleum Hydrocarbons Suspected Gasoline UST
Final Samples Only

Sample	Date	Sample type	Depth	TPH Diesel	TPH Oil	TPH Gasoline	Benzene	Toluene	Ethyl benzene	xylenes
S-22		SW/F	10	NT	NT	2U	0.02U	0.02U	0.02U	0.06U
MTCA A				2,000	2,000	30	0.03	7	6	9

Notes: All units are parts per million (ppm).
U modified indicates the analyte was not present at the numerical detection limit.
Shaded cells exceed MTCA Method A cleanup level.

Table 3A
AOC 2 Samples
Petroleum Hydrocarbons

Sample	Date	Sample Type	Depth	TPH Diesel	TPH Oil
8-20-1	8-20-2012	B/F	6	520	250U
8-20-2	8-20-2012	SW	4	410	250U
8-20-3	8-20-2012	SW	4	1,400	250U
8-20-4	8-20-2012	SW	4	350	250U
8-23-5	8-23-2012	SW	5	1,700	250U
MTCA METHOD A				2,000	2,000

Table 3B
AOC 2 Samples
Total Metals

Sample	Date	Sample Type	Depth	Chromium	Mercury	Arsenic	Selenium	Silver	Cadmium	Barium	Lead
8-20-3	8-20-2012	SW	4	12.5	0.1U	2.45	1U	1U	1U	71.4	4.27
MTCA				2,000	2.0	20	*400*	*400*	2.0	*16,400*	250

Table 3C
AOC 2 Samples
PAHs

Sample	Date	Sample type	Depth	Naphthalene	Acenaphthylene	Acenaphthene	Fluorine	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (g,h,i) perylene
8-20-1	8-20-12	BF	6	0.01U	0.01U	0.02	0.25	0.069	0.01U	0.01	0.017	0.01U
8-20-2	8-20-12	SW	4	0.01U	0.01U	0.14	0.64	0.82	0.01U	0.052	0.059	0.01U
8-20-3	8-20-12	SW	4	0.01U	0.01U	0.26	1.3	1.4	0.01U	0.031	0.047	0.01U
8-20-4	8-20-12	SW	4	0.01U	0.01U	0.24	1.2	1.3	0.01U	0/74	0.5	0.28
8-23-5	8-23-12	SW	5	0.01U	0.01U J	0.096J	1.4J	1.5J	0.01U J	0.33J	0.035	0.01U
MTCA				5.0	*NP*	*4,800*	*NP*	*NP*	*24,000*	*3,200*	*2,400*	*NP*

Table 3D
AOC 2 Samples
cPAHs

Sample 8-20-1 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01	1	0.01
benzo(a)anthracene	0.01	0.1	0.001
benzo(b)fluoranthene	0.01	0.1	0.001
benzo(k)fluoranthene	0.01	0.1	0.001
chrysene	0.01	0.01	0.0001
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.01	0.1	0.001
TOTAL CPAH	0.07		***0.0151***

Sample 8-20-1 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01	1	0.01
benzo(a)anthracene	0.014	0.1	0.0014
benzo(b)fluoranthene	0.011	0.1	0.0011
benzo(k)fluoranthene	0.01	0.1	0.001
chrysene	0.016	0.01	0.00016
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.01	0.1	0.001
TOTAL CPAH	0.081		0.01566

Sample 8-20-3 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01	1	0.01
benzo(a)anthracene	0.01	0.1	0.001
benzo(b)fluoranthene	0.01	0.1	0.001
benzo(k)fluoranthene	0.01	0.1	0.001
chrysene	0.01	0.01	0.0001
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.01	0.1	0.001
TOTAL CPAH	0.07		***0.0151***

Sample 8-20-4 Performance Sample-removed

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.38	1	0.38
benzo(a)anthracene	0.26	0.1	0.026
benzo(b)fluoranthene	0.51	0.1	0.051
benzo(k)fluoranthene	0.19	0.1	0.019
chrysene	0.32	0.01	0.0032
dibenz(a,h)anthracene	0.059	0.1	0.0059
indeno(1,2,3-cd)pyrene	0.4	0.1	0.04
TOTAL CPAH	2.119		***0.5251***

Sample 8-23-5 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01	1	0.01
benzo(a)anthracene	0.01	0.1	0.001
benzo(b)fluoranthene	0.01	0.1	0.001
benzo(k)fluoranthene	0.01	0.1	0.001
chrysene	0.013	0.01	0.00013
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.01	0.1	0.001
TOTAL CPAH	0.073		***0.01513***

Table 4A
AOC 3 Samples
PAHs

Sample	Date	Sample Type	Depth	Naphthalene	Acenaphthene	Acenaphthene	Fluorine	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (g,h,i) perylene
AOC3-1	8-8-12	B/F	4.5	0.016	0.010	0.01U	0.01U	0.065	0.011	0.017	0.017	0.057
AOC3-2		SW/F	3	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.1U	0.01U	0.01U
A0C3-3		SW/F	2	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.1U	0.01U	0.01U
AOC3-4		B	5.5	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.1U	0.01U	0.01U
A0C3-5		B	5.5	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.1U	0.01U	0.01U
AOC3-6	8-10-12	SW/F	2	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.1U	0.01U	0.01U
AOC3-7		SW/F	2	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.017	0.023	0.01U
A0C3-8		SW/F	2	0.024	0.088	0.01U	0.017	0.26	0.12	1.1	1.3	0.4
8-14-9	8-14-12	SW/R	2	0.063	0.087	0.01U	0.04	0.39	0.059	0.82	0.98	0.32
8-15-10	8-15-12	SW/F	3	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U	0.01U
MTCA				5.0	*NP*	*4,800*	*NP*	*NP*	*24,000*	*3,200*	*2,400*	*NP*

Table 4A (continued)
AOC 3 Samples
Petroleum Hydrocarbons

Sample	Date	Sample Type	Depth	TPH Diesel	TPH Oil
AOC3-1	8-8-12	B/F	4.5	50U	250U
A0C3-2		SW/F	3	50U	250U
AOC3-3		SW/F	2	50U	250U
A0C3-4		B	5.5	50U	250U
AOC3-5		B	5.5	50U	250U
AOC3-6	8-10-12	SW/F	2	50U	250U
AOC3-7		SW/F	2	50U	250U
A0C3-8		SW/F	2	50U	250U
8-14-9	8-14-12	SW/R	2	50U	250U
8-14-10		SW/F	3	160	250U
MTCA				2,000	2.000

Table 4B
AOC 3 Samples
cPAHs

AOC 3-1 Performance Sample-Removed

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.087	1	0.087
benzo(a)anthracene	0.069	0.1	0.0069
benzo(b)fluoranthene	0.097	0.1	0.0097
benzo(k)fluoranthene	0.034	0.1	0.0034
chrysene	0.087	0.01	0.00087
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.069	0.1	0.0069
TOTAL CPAH	0.453		***0.11577***

AOC 3-2 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01	1	0.01
benzo(a)anthracene	0.01	0.1	0.001
benzo(b)fluoranthene	0.01	0.1	0.001
benzo(k)fluoranthene	0.01	0.1	0.001
chrysene	0.01	0.01	0.0001
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.01	0.1	0.001
TOTAL CPAH	0.07		***0.0151***

AOC 3-3 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01	1	0.01
benzo(a)anthracene	0.01	0.1	0.001
benzo(b)fluoranthene	0.01	0.1	0.001
benzo(k)fluoranthene	0.01	0.1	0.001
chrysene	0.01	0.01	0.0001
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.01	0.1	0.001
TOTAL CPAH	0.07		***0.0151***

AOC 3-4 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01	1	0.01
benzo(a)anthracene	0.01	0.1	0.001
benzo(b)fluoranthene	0.01	0.1	0.001
benzo(k)fluoranthene	0.01	0.1	0.001
chrysene	0.01	0.01	0.0001
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.01	0.1	0.001
TOTAL CPAH	0.07		***0.0151***

AOC 3-5 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01	1	0.01
benzo(a)anthracene	0.01	0.1	0.001
benzo(b)fluoranthene	0.01	0.1	0.001
benzo(k)fluoranthene	0.01	0.1	0.001
chrysene	0.01	0.01	0.0001
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.01	0.1	0.001
TOTAL CPAH	0.07		***0.0151***

AOC 3-6 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01	1	0.01
benzo(a)anthracene	0.01	0.1	0.001
benzo(b)fluoranthene	0.01	0.1	0.001
benzo(k)fluoranthene	0.01	0.1	0.001
chrysene	0.013	0.01	0.00013
dibenz(a,h)anthracene	0.01	0.1	0.001
indeno(1,2,3-cd)pyrene	0.01	0.1	0.001
TOTAL CPAH	0.073		0.01513

AOC 3-7 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.011	1	0.011
benzo(a)anthracene	0.011	0.1	0.0011
benzo(b)fluoranthene	0.011	0.1	0.0011
benzo(k)fluoranthene	0.005	0.1	0.0005
chrysene	0.011	0.01	0.00011
dibenz(a,h)anthracene	0.005	0.1	0.0005
indeno(1,2,3-cd)pyrene	0.005	0.1	0.0005
TOTAL CPAH	0.059		***0.01481***

AOC 3-8 Performance Sample-Removed

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.64	1	0.64
benzo(a)anthracene	0.54	0.1	0.054
benzo(b)fluoranthene	0.69	0.1	0.069
benzo(k)fluoranthene	0.25	0.1	0.025
chrysene	0.65	0.01	0.0065
dibenz(a,h)anthracene	0.1	0.1	0.01
indeno(1,2,3-cd)pyrene	0.44	0.1	0.044
TOTAL CPAH	3.31		***0.8485***

Sample 8-14-9 Performance Sample-Removed

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.46	1	0.46
benzo(a)anthracene	0.36	0.1	0.036
benzo(b)fluoranthene	0.47	0.1	0.047
benzo(k)fluoranthene	0.18	0.1	0.018
chrysene	0.47	0.01	0.0047
dibenz(a,h)anthracene	0.058	0.1	0.0058
indeno(1,2,3-cd)pyrene	0.34	0.1	0.034
TOTAL CPAH	***2.338***		***0.6055***

Sample 8-15-10 Final Confirmation Sample

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.01U (0.005)	1	0.005
benzo(a)anthracene	0.01U (0.005)	0.1	0.0005
benzo(b)fluoranthene	0.01U (0.005)	0.1	0.0005
benzo(k)fluoranthene	0.01U (0.005)	0.1	0.0005
chrysene	0.01U (0.005)	0.01	0.00005
dibenz(a,h)anthracene	0.01U (0.005)	0.1	0.0005
indeno(1,2,3-cd)pyrene	0.01U (0.005)	0.1	0.0005
TOTAL CPAH	***(0.035)***		***0.00755***

Table 5A
Analytical Test Results
Petroleum Hydrocarbons-Groundwater and Surface Water

Well Number	Date	TPH Diesel	TPH Oil	TPH Gasoline	Benzene	Toluene	Ethyl benzene	Xylenes
MW-1	10-17-12	NT	NT	170	47	1U	1U	3U
	1-4-13	NT	NT	210	34	1.0U	1.0U	3.0U
	5-29-13	NT	NT	130	24	1.0U	1.0U	3.0U

Table 5A (continued)
Analytical Test Results
Petroleum Hydrocarbons-Groundwater and surface water

Well Number	Date	TPH Diesel	TPH Oil	TPH Gasoline	Benzene	Toluene	Ethyl benzene	Xylenes
MW-2	1-4-13	NT	NT	100U	1.0U	1.0U	1.0U	3.0U
	5-29-13	NT	NT	NT	1.0U	1.0U	1.0U	3.0U
MW-3	10-17-12	210	250U	NT	NT	NT	NT	NT
	1-4-13	91	250U	NT	NT	NT	NT	NT
	5-29-13	50U	250U	NT	NT	NT	NT	NT
MW-4	10-17-12	7,900	3,400	NT	NT	NT	NT	NT
	1-4-13	1,900	940	NT	NT	NT	NT	NT
	5-29-13	1,400	930	NT	1.0U	1.0U	1.0U	7.6
MW-5	1-4-13	1,300	690	NT	NT	NT	NT	NT
	5-29-13	1,100	870	NT	NT	NT	NT	NT
SB-1	5-29-13	NT	NT	NT	1.0U	1.0U	1.0U	3.0U
SB-2	5-29-13	NT	NT	NT	1.0U	1.0U	1.0U	3.0U
MTCA Method A groundwater		500	500	800	5	700	1,000	1,000
MTCA Method B surface water		NO VALUE LISTED			23	1,900	6,900	1,600
Surface water criteria 173-201A-240		NO VALUE LISTED			NV	NV	NV	NV
Table 8.12 WDOE publication 10-09-57		NO VISIBLE SHEEN			1.2	NV	530	1,300

Table 5B
Analytical Test Results
PAH-Groundwater

Sample	Date	Naphthalene	Acenphtylene	Acenpthene	Fluorine	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (ghi) Perylene
MW-5	10-17-12	0.087	0.1U	0.28	0.13	0.21	0.1U	0.1U	0.1U	0.1U
	1-3-13	0.23	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U
	5-29-13	0.46	0.014	0.21	0.11	0.25	0.042	0.034	0.026	0.005U
MTCA METHOD B GROUNDWATER		160	NP	960	640	NP	4,800	640	480	NP

Table 5B (continued)
Analytical Test Results
PAH-Groundwater

Sample	Date	Naphthalene	Acenphtylene	Acenpthene	Fluorine	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (ghi) Perylene
MTCA METHOD B SURFACE WATER		4,900	NP	640	3,500	NP	26,000	9	2,600	NP
TABLE 8.12 WDOE PUBLICATION 10-09-57		NP	NP	NP	NP	NP	NP	NP	NP	NP

Table 5C
Analytical Test Results
cPAHs

MW-5 Groundwater 10-17-12

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.05	1	0.05
benzo(a)anthracene	0.05	0.1	0.005
benzo(b)fluoranthene	0.05	0.1	0.005
benzo(k)fluoranthene	0.05	0.1	0.005
chrysene	0.05	0.01	0.0005
dibenz(a,h)anthracene	0.05	0.1	0.005
indeno(1,2,3-cd)pyrene	0.05	0.1	0.005
TOTAL CPAH	0.35		***0.0755***
MTCA Method A Groundwater			***0.1***
MTCA Method B Surface water			***0.03***
TABLE 8.12 WDOE PUBLICATION 10-09-57			***0.028***

Groundwater 1-4-13

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.05	1	0.05
benzo(a)anthracene	0.05	0.1	0.005
benzo(b)fluoranthene	0.05	0.1	0.005
benzo(k)fluoranthene	0.05	0.1	0.005
chrysene	0.05	0.01	0.0005

Table 5C (continued)
Analytical Test Results
cPAHs

Groundwater 1-4-13

Compound	Test Result	TEF	Adjusted Value
dibenz(a,h)anthracene	0.05	0.1	0.005
indeno(1,2,3-cd)pyrene	0.05	0.1	0.005
TOTAL CPAH	0.35		***0.0755***
MTCA Method A Groundwater			***0.1***
MTCA Method B Surface water			***0.03***
TABLE 8.12 WDOE PUBLICATION 10-09-57			***0.028***

MW-5 Groundwater 5-29-13

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.005	1	0.005
benzo(a)anthracene	0.005	0.1	0.0005
benzo(b)fluoranthene	0.005	0.1	0.0005
benzo(k)fluoranthene	0.005	0.1	0.0005
chrysene	0.005	0.01	0.00005
dibenz(a,h)anthracene	0.005	0.1	0.005
indeno(1,2,3-cd)pyrene	0.005	0.1	0.005
TOTAL CPAH	0.035		***0.00755***
MTCA Method A Groundwater			***0.1***
MTCA Method B Surface water			***0.03***
TABLE 8.12 WDOE PUBLICATION 10-09-57			***0.028***

SB-1 Surface Water 5-28-13

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.0086	1	0.0086
benzo(a)anthracene	0.0077	0.1	0.00077
benzo(b)fluoranthene	0.011	0.1	0.0011
benzo(k)fluoranthene	0.005	0.1	0.0005
chrysene	0.0078	0.01	0.000078
dibenz(a,h)anthracene	0.005	0.1	0.0005
indeno(1,2,3-cd)pyrene	0.0082	0.1	0.00082
TOTAL CPAH	0.0533		0.012368
MTCA Method A Groundwater			***0.1***
MTCA Method B Surface water			***0.03***
TABLE 8.12 WDOE PUBLICATION 10-09-57			***0.028***

SB-2 Surface Water 5-28-13

Compound	Test Result	TEF	Adjusted Value
benzo(a)pyrene	0.005	1	0.005
benzo(a)anthracene	0.005	0.1	0.0005
benzo(b)fluoranthene	0.005	0.1	0.0005
benzo(k)fluoranthene	0.005	0.1	0.0005
chrysene	0.005	0.01	0.00005
dibenz(a,h)anthracene	0.005	0.1	0.0005
indeno(1,2,3-cd)pyrene	0.005	0.1	0.0005
TOTAL CPAH	0.035		0.00755
MTCA Method A Groundwater			***0.1***
MTCA Method B Surface water			***0.03***
TABLE 8.12 WDOE PUBLICATION 10-09-57			***0.028***

Table 5D
Analytical Test Results
MCPP Groundwater

Well Number	Date	MCPP
MW-2	10-17-12	8.0U
MW-5	10-17-12	8.0U
MW-6	10-17-12	8.0U
MTCA	**METHOD B**	**16**

Table 5E
Analytical Test Results
Metals-Groundwater and Surface Water

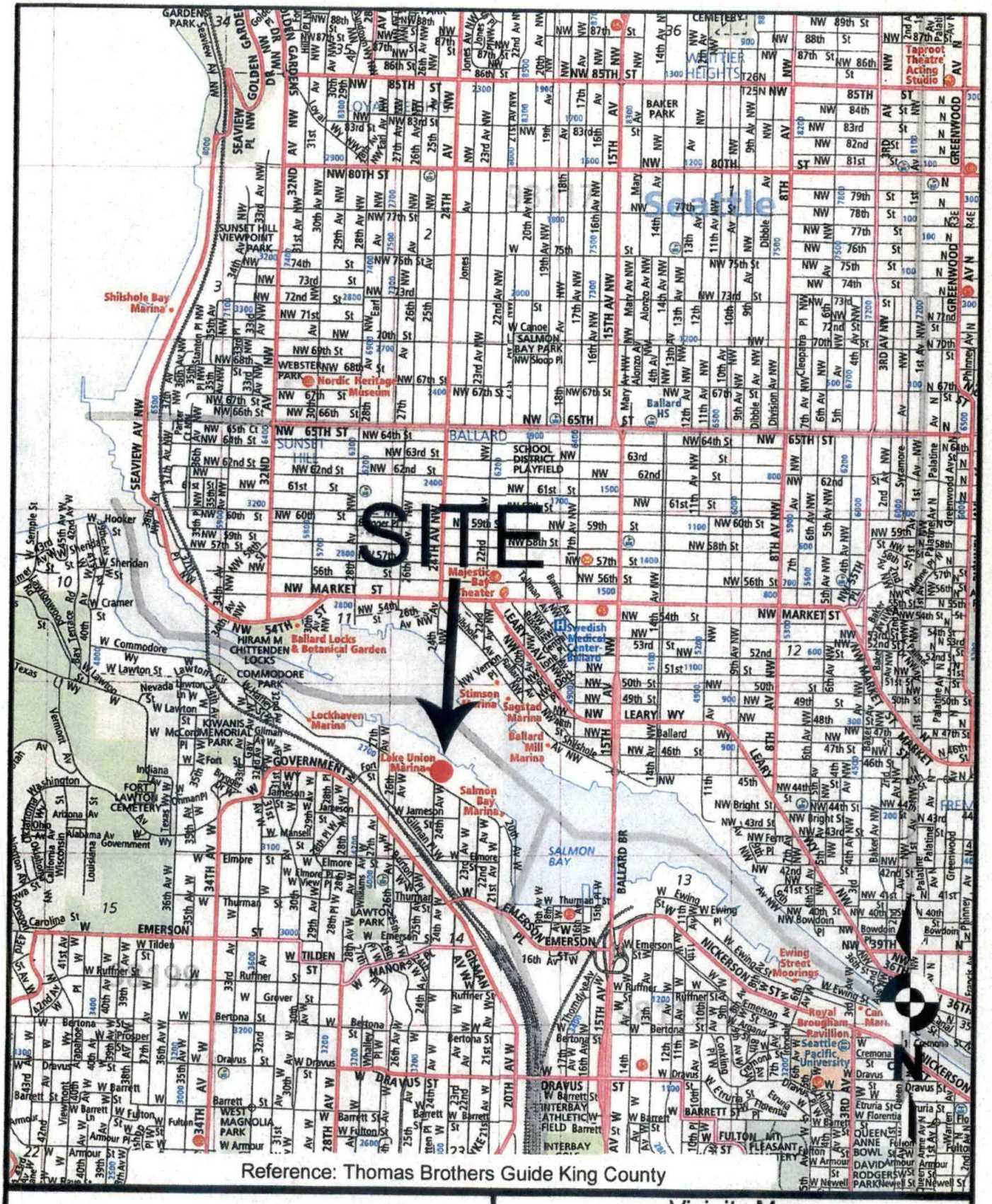
Well Number	Date	Total Arsenic	dissolved Arsenic	Total Manganese	Dissolved Manganese	Total Iron	Dissolved Iron	Ferrous Iron
MW-1	10-17-12	25.8	19.6	26.1	2.57	1,170	211	0.8
	1-3-13	33.3	29.7	NT	NT	NT	NT	NT
	5-29-13	48.5	42.8	NT	NT	NT	NT	
MW-2	11-17-12	NT	NT	NT	NT	NT	NT	6.4
MW-3	11-17-12	NT	NT	NT	NT	NT	NT	2.2

Table 5E (continued)
Analytical Test Results
Metals-Groundwater and Surface Water

Well Number	Date	Total Arsenic	Dissolved Arsenic	Total Manganese	Dissolved Manganese	Total Iron	Dissolved Iron	Ferrous Iron
MW-4	11-17-12	NT	NT	NT	NT	NT	NT	0.2
MW-5	11-17-12	13.3	14.1	16.5	10U	2,500U	2,500U	0
	1-3-13	3.3	3	NT	NT	NT	NT	NT
	5-29-13	2.88	2.73	NT	NT	NT	NT	
MW-6	11-17-12	NT	NT	NT	NT	NT	NT	4.4
SB-1	5-29-13	1.0U	NT	NT	NT	NT	NT	NT
SB-2	5-29-13	1.0U	NT	NT	NT	NT	NT	NT
MTCA method A groundwater		5		2,200		11,000		N/A
Surface Water 173-201A-240		190.0		NP		NP		NP

The Surface Water Cleanup value is a 4-day average concentration not to be exceeded more than once every three years on the average.

Note: All units for soils are parts per million.
All units for groundwater or surface water are parts per billion.



Reference: Thomas Brothers Guide King County

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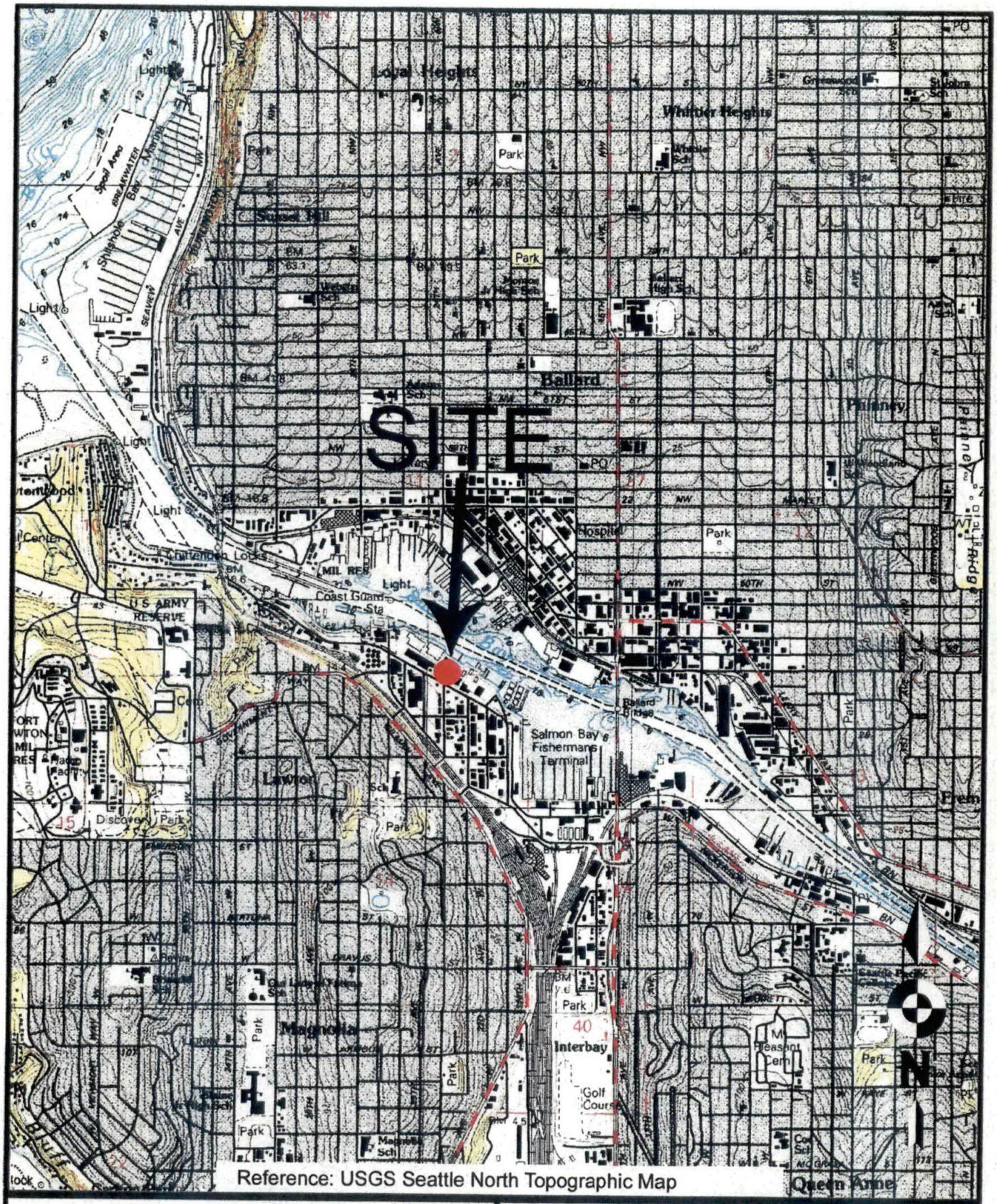
Vicinity Map
SBMC West
Seattle, Washington

Proj. No T-6751	Date July 2013	Figure 1



Reference: USGS Seattle North Topographic Map

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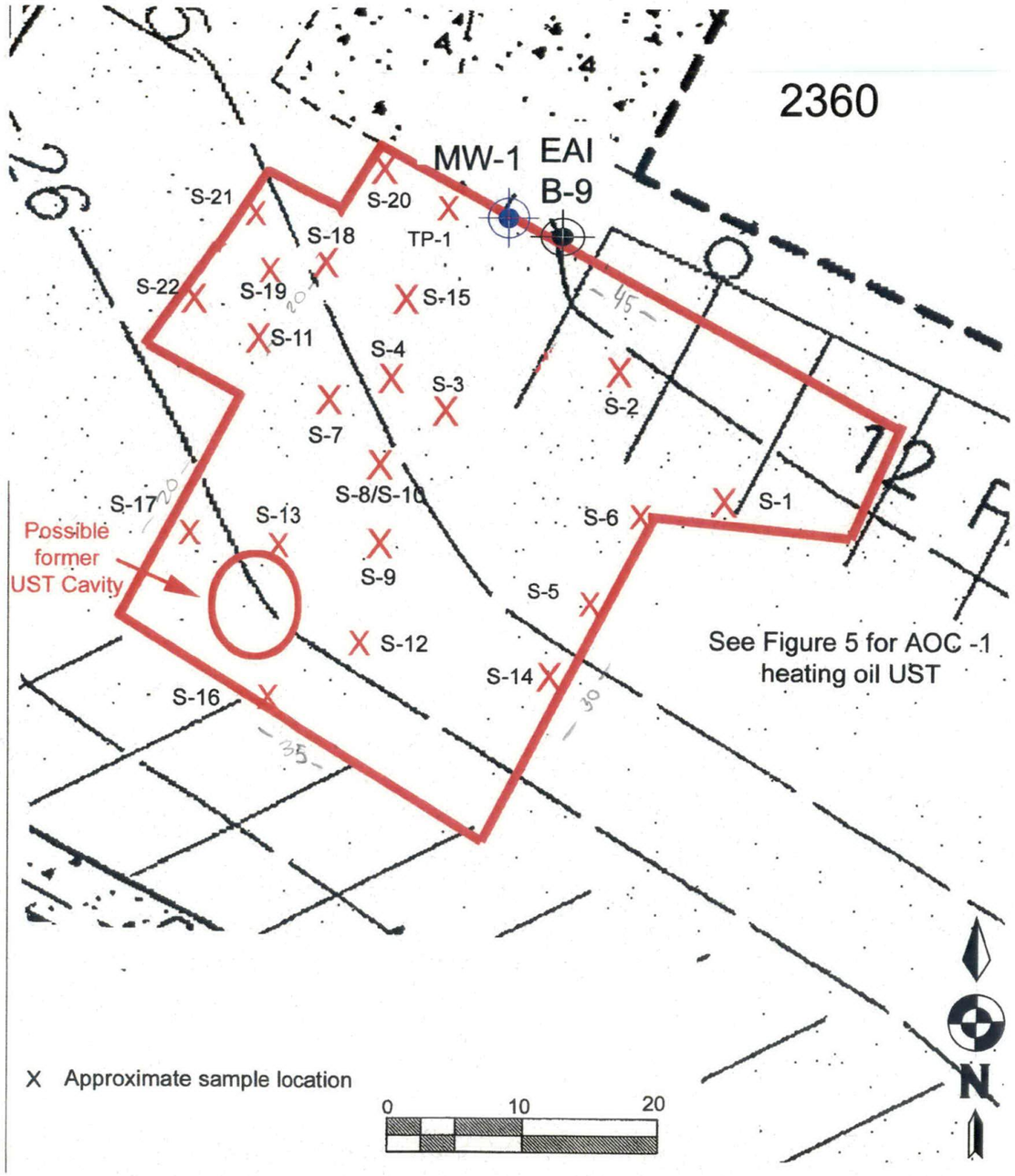
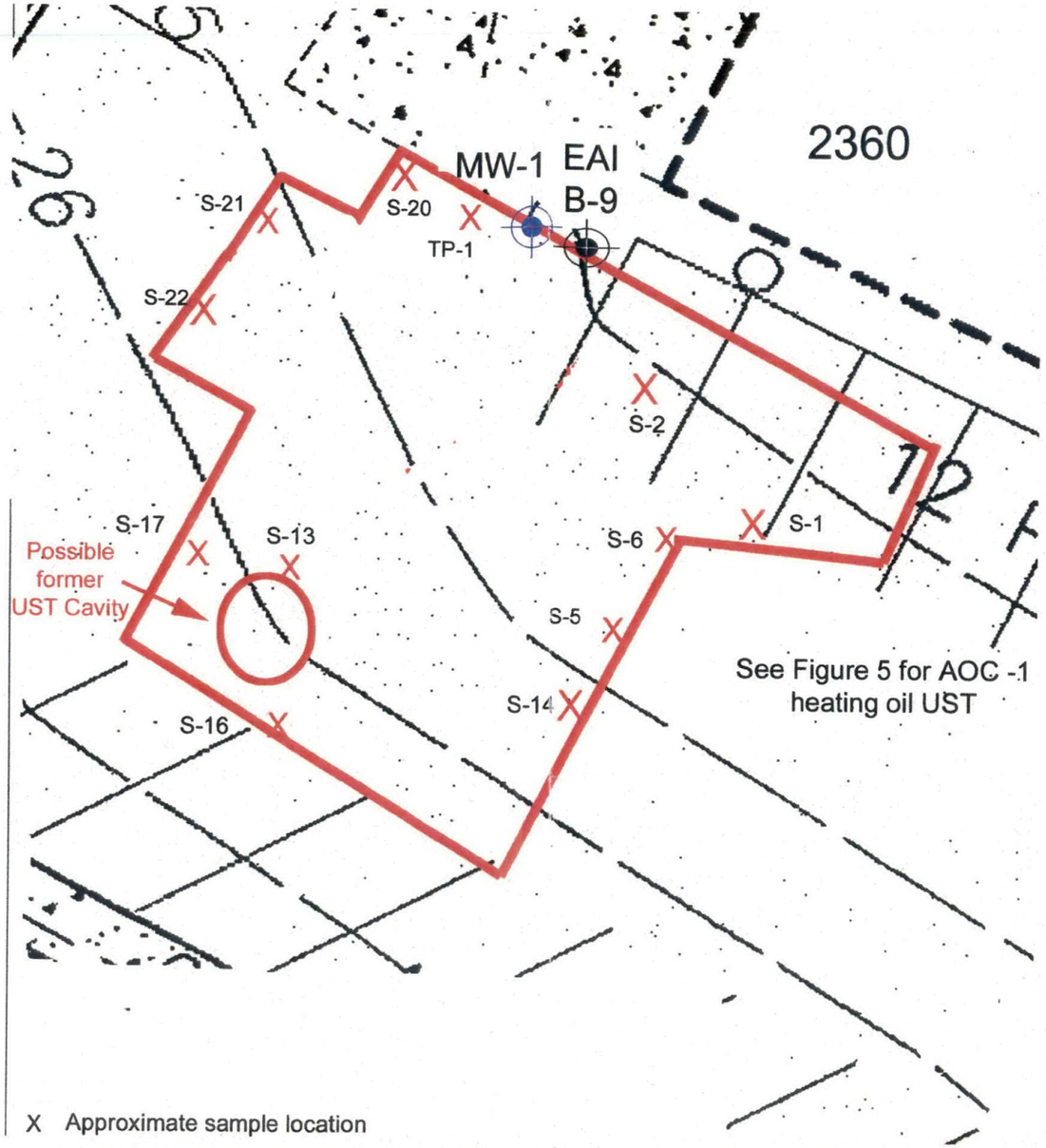
Topographic Vicinity Map
SBMC West
Seattle, Washington

Proj. No T-6751	Date July 2013	Figure 2

All Sample Locations



FINAL confirmation samples only



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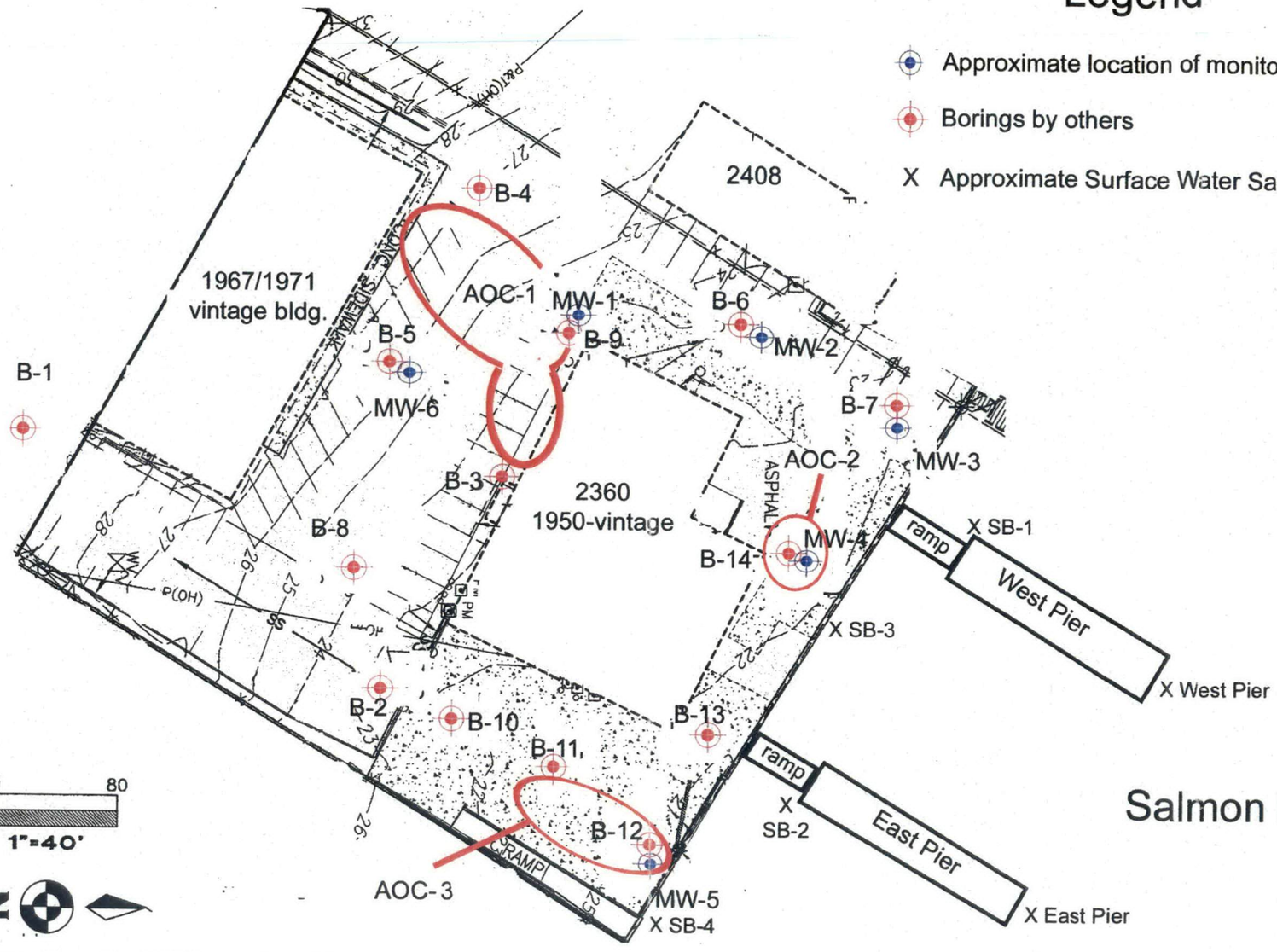
AOC 1-Sample Location Plan
SBMC West
Seattle, Washington

Proj. No. T-6751	Date July 2013	Figure 4

Legend

- Approximate location of monitoring well
- Borings by others
- X Approximate Surface Water Sample Location



Reference: Barghausen Consulting ALTA Survey dated 7/9/2008

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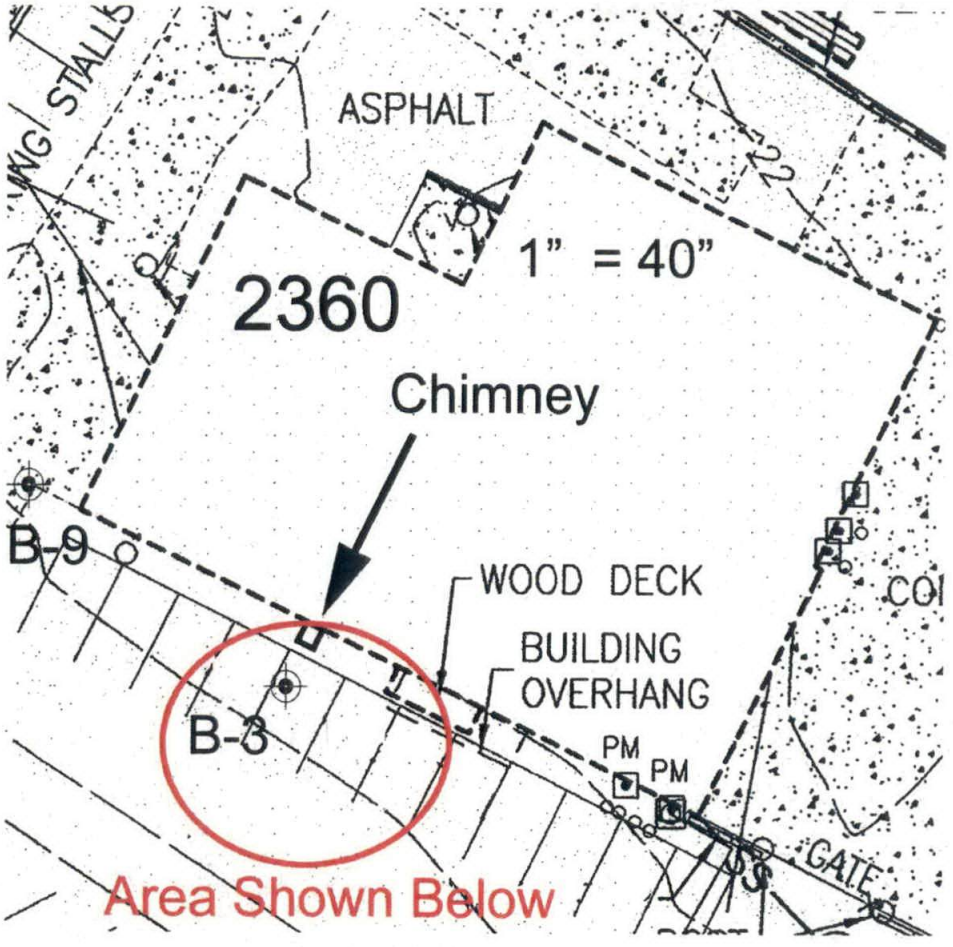
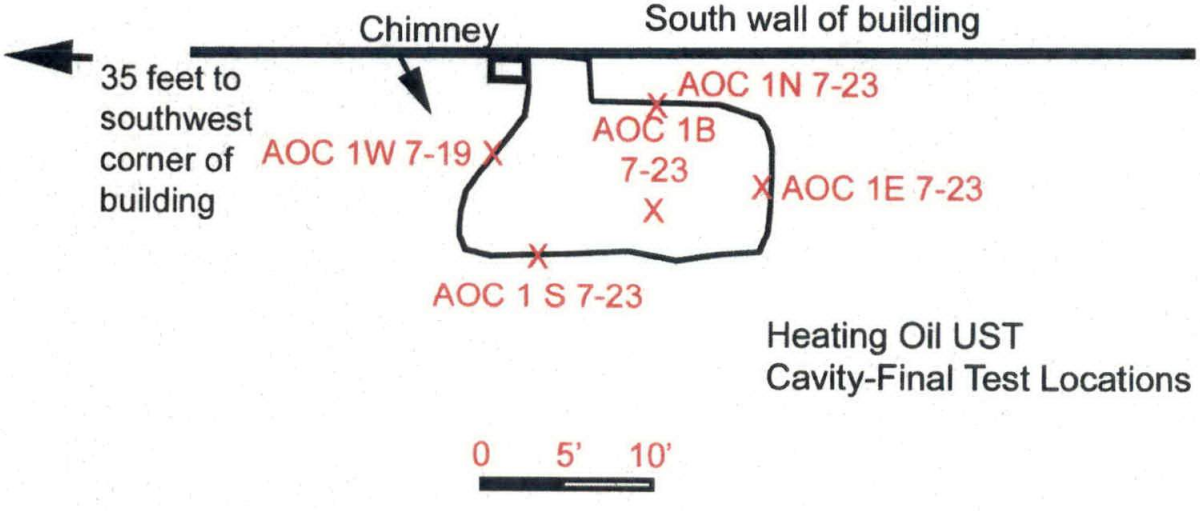
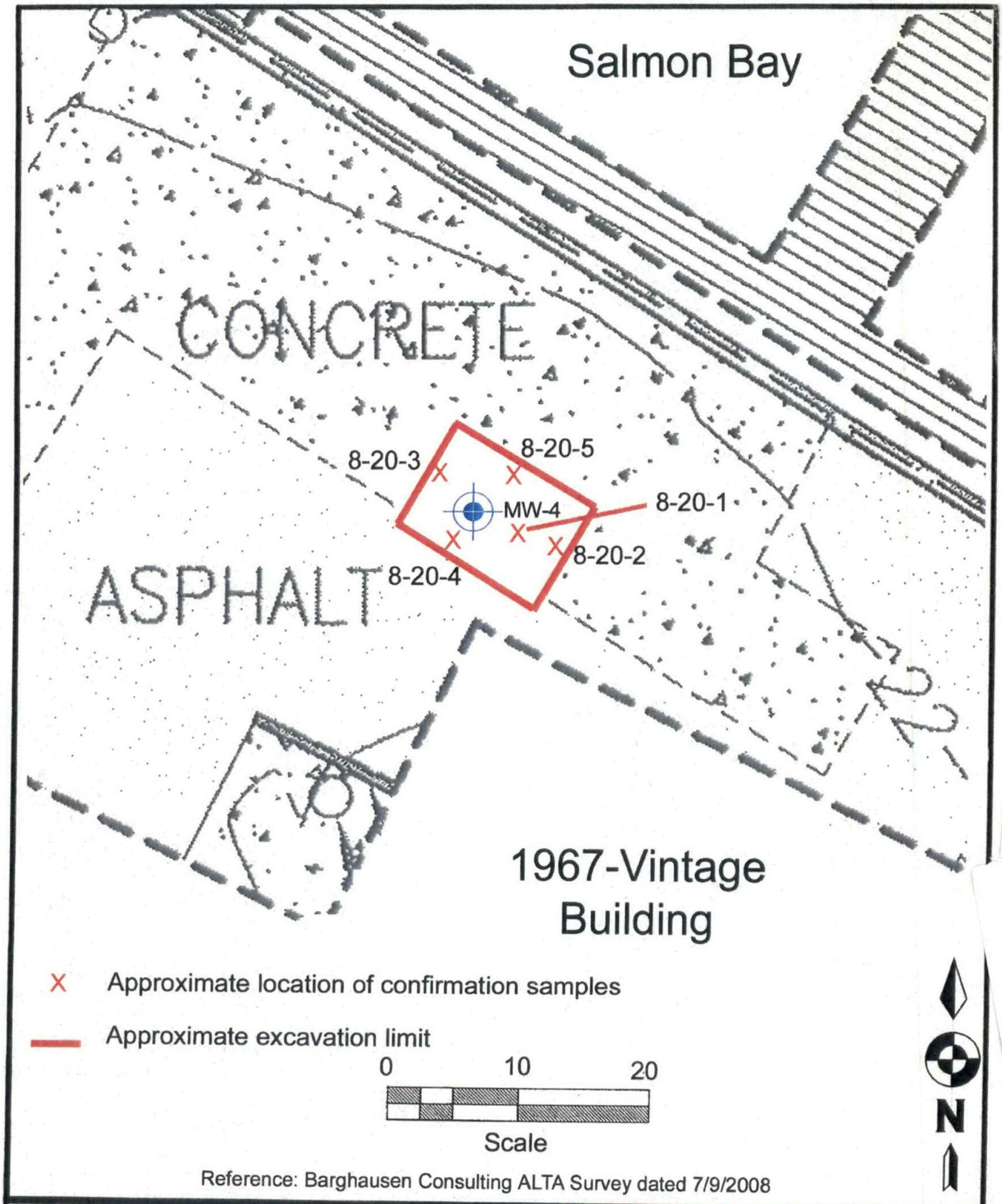
Index Location Plan
SBMC West
Seattle, Washington

Proj. No. T-6751	Date July 2013	Figure 3





TERRA ASSOCIATES Geotechnical Consultants	AOC-1 Heating Oil UST Sample Locations SBMC West Seattle, Washington		
	Proj. No T-6751	Date July 2013	Figure 5



Reference: Barghausen Consulting ALTA Survey dated 7/9/2008

TERRA ASSOCIATES
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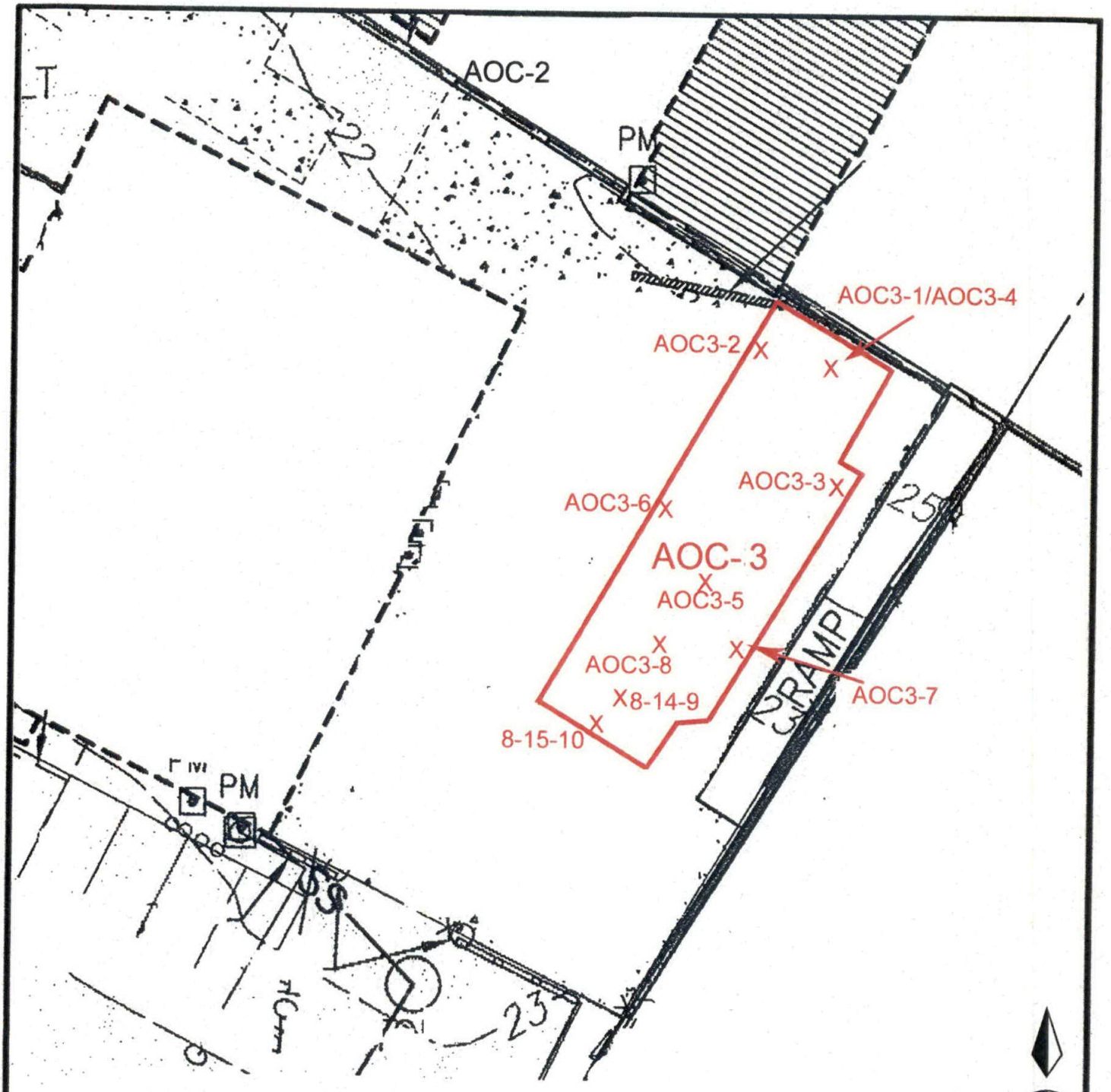
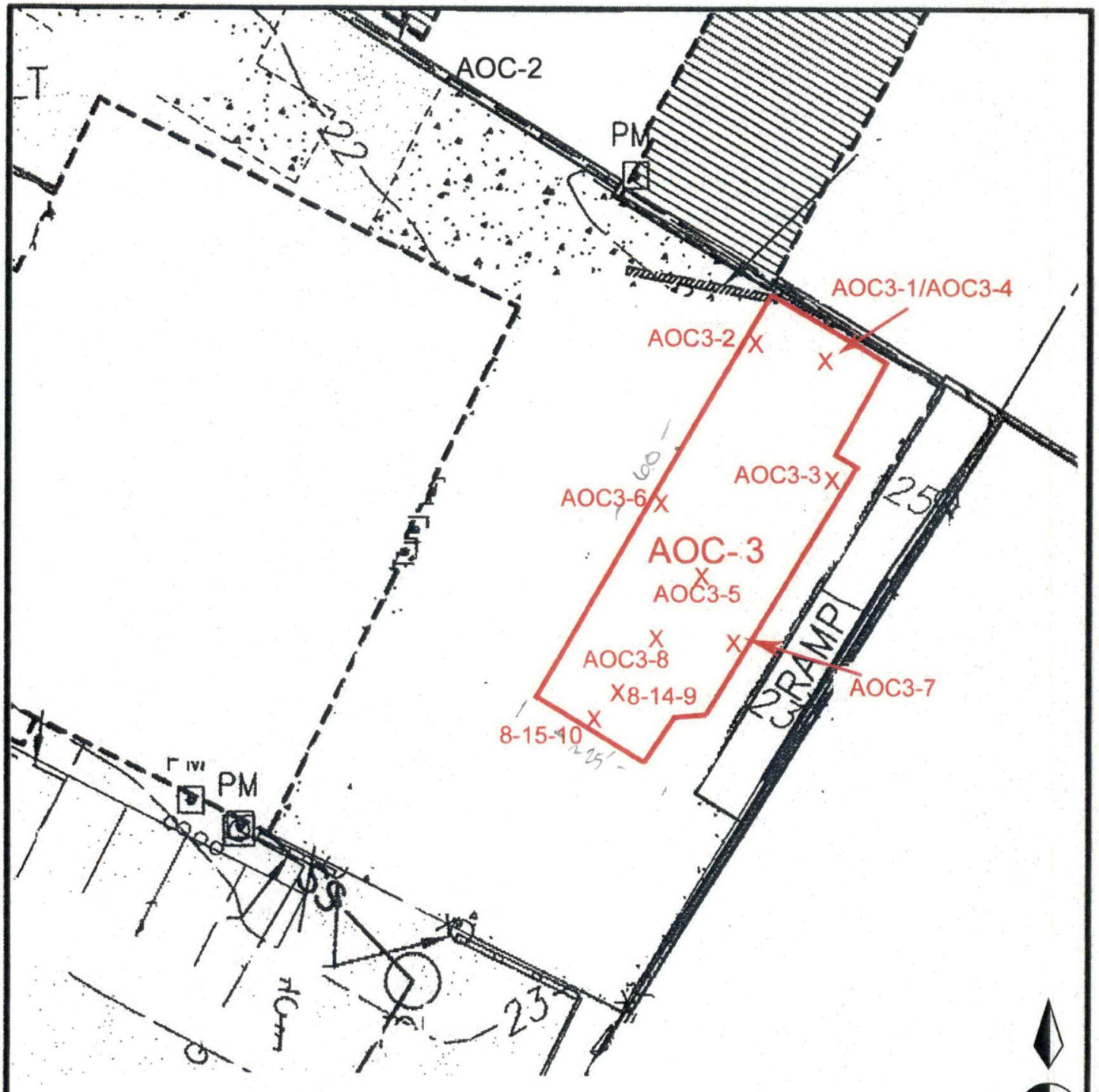
AOC-2 Confirmation sample locations
SBMC West
Seattle, Washington

Proj. No T-6751	Date July 2013	Figure 6



Reference: Barghausen Consulting ALTA Survey dated 7/9/2008

TERRA ASSOCIATES Geotechnical Consultants	AOC-3 Confirmation Sample Locations SBMC West Seattle, Washington		
	Proj. No T-6751	Date July 2013	Figure 6



Reference: Barghausen Consulting ALTA Survey dated 7/9/2008

TERRA ASSOCIATES
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AOC-3 Confirmation Sample Locations
SBMC West
Seattle, Washington

Proj. No T-6751	Date July 2013	Figure 7

APPENDIX A
FIELD SAMPLING, MONITORING WELL INSTALLATION/
GROUNDWATER SAMPLING AND LABORATORY TESTING

SBMC West
Seattle, Washington

Remedial Excavation

During remedial excavations, samples were logged by our representative and placed into laboratory-prepared glassware. Field sampling for volatile and gasoline range organics was performed in accordance with EPA Method 5035A for soil samples. All samples were refrigerated pending delivery to OnSite Environmental Inc. in Redmond, Washington. We followed chain of custody protocols for all samples.

All samples were field screened for volatile organic hydrocarbons using a handheld photo ionization device (PID). The field screening consisted of placing a subsample of each recovered sample into a plastic bag, tying the bag closed, and allowing the soil to reach ambient temperature. The inlet of the PID is then inserted into the bag. In addition, field screening included sheen testing. Sampling done during the remedial excavations was intended to consist of focused sampling to eliminate hot spots. Final sidewall samples were taken from areas that field screening, field observations, or lab testing had shown hot spots to have existed.

Backfill was not placed until laboratory confirmation test results had been received by Terra Associates.

Monitoring Well Construction

On October 3, 2012, we observed soil conditions at 6 test borings drilled to depths of up to 15.5 feet below current site grades. The approximate location of the current test borings and prior test borings by EAI are shown on the attached Exploration Location Plan, Figure 3. Test Boring Logs are attached as Figures A-1 through A-6.

A geologist from our office conducted the field exploration. Our representative classified the soil conditions encountered, maintained a log of each test boring, obtained representative soil samples, and recorded water levels observed during drilling. During drilling, soil samples were obtained in general accordance with ASTM Test Designation D-1586. Using this procedure, a 2.5-inch (inside diameter) split barrel sampler is driven into the ground 18 inches using a 300-pound hammer free falling a height of 30 inches. The number of blows required to drive the sampler 12 inches after an initial 6-inch set is equivalent to as the Standard Penetration Resistance value or N value. This is an index related to the consistency of cohesive soils and relative density of cohesionless materials. N values obtained for each sampling interval are recorded on the Boring Logs, Figures A-1 and A-6.

Two-inch diameter monitoring wells were constructed in the borings. The screened intervals were backfilled with clean silica sand that extended up to two feet above the top of the screen. The area above the screen backfill was backfilled with bentonite chips hydrated in place. The well backfill was placed down the auger while the augers were being withdrawn. Each well was provided with a standard light traffic rated flushmount monitoring well cover.

A representative of our firm continuously monitored the drilling and kept a detailed log of each exploration.

Groundwater Sampling

Prior to sampling, the monitoring wells were surged and bailed on October 4, 2012 to reduce impacts from drilling artifacts. The groundwater samples taken on October 17, 2012 were taken by using a peristaltic pump and dedicated tubing. The pump is run until the turbidity of the discharged water stabilizes. A flow through chamber was used to collect basic water parameter measurements. The field parameter results are summarized in Table 1A.

Table A-1
Groundwater Parameters

Well	Date	Temp	pH	Conductivity	DO	ORP
MW-1	10-17-12	18.2	11.26	1,600	0	-237
	1-4-13	13.75	10.14	941	0.93	-1.
	5-28-13	14.95	10.22	1191	0.28	-173.2
MW-2	10-17-12	17.3	6.63	897	0	-80
	1-4-13	13.89	6.49	645	1.27	-87
	5-28-13	14.00	6.46	881	0.32	-61.9
MW-3	10-17-12	17.9	6.66	769	0.3	-31
	1-4-13	12.66	6.47	397	0.66	-33.9
	5-28-13	14.43	6.44	543	0.3	-59.3
MW-4	10-17-12	15.9	12.33	328	0.3	-32.8
	1-4-13	10.88	12.47	3211	0.4	-22.1
	5-28-13	14.28	12.91	4642	0.22	-194.5
MW-5	10-17-12	16.7	12.42	452	0	-253
	1-4-13	10.05	12.63	2800	0.47	-20
	5-28-13	15.4	12.84	3685	0.2	-168.3
MW-6	10-17-12	17.5	6.82	913	0.72	-37
	1-4-13	NS	NS	NS	NS	NS
	5-28-13	NS	NS	NS	NS	NS

Notes: Temperature is in Celsius.
pH is in standard units.
Conductivity is in micro Siemens.
Dissolved oxygen is in parts per million.
Redox is in millivolts.

Values reported are from the final reading following stabilization of the parameters and about three casing volumes.

Surface Water Sampling

The water in Salmon Bay has been monitored for pH and standard parameters. The monitoring points are along the bulkhead and off of the piers. Surface water samples were taken using a sample jar that was filled at a depth of ten feet.

Table A-2
Surface Water Parameters

Location	Date	Depth	Temp	pH	Conductivity	DO	ORP
SB-1	5-28-13	10	15.39	7.73	139	8.26	136.9
SB-2	5-28-13	10	15.37	8.39	140	8.73	132.4
SB-3	1-4-13	4	NM	7.01	NM	NM	NM
	5-28-13	8	15.39	8.26	138	9.03	149.3
SB-4	1-4-13	4	NM	7.01	NM	NM	NM
	5-28-13	8	15.37	8.52	141	8.29	143.6
West pier	5-28-13	10	15.35	8.33	137	8.95	135
East Pier	5-28-13	10	15.33	8.38	141	9.24	133.1
Pier east of site	5-28-13	10	15.31	8.36	137	9.29	184

Notes: Temperature is in Celsius.
pH is in standard units.
Conductivity is in micro Siemens.
Dissolved oxygen is in parts per million.
Redox is in millivolts.

Chain of Custody and Sample Delivery

All samples taken by Terra Associates were placed into laboratory-prepared glassware. Each sample was given unique sample identification. All samples were kept refrigerated pending delivery to Freidman Bruya Inc. (FBI). Chain of custody protocols were followed for all samples. FBI has accreditation from Ecology for all of the testing performed during this project.

All testing was performed within the designated holding times. At the laboratory, standard quality control procedures were followed. The procedures consisted of sample blanks, duplicates, and matrix spikes. All testing was within normal standards.

Based on our review of the laboratory data, it is our opinion that the results are acceptable for current use.

LOG OF MONITORING WELL MW-1

Figure No. A-1

Project: SBMC **Project No:** T-6751 **Date Drilled:** 10/3/12

Client: _____ **Driller:** Cascade Drilling **Logged By:** NRH

Location: Seattle, Washington **Approx. Elev:** N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |—x—| Wl 10 30 50 70 90	Pocket Penetrometer △ TSF △ 1 2 3 4 / SPT (N) • Blows/ft • 10 20 30 40	Observ. Well
1–4		(3 inches ASPHALT) Recycled concrete.	Medium Dense			
5–6			Medium Dense		22	
7–15		Gray SAND with silt, fine grained, moist. (SP-SM)	Dense		50 (at 10); 50 (at 14)	
16–20		Boring terminated at 15.5 feet. 2-inch PVC monitoring well constructed with 0.10 screen from 5 to 15 feet.				

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.

Terra Associates, Inc.

Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

LOG OF MONITORING WELL MW-2

Figure No. A-2

Project: SBMC **Project No:** T-6751 **Date Drilled:** 10/4/12

Client: _____ **Driller:** Cascade Drilling **Logged By:** NRH

Location: Seattle, Washington **Approx. Elev:** N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |----x----| Wl 10 30 50 70 90	Pocket Penetrometer △ TSF △ 1 2 3 4 / SPT (N) ● Blows/ft ● 10 20 30 40	Observ. Well
1		(5 inches ASPHALT)				
2		Dark brown SILT with organics, moist. (Fill)	Stiff			
3						
4						
5					17 ●	
6		Gray silty SAND, moist. (SM)	Medium Dense			
7						
8						
9						
10					50 ●	
11		Gray coarse grained SAND, wet. (SP)	Dense			
12						
13						
14					44 ●	
15		Gray SILT with fine grained sand, moist. (ML)	Stiff			
16		Boring terminated at 15.5 feet. 2-inch PVC monitoring well constructed with 0.10 screen from 5 to 15 feet.				
17						
18						
19						
20						

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.

Terra Associates, Inc.

Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

LOG OF MONITORING WELL MW-3

Figure No. A-3

Project: SBMC **Project No:** T-6751 **Date Drilled:** 10/4/12

Client: _____ **Driller:** Cascade Drilling **Logged By:** NRH

Location: Seattle, Washington **Approx. Elev:** N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |----x----| Wl 10 30 50 70 90	Pocket Penetrometer △ TSF △ 1 2 3 4 SPT (N) ● Blows/Ft ● 10 20 30 40	Observ. Well
1		(2 inches ASPHALT) Dark brown SILT, moist, some organics. (ML)	Stiff			
2						
3			Medium Dense			
4		Gray silty SAND, moist. (SM)			13	
5						
6						
7						
8						
9						
10			Very Stiff		24	
11		Gray SILT with fine to medium grained sand, moist. (ML)				
12						
13						
14						
15					39	
16		Boring terminated at 15.5 feet. 2-inch PVC monitoring well constructed with 0.0 screen from 5 to 15 feet.				
17						
18						
19						
20						

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.

Terra Associates, Inc.

Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

LOG OF MONITORING WELL MW-4

Figure No. A-4

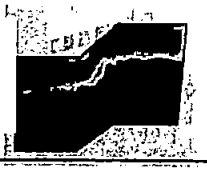
Project: SBMC **Project No:** T-6751 **Date Drilled:** 10/4/12

Client: _____ **Driller:** Cascade Drilling **Logged By:** NRH

Location: Seattle, Washington **Approx. Elev:** N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |----x----| Wl 10 30 50 70 90	Pocket Penetrometer △ TSF △ 1 2 3 4 SPT (N) • Blows/ft • 10 20 30 40	Observ. Well
1		(2 inches ASPHALT)				
2		Recycled concrete.				
3			Medium Dense			
4						
5					15	
6		No recovery.				
7						
8						
9			Very Stiff			
10					24	
11		Gray SILT with fine grained sand, moist. (ML)				
12						
13						
14					39	
15			Hard			
16		Boring terminated at 15.5 feet. 2-inch PVC monitoring well constructed with 0.10 screen from 5 to 15 feet.				
17						
18						
19						
20						

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.



Terra Associates, Inc.

Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

LOG OF MONITORING WELL MW-5

Figure No. A-5

Project: SBMC **Project No:** T-6751 **Date Drilled:** 10/4/12

Client: _____ **Driller:** Cascade Drilling **Logged By:** NRH

Location: Seattle, Washington **Approx. Elev:** N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |—x—| Wl 10 30 50 70 90	Pocket Penetrometer △ TSF △ 1 2 3 4 SPT (N) • Blows/ft • 10 20 30 40	Observ. Well
1		(2 to 3 inches ASPHALT)				
2		Recycled concrete.	Medium Dense			
3						
4						
5		No recovery.				
6						
7			Very Stiff/ Dense			
8						
9		Gray SILT with fine grained sand, moist, mottled in places. (ML-SM)				
10					27 •	
11						
12						
13						
14			Hard		45 •	
15						
16		Boring terminated at 15.5 feet. 2-inch PVC monitoring well constructed with 0.10 screen from 5 to 15 feet.				
17						
18						
19						
20						

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.

Terra Associates, Inc.

Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

LOG OF MONITORING WELL MW-6

Figure No. A-6

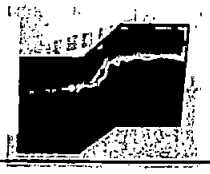
Project: SBMC **Project No:** T-6751 **Date Drilled:** 10/4/12

Client: _____ **Driller:** Cascade Drilling **Logged By:** NRH

Location: Seattle, Washington **Approx. Elev:** N/A

Depth (ft)	Sample Interval	Soil Description	Consistency/ Relative Density	Moisture Content % Wp |----x----| Wl 10 30 50 70 90	Pocket Penetrometer △ TSF △ 1 2 3 4 SPT (N) • Blows/ft • 10 20 30 40	Observ. Well
1		(3 inches ASPHALT) Brown silty SAND with gravel, moist. (Fill)	Medium Dense			
2		Brown silty SAND, moist. (SM)	Medium Dense			
3						
4						
5		Gray SILT with sand lenses, moist. (ML)	Stiff		18	
6						
7						
8						
9		Gray medium to coarse grained SAND with silt lenses, wet. (SP)	Medium Dense to Dense			
10					29	
11						
12						
13						
14		Becomes fine grained.			45	
15						
16		Boring terminated at 15.5 feet. 2-inch PVC monitoring well constructed with 0.10 screen from 5 to 15 feet.				
17						
18						
19						
20						

Note: This borehole log has been prepared for geotechnical purposes. This information pertains only to this boring location and should not be interpeted as being indicative of other areas of the site.



Terra Associates, Inc.

Consultants in Geotechnical Engineering, Geology and Environmental Earth Sciences

APPENDIX B

ANALYTICAL TEST REPORTS – REMEDIAL EXCAVATIONS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

July 20, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Williams Rd #101
Kirkland, WA

Dear Mr Lie:

Included are the results from the testing of material submitted on July 19, 2012 from the SBMC, F&BI 207267 project. There are 13 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SBM0720R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 19, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 207267 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
207267-01	AOC 1 W
207267-02	AOC 1 S
207267-03	AOC 1 E
207267-04	SP M
207267-05	SP E
207267-06	SP W
207267-07	TP-1 6.5
207267-08	S-1

All quality control requirements were acceptable.

Date of Report: 07/20/12
Date Received: 07/19/12
Project: SBMC, F&BI 207267
Date Extracted: 07/19/12
Date Analyzed: 07/19/12 and 07/20/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
SP M 207267-04	<0.02	<0.02	0.063	0.13	62	82
SP E 207267-05	<0.02	<0.02	<0.02	<0.06	10	78
SP W 207267-06	<0.02	<0.02	<0.02	<0.06	10	81
TP-1 6.5 207267-07	<0.02	<0.02	<0.02	<0.06	<2	78
S-1 207267-08	<0.02	<0.02	<0.02	<0.06	<2	79
Method Blank 02-1276 MB	<0.02	<0.02	<0.02	<0.06	<2	77

Date of Report: 07/20/12
Date Received: 07/19/12
Project: SBMC, F&BI 207267
Date Extracted: 07/19/12
Date Analyzed: 07/19/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
AOC 1 W 207267-01	<50	<250	115
AOC 1 S 207267-02	<50	<250	118
AOC 1 E 207267-03	1,400	<250	100
SP M 207267-04	64	<250	101
SP E 207267-05	<50	<250	101
SP W 207267-06	<50	<250	98
Method Blank 02-1284 MB	<50	<250	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SP M	Client:	Terra Associates
Date Received:	07/19/12	Project:	SBMC, F&BI 207267
Date Extracted:	07/20/12	Lab ID:	207267-04
Date Analyzed:	07/20/12	Data File:	207267-04.009
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	101	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	12.7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SP E	Client:	Terra Associates
Date Received:	07/19/12	Project:	SBMC, F&BI 207267
Date Extracted:	07/20/12	Lab ID:	207267-05
Date Analyzed:	07/20/12	Data File:	207267-05.010
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	100	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	2.44

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SP W	Client:	Terra Associates
Date Received:	07/19/12	Project:	SBMC, F&BI 207267
Date Extracted:	07/20/12	Lab ID:	207267-06
Date Analyzed:	07/20/12	Data File:	207267-06.011
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	101	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	10.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	TP-1 6.5	Client:	Terra Associates
Date Received:	07/19/12	Project:	SBMC, F&BI 207267
Date Extracted:	07/20/12	Lab ID:	207267-07
Date Analyzed:	07/20/12	Data File:	207267-07.012
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	93	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	2.29

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	S-1	Client:	Terra Associates
Date Received:	07/19/12	Project:	SBMC, F&BI 207267
Date Extracted:	07/20/12	Lab ID:	207267-08
Date Analyzed:	07/20/12	Data File:	207267-08.013
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	97	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	3.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	Not Applicable	Project:	SBMC, F&BI 207267
Date Extracted:	07/19/12	Lab ID:	I2-478 mb
Date Analyzed:	07/20/12	Data File:	I2-478 mb.008
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	102	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Date of Report: 07/20/12
Date Received: 07/19/12
Project: SBMC, F&BI 207267

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 207228-02 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	84	66-121
Toluene	mg/kg (ppm)	0.5	85	72-128
Ethylbenzene	mg/kg (ppm)	0.5	87	69-132
Xylenes	mg/kg (ppm)	1.5	85	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 07/20/12
Date Received: 07/19/12
Project: SBMC, F&BI 207267

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 207262-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	107	107	64-133	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	101	58-147

Date of Report: 07/20/12
Date Received: 07/19/12
Project: SBMC, F&BI 207267

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 207227-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	56.4	87 b	103 b	64-139	17 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	99	83-118

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

207267

SAMPLE CHAIN OF CUSTODY ME 7/19/12

BI./VS1

Send Report To Chuck Liu
Company Terra Assoc.
Address 12525 Willows Rd #101
City, State, ZIP Kirkland WA
Phone # 425 821-7777 Fax #

SAMPLERS (signature)
PROJECT NAME/NO. SBMC
PO #
REMARKS Bill to SBMC attn: Brooke Stabbert

Page # ___ of ___
TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH
Rush charges authorized by:
SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☒ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Lead						Notes
AOC 1 W	01		2:25	S	1	X												
AOC 1 S	02		2:25		1	X												
AOC 1 E	03		2:30		1	X												
SP M	04		2:50		1	X	X	X				X						OK for
SP E	05		2:50		1	X	X	X				X						TPH-G from
SP W	06		2:50		1	X	X	X				X						4 oz
TP-1 6.5	07 A-E		2:05		5		X	X				X						
S-1	08 A-E		2:15	↓	5		X	X				X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Chuck Liu	TAI	7-19	3:75
Received by:		Nhan Phan	FEBI	7/19/12	3:15
Relinquished by:					
Received by:					

Samples received at 23 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

July 27, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on July 23, 2012 from the SBMC, F&BI 207297 project. There are 17 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0727R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 23, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 207297 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
207297-01	S-2
207297-02	AOC1 E 7-23

A 200.8 internal standard failed the acceptance criteria for sample AOC1 E 7-23 due to matrix interferences. The data were flagged accordingly. The sample was diluted and reanalyzed.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297
Date Extracted: 07/23/12
Date Analyzed: 07/23/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
S-2 207297-01	<0.02	<0.02	<0.02	<0.06	<2	81
Method Blank 02-1296 MB	<0.02	<0.02	<0.02	<0.06	<2	77

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297
Date Extracted: 07/23/12
Date Analyzed: 07/23/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
AOC1 E 7-23 207297-02	<50	<250	107
Method Blank 02-1297 MB	<50	<250	117

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	AOC1 E 7-23	Client:	Terra Associates
Date Received:	07/23/12	Project:	SBMC, F&BI 207297
Date Extracted:	07/23/12	Lab ID:	207297-02
Date Analyzed:	07/24/12	Data File:	207297-02.026
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	160 vo	60	125
Indium	93	60	125
Holmium	100	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	857 J
Arsenic	6.39
Selenium	<1
Silver	<1
Cadmium	1.24
Barium	625
Lead	527

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	AOC1 E 7-23	Client:	Terra Associates
Date Received:	07/23/12	Project:	SBMC, F&BI 207297
Date Extracted:	07/23/12	Lab ID:	207297-02 x10
Date Analyzed:	07/24/12	Data File:	207297-02 x10.043
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	106	60	125
Indium	98	60	125
Holmium	104	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	1,310
Arsenic	<10
Selenium	<10
Silver	<10
Cadmium	<10
Barium	599
Lead	540

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 207297
Date Extracted:	07/23/12	Lab ID:	I2-487 mb
Date Analyzed:	07/24/12	Data File:	I2-487 mb rr.042
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125
Indium	99	60	125
Holmium	103	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	<1
Lead	<1

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297
Date Extracted: 07/23/12
Date Analyzed: 07/23/12

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Total Mercury
AOC1 E 7-23 207297-02	<0.1
Method Blank	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	AOC1 E 7-23	Client:	Terra Associates
Date Received:	07/23/12	Project:	SBMC, F&BI 207297
Date Extracted:	07/24/12	Lab ID:	207297-02
Date Analyzed:	07/24/12	Data File:	207297-02.010
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125
Indium	102	60	125
Holmium	104	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Chromium	<1	5.0
Arsenic	<1	5.0
Selenium	<1	1.0
Silver	<1	5.0
Cadmium	<1	1.0
Barium	1.50	100
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 200.8 and 40 CFR PART 261

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 207297
Date Extracted:	07/24/12	Lab ID:	I2-490 mb
Date Analyzed:	07/24/12	Data File:	I2-490 mb.008
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/L (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	103	60	125
Indium	101	60	125
Holmium	104	60	125

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Chromium	<1	5.0
Arsenic	<1	5.0
Selenium	<1	1.0
Silver	<1	5.0
Cadmium	<1	1.0
Barium	<1	100
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297
Date Extracted: 07/24/12
Date Analyzed: 07/25/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TCLP MERCURY IN ACCORDANCE WITH EPA METHOD 1631E AND 40 CFR PART 261
Results Reported as mg/L (ppm)

Sample ID Laboratory ID	Total Mercury
AOC1 E 7-23 207297-02	<0.1
Method Blank	<0.1
TCLP Limit	*0.2*

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 207294-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	80	66-121
Toluene	mg/kg (ppm)	0.5	81	72-128
Ethylbenzene	mg/kg (ppm)	0.5	83	69-132
Xylenes	mg/kg (ppm)	1.5	83	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 207304-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	105	104	64-133	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	106	58-147

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 207294-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	12.8	95 b	98 b	63-120	3 b
Arsenic	mg/kg (ppm)	10	1.87	101	100	56-125	1
Selenium	mg/kg (ppm)	5	<1	91	96	64-118	5
Silver	mg/kg (ppm)	10	<1	105	104	83-112	1
Cadmium	mg/kg (ppm)	10	<1	108	109	85-117	1
Barium	mg/kg (ppm)	50	34.6	102 b	105 b	65-132	3 b
Lead	mg/kg (ppm)	50	2.72	101	103	64-139	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	111	81-117
Arsenic	mg/kg (ppm)	10	101	79-112
Selenium	mg/kg (ppm)	5	91	83-113
Silver	mg/kg (ppm)	10	104	85-113
Cadmium	mg/kg (ppm)	10	107	88-114
Barium	mg/kg (ppm)	50	103	87-113
Lead	mg/kg (ppm)	50	106	83-118

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 207294-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	mg/kg (ppm)	0.125	<0.1	93	99	54-156	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	mg/kg (ppm)	0.125	88	73-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TCLP METALS USING EPA METHOD 200.8 AND 40 CFR PART 261

Laboratory Code: 207297-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/L (ppm)	2.0	<1	103	104	50-150	1
Arsenic	mg/L (ppm)	1.0	<1	102	101	50-150	1
Selenium	mg/L (ppm)	0.5	<1	103	106	50-150	3
Silver	mg/L (ppm)	0.5	<1	99	98	50-150	1
Cadmium	mg/L (ppm)	0.5	<1	101	100	50-150	1
Barium	mg/L (ppm)	5.0	1.50	103 b	101 b	50-150	2 b
Lead	mg/L (ppm)	1.0	<1	100	99	50-150	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/L (ppm)	2.0	99	70-130
Arsenic	mg/L (ppm)	1.0	99	70-130
Selenium	mg/L (ppm)	0.5	91	70-130
Silver	mg/L (ppm)	0.5	100	70-130
Cadmium	mg/L (ppm)	0.5	102	70-130
Barium	mg/L (ppm)	5.0	103	70-130
Lead	mg/L (ppm)	1.0	101	70-130

Date of Report: 07/27/12
Date Received: 07/23/12
Project: SBMC, F&BI 207297

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TCLP MERCURY IN ACCORDANCE WITH EPA METHOD 1631E AND 40 CFR PART 261

Laboratory Code: 207297-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Mercury	mg/L (ppm)	0.005	<0.1	95	99	78-124	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	mg/L (ppm)	0.005	99	78-123

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

207297

SAMPLE CHAIN OF CUSTODY ME 07-23-12 BT1/VS1

Page # 1 of 1

Send Report To: ~~TCE~~ Chuck Lie

Company: Terra Assoc

Address: 12525 Willows Rd #101

City, State, ZIP: Kirkland WA 980XX

Phone #: Fax #:

SAMPLERS (signature): [signature]

PROJECT NAME/NO.: SBMC

PO #:

REMARKS: Please report total metals ASAP

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☑ RUSH
- Rush charges authorized by: [signature]

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Total RCRA metals	TCLP RCRA metals				Notes
S-2	01 A-E	7-23	10:10	S	5		X	X									
ADCI E 7-23	02 A+B	7-23	10:34	S	2	X						X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Chuck Lie	Terra	7-23	12:00
Received by:	[signature]	Jon Sherman	FBI	7/23/12	↓
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

Samples received at 7 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

July 30, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on July 23, 2012 from the SBMC, F&BI 207301 project. There are 18 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0730R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 23, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 207301 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
207301-01	AOC 1E Wall 7-23 pm
207301-02	AOC 1N Wall 7-23 pm
207301-03	AOC 1S Wall 7-23 pm
207301-04	AOC 1Base

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/12
Date Received: 07/23/12
Project: SBMC, F&BI 207301
Date Extracted: 07/23/12
Date Analyzed: 07/23/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC 1E Wall 7-23 pm 207301-01	1,400	<250	123
AOC 1N Wall 7-23 pm 207301-02	<50	<250	117
AOC 1S Wall 7-23 pm 207301-03	1,200	<250	115
AOC 1Base 207301-04	<50	<250	106
Method Blank 02-1292 MB	<50	<250	110

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	AOC 1E Wall 7-23 pm	Client:	Terra Associates
Date Received:	07/23/12	Project:	SBMC, F&BI 207301
Date Extracted:	07/25/12	Lab ID:	207301-01
Date Analyzed:	07/26/12	Data File:	207301-01.027
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	96	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	1.94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	AOC 1N Wall 7-23 pm	Client:	Terra Associates
Date Received:	07/23/12	Project:	SBMC, F&BI 207301
Date Extracted:	07/25/12	Lab ID:	207301-02
Date Analyzed:	07/26/12	Data File:	207301-02.028
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	96	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	2.78

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	AOC 1S Wall 7-23 pm	Client:	Terra Associates
Date Received:	07/23/12	Project:	SBMC, F&BI 207301
Date Extracted:	07/25/12	Lab ID:	207301-03
Date Analyzed:	07/26/12	Data File:	207301-03.029
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	95	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	2.64

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	AOC 1Base	Client:	Terra Associates
Date Received:	07/23/12	Project:	SBMC, F&BI 207301
Date Extracted:	07/25/12	Lab ID:	207301-04
Date Analyzed:	07/26/12	Data File:	207301-04.030
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	97	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	2.54

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 207301
Date Extracted:	07/25/12	Lab ID:	I2-494 mb
Date Analyzed:	07/26/12	Data File:	I2-494 mb.017
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	100	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	AOC 1E Wall 7-23 pm pc	Client:	Terra Associates
Date Received:	07/23/12	Project:	SBMC, F&BI 207301
Date Extracted:	07/24/12	Lab ID:	207301-01
Date Analyzed:	07/24/12	Data File:	072409.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 207301
Date Extracted:	07/24/12	Lab ID:	02-1269 mb
Date Analyzed:	07/24/12	Data File:	072408.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)
Benzene	<0.03
Toluene	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AOC 1E Wall 7-23 pm	Client:	Terra Associates
Date Received:	07/23/12	Project:	SBMC, F&BI 207301
Date Extracted:	07/24/12	Lab ID:	207301-01 1/5
Date Analyzed:	07/24/12	Data File:	072408.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	50	150
Benzo(a)anthracene-d12	103	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	0.023
Fluorene	0.18
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	0.078
Pyrene	0.18
Benz(a)anthracene	0.017
Chrysene	0.033
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	0.014
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 207301
Date Extracted:	07/24/12	Lab ID:	02-1298 mb 1/5
Date Analyzed:	07/24/12	Data File:	072407.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	108	50	150
Benzo(a)anthracene-d12	81	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 07/30/12
Date Received: 07/23/12
Project: SBMC, F&BI 207301
Date Extracted: 07/26/12
Date Analyzed: 07/26/12

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR HEXAVALENT CHROMIUM USING EPA METHOD 7196

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Hexavalent Chromium
AOC 1E Wall 7-23 pm 207301-01	<5
AOC 1N Wall 7-23 pm 207301-02	<5
AOC 1S Wall 7-23 pm 207301-03	<5
AOC 1Base 207301-04	<5
Method Blank	<5

Date of Report: 07/30/12
Date Received: 07/23/12
Project: SBMC, F&BI 207301

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 207293-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	1,200	109	108	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	103	79-144

Date of Report: 07/30/12
Date Received: 07/23/12
Project: SBMC, F&BI 207301

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 207286-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	12.3	98 b	91 b	64-139	7 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	96	83-118

Date of Report: 07/30/12
Date Received: 07/23/12
Project: SBMC, F&BI 207301

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 207316-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	mg/kg (ppm)	2.5	<0.03	69	29-129
Toluene	mg/kg (ppm)	2.5	<0.05	75	35-130
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	79	32-137
m,p-Xylene	mg/kg (ppm)	5	<0.1	80	34-136
o-Xylene	mg/kg (ppm)	2.5	<0.05	81	33-134
Naphthalene	mg/kg (ppm)	2.5	<0.05	82	14-157

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	2.5	83	82	68-114	1
Toluene	mg/kg (ppm)	2.5	88	86	66-126	2
Ethylbenzene	mg/kg (ppm)	2.5	91	88	64-123	3
m,p-Xylene	mg/kg (ppm)	5	92	90	78-122	2
o-Xylene	mg/kg (ppm)	2.5	93	90	77-124	3
Naphthalene	mg/kg (ppm)	2.5	88	88	60-125	0

Date of Report: 07/30/12
Date Received: 07/23/12
Project: SBMC, F&BI 207301

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 207286-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	0.20	102 b	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	86	52-121
Acenaphthene	mg/kg (ppm)	0.17	0.069	109 b	51-123
Fluorene	mg/kg (ppm)	0.17	0.069	121 b	37-137
Phenanthrene	mg/kg (ppm)	0.17	0.20	154 b	45-124
Anthracene	mg/kg (ppm)	0.17	0.39	269 b	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.13	116 b	50-125
Pyrene	mg/kg (ppm)	0.17	0.098	117 b	41-135
Benz(a)anthracene	mg/kg (ppm)	0.17	0.035	88 b	23-144
Chrysene	mg/kg (ppm)	0.17	0.082	117 b	45-122
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.036	92 b	31-144
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	0.013	93	45-130
Benzo(a)pyrene	mg/kg (ppm)	0.17	0.025	90	39-128
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	0.019	93	28-146
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	80	46-129
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	0.016	84	37-133

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	91	90	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	87	85	54-121	2
Acenaphthene	mg/kg (ppm)	0.17	92	89	54-123	3
Fluorene	mg/kg (ppm)	0.17	92	90	56-127	2
Phenanthrene	mg/kg (ppm)	0.17	91	89	55-122	2
Anthracene	mg/kg (ppm)	0.17	89	89	50-120	0
Fluoranthene	mg/kg (ppm)	0.17	91	89	54-129	2
Pyrene	mg/kg (ppm)	0.17	87	85	53-127	2
Benz(a)anthracene	mg/kg (ppm)	0.17	84	82	51-115	2
Chrysene	mg/kg (ppm)	0.17	92	90	55-129	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	87	90	56-123	3
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	97	92	54-131	5
Benzo(a)pyrene	mg/kg (ppm)	0.17	83	82	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	93	96	49-148	3
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	90	89	50-141	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	90	88	52-131	2

Date of Report: 07/30/12
Date Received: 07/23/12
Project: SBMC, F&BI 207301

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR HEXAVALENT CHROMIUM USING EPA METHOD 7196

Laboratory Code: 207301-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Hexavalent Chromium	mg/kg (ppm)	<5	<5	nm	0-20

Laboratory Code: 207301-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Hexavalent Chromium	mg/kg (ppm)	250	<5	93	75-125

Laboratory Code: 207301-04 (Matrix Spike) Calibration Verification Spike

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Hexavalent Chromium	mg/kg (ppm)	250	<5	106	85-115

Laboratory Code: 207301-04 (Matrix Spike) Insoluble Spike

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Lead Chromate	mg/kg (ppm)	800	<5	140 vo	75-125

Laboratory Code: 207301-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chromium (III)	mg/kg (ppm)	250	<5	0	0-1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Hexavalent Chromium	mg/kg (ppm)	250	98	80-120

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

207301 CHUCK LUE

SAMPLE CHAIN OF CUSTODY ME 07/23/12 A01

Send Report To Fer

Company Tetra Assoc

Address 12525 Willows Rd · #101

City, State, ZIP

Phone # Fax #

SAMPLERS (signature)

PROJECT NAME/NO. SBC

PO #

REMARKS SBWC

revised 7-23 4pm

Page # of

TURNAROUND TIME

☐ Standard (2 Weeks)

RUSH by 3:30

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Naphthalene	cPAHs SIMS	Lead	Cr VI	Notes
AOC 1 E wall 7-23 pm	01	7-23	1300	S	1	X		⊗				⊗	⊗	*	*	
AOC 1 N wall 7-23 pm	02	↓	↓	↓		X								↓	↓	
AOC 1 S wall 7-23 pm	03	↓	↓	↓		X								↓	↓	
AOC 1 Base	04	↓	↓	↓		X								↓	↓	

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	CHUCK LUE	TAI	7-23	1:30 pm
Received by:	[signature]	Nhan Phan	FeBI	7/23/12	1:30
Relinquished by:					
Received by:					

Samples received at 21 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

July 26, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on July 23, 2012 from the SBMC, F&BI 207307 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0726R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 23, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 207307 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
207307-01	S-3
207307-02	S-4
207307-03	S-5

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/26/12
Date Received: 07/23/12
Project: SBMC, F&BI 207307
Date Extracted: 07/23/12
Date Analyzed: 07/23/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
S-3 207307-01	<0.02	<0.02	0.33	0.64	200	88
S-4 207307-02	0.11	<0.02	0.068	<0.06	<2	77
S-5 207307-03	<0.02	<0.02	<0.02	<0.06	<2	78
Method Blank 02-1296 MB	<0.02	<0.02	<0.02	<0.06	<2	77

Date of Report: 07/26/12
Date Received: 07/23/12
Project: SBMC, F&BI 207307

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 207294-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	80	66-121
Toluene	mg/kg (ppm)	0.5	81	72-128
Ethylbenzene	mg/kg (ppm)	0.5	83	69-132
Xylenes	mg/kg (ppm)	1.5	83	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

207307

SAMPLE CHAIN OF CUSTODY

ME 7/23/12 CH/VSI

Send Report To: Tevis Assoc
Company: Chuck Lie
Address: 12525 Willows Rd
City, State, ZIP: Kirkland WA
Phone #: 425-821-7777 Fax #:

SAMPLERS (signature): CL

PROJECT NAME/NO.: SMB SBMC

PO #:

REMARKS: Bill SBMC

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☑ RUSH CL
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS							Notes
S-3	01 A-E	7-23	15 30	S	5		X	X										
S-4	02	↓	↓	↓	↓		X	X										
S-5	03	↓	↓	↓	↓		X	X										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:					
Received by:	CL	CHUCK LIE	TAI	7-23	15 30
Relinquished by:	VINH	VINH	FBI	7/23/12	15 32
Received by:					

Samples received at 21 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

July 30, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on July 24, 2012 from the SBMC, F&BI 207328 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0730R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 24, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 207328 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
207328-01	S-6
207328-02	S-7
207328-03	S-8
207328-04	S-9

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/12
Date Received: 07/24/12
Project: SBMC, F&BI 207328
Date Extracted: 07/24/12
Date Analyzed: 07/25/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
S-6 207328-01	<0.02	<0.02	<0.02	<0.06	<2	75
S-7 207328-02	<0.02	<0.02	<0.02	<0.06	<2	76
S-8 207328-03	0.092	<0.02	<0.02	<0.06	<2	74
S-9 207328-04 1/5	0.96	1.6	3.8	13	290	85
Method Blank 02-1303 MB	<0.02	<0.02	<0.02	<0.06	<2	77

Date of Report: 07/30/12
Date Received: 07/24/12
Project: SBMC, F&BI 207328

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 207269-02 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	83	66-121
Toluene	mg/kg (ppm)	0.5	84	72-128
Ethylbenzene	mg/kg (ppm)	0.5	85	69-132
Xylenes	mg/kg (ppm)	1.5	84	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of contrd limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

207328

SAMPLE CHAIN OF CUSTODY ME 07/24/12 VS1/CT1

Send Report To: Chuck Lie

Company: Terra Assoc

Address: 12525 Willows Rd #101

City, State, ZIP: Kirkland WA 98034

Phone #: 425-821-7777 Fax #:

SAMPLERS (signature): [signature]

PROJECT NAME/NO.: ~~SBM~~ SBMC

PO #:

REMARKS: bill to SBMC

Page # ___ of ___

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☑ RUSH [signature]

Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

ANALYSES REQUESTED

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS						Notes
S-6	01 A-E	7-24-12	1230	S	5		X	X									
S-7	02		1340				X	X									
S-8	03		1345				X	X									
S-9	04		1350				X	X									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Chuck Lie	TAI	7-24	2:20 pm
Received by: [signature]	Nhan Phan	F&BI	7/24/12	2:20
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Samples received at 15 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

July 30, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on July 25, 2012 from the SBMC, F&BI 207362 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0730R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 25, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 207362 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
207362-01	S-10
207362-02	S-11

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/30/12
Date Received: 07/25/12
Project: SBMC, F&BI 207362
Date Extracted: 07/25/12
Date Analyzed: 07/26/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
S-10 207362-01	1.3	0.048	<0.02	<0.06	4.0	75
S-11 207362-02	1.1	0.030	0.093	<0.06	3.8	75
Method Blank 02-1306 MB	<0.02	<0.02	<0.02	<0.06	<2	79

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	S-10	Client:	Terra Associates
Date Received:	07/25/12	Project:	SBMC, F&BI 207362
Date Extracted:	07/26/12	Lab ID:	207362-01
Date Analyzed:	07/26/12	Data File:	207362-01.023
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	98	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	4.12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	S-11	Client:	Terra Associates
Date Received:	07/25/12	Project:	SBMC, F&BI 207362
Date Extracted:	07/26/12	Lab ID:	207362-02
Date Analyzed:	07/26/12	Data File:	207362-02.024
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	98	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	1.82

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 207362
Date Extracted:	07/25/12	Lab ID:	I2-494 mb
Date Analyzed:	07/26/12	Data File:	I2-494 mb.017
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	100	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Date of Report: 07/30/12
Date Received: 07/25/12
Project: SBMC, F&BI 207362

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 207333-04 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	3 a	4 a	29 a

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	78	66-121
Toluene	mg/kg (ppm)	0.5	80	72-128
Ethylbenzene	mg/kg (ppm)	0.5	82	69-132
Xylenes	mg/kg (ppm)	1.5	82	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

Date of Report: 07/30/12
Date Received: 07/25/12
Project: SBMC, F&BI 207362

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 207286-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	12.3	98 b	91 b	64-139	7 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	96	83-118

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

207362

SAMPLE CHAIN OF CUSTODY ME 07-25-12

CTI / VSI

Page # 1 of 1

Send Report To CHUCK CIE
Company Terra Assoc Inc
Address 12525 Willows Rd #101
City, State, ZIP Kirkland WA 98034
Phone # 425-827-7701 Fax #

SAMPLERS (signature)

PROJECT NAME/NO. SBMC

PO #

REMARKS 611 SBMC

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☒ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	LEAD						Notes
S-10	01 A-E	7-25	1400	S	5	X	X	X				X						
S-11	02 F	7-25	1405	S	5		X	X				X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		CHUCK CIE	TAI	7-25	1432
Received by:		DOUG	F+BZ	11	11
Relinquished by:					
Received by:			Samples received at 15 °C		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

July 31, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on July 26, 2012 from the SBMC, F&BI 207377 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0731R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 26, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 207377 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
207377-01	S12
207377-02	S13

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/31/12
Date Received: 07/26/12
Project: SBMC, F&BI 207377
Date Extracted: 07/26/12
Date Analyzed: 07/26/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
S12 207377-01	0.46	<0.02	<0.02	<0.06	<2	77
S13 207377-02	<0.02	<0.02	<0.02	<0.06	<2	76
Method Blank 02-1310 MB	<0.02	<0.02	<0.02	<0.06	<2	77

Date of Report: 07/31/12
Date Received: 07/26/12
Project: SBMC, F&BI 207377
Date Extracted: 07/26/12
Date Analyzed: 07/26/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
S12 207377-01	<50	<250	111
S13 207377-02	<50	<250	111
Method Blank 02-1311 MB2	<50	<250	89

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	S12	Client:	Terra Associates
Date Received:	07/26/12	Project:	SBMC, F&BI 207377
Date Extracted:	07/27/12	Lab ID:	207377-01
Date Analyzed:	07/27/12	Data File:	207377-01.024
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	92	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	1.03

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	S13	Client:	Terra Associates
Date Received:	07/26/12	Project:	SBMC, F&BI 207377
Date Extracted:	07/27/12	Lab ID:	207377-02
Date Analyzed:	07/27/12	Data File:	207377-02.025
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	91	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	4.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 207377
Date Extracted:	07/27/12	Lab ID:	I2-502 mb
Date Analyzed:	07/27/12	Data File:	I2-502 mb.016
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	89	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Date of Report: 07/31/12
Date Received: 07/26/12
Project: SBMC, F&BI 207377

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 207352-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	77	66-121
Toluene	mg/kg (ppm)	0.5	80	72-128
Ethylbenzene	mg/kg (ppm)	0.5	82	69-132
Xylenes	mg/kg (ppm)	1.5	81	69-131
Gasoline	mg/kg (ppm)	20	90	61-153

Date of Report: 07/31/12
Date Received: 07/26/12
Project: SBMC, F&BI 207377

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 207361-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	210	110	111	64-133	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	113	58-147

Date of Report: 07/31/12
Date Received: 07/26/12
Project: SBMC, F&BI 207377

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 207338-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	2.14	109	107	64-139	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	108	83-118

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

207377

ME 07/26/12

VSI / AT1

Send Report To Charles Lia

Company Terra Associates

Address 12525 Willows Rd Suite 101

City, State, ZIP Kirkland, WA 98034

Phone (425) 821-7777 Fax # 821-4334

SAMPLERS (signature)

PROJECT NAME/NO. SBMC

PO#

REMARKS

Page # ___ of ___

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH ASAP

Rush charges authorized by

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	Lead						Notes
S12	01 A-E	7/26/12	11:00	Soil	5	X	X	X				X						
S13	02 A-E	7/26/12	11:30	Soil	5	X	X	X				X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Nicolas R. Hoffman	Terra Associates	7/26/12	11:50
Received by:		Nhan Phan	FEBI	7/26/12	1150
Relinquished by:					
Received by:			Samples received at 12 °C		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 1, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on July 30, 2012 from the SBMC, F&BI 207424 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0801R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 30, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 207424 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
207424-01	S-14

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/01/12
Date Received: 07/30/12
Project: SBMC, F&BI 207424
Date Extracted: 07/30/12
Date Analyzed: 07/30/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
S-14 207424-01	0.026	<0.02	<0.02	<0.06	<2	78
Method Blank 02-1343 MB	<0.02	<0.02	<0.02	<0.06	<2	82

Date of Report: 08/01/12
Date Received: 07/30/12
Project: SBMC, F&BI 207424

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 207390-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	86	66-121
Toluene	mg/kg (ppm)	0.5	87	72-128
Ethylbenzene	mg/kg (ppm)	0.5	89	69-132
Xylenes	mg/kg (ppm)	1.5	86	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

207424

SAMPLE CHAIN OF CUSTODY

ME 07-30-12

BZI/VCI

Send Report To: Terra Assoc
Company: CHUCK LIE
Address: 12525 Willows #101
City, State, ZIP: Kirkland WA
Phone #: 425-821-7777 Fax #:

SAMPLERS (signature):

PROJECT NAME/NO.: SBMC

PO #:

REMARKS: Bill SBMC

Page # of

TURNAROUND TIME
- Standard (2 Weeks)
- RUSH: 24 hr
- Rush charges authorized by:

SAMPLE DISPOSAL
- Dispose after 30 days
- Return samples
- Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021	VOCs by 8260	cPAHs by 8270	PAH						Notes
S-14	01A-E	7-30	12:30	S	5		X	X									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
Project Manager:

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished:	Terra CHUCK LIE	TRI	7-30	13:2
Received:	DOUG	F&BI	11	11
Relinquished:				
Received:				

Samples received at 9 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 2, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on July 31, 2012 from the SBMC, F&BI 207455 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0802R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 31, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 207455 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
207455-01	S-15
207455-02	S-16

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/02/12
Date Received: 07/31/12
Project: SBMC, F&BI 207455
Date Extracted: 07/31/12
Date Analyzed: 07/31/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
S-15 207455-01	0.14	<0.02	<0.02	<0.06	<2	76
S-16 207455-02	<0.02	<0.02	<0.02	<0.06	<2	75
Method Blank 02-1352 MB	<0.02	<0.02	<0.02	<0.06	<2	77

Date of Report: 08/02/12
Date Received: 07/31/12
Project: SBMC, F&BI 207455

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 207450-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	83	66-121
Toluene	mg/kg (ppm)	0.5	84	72-128
Ethylbenzene	mg/kg (ppm)	0.5	86	69-132
Xylenes	mg/kg (ppm)	1.5	84	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

207455

SAMPLE CHAIN OF CUSTODY ME 07/31/12 VSI/CG

Send Report To CHUCK LIE
Company TRC
Address 12525 Willows Rd #101
City, State, ZIP Kirkland WA
Phone # _____ Fax # _____

SAMPLERS (signature) CM
PROJECT NAME/NO. SBMC
PO #
REMARKS

Page # _____ of _____
TURNAROUND TIME
☐ Standard (2 Weeks)
☑ RUSH CM
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS							Notes
S-15	01A-E	7-31	1202	S	5		X	X										
S-16	02A-E	7-31	1215	S	5		X	X										

ANALYSIS REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: CM	CHUCK LIE	TAI	7-31	1245
Received by: Nhan Phan	Nhan Phan	FEBI	7-31-12	12:45
Relinquished by:				
Received by:				

Samples received at 14 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 7, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 1, 2012 from the SBMC, F&BI 208018 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0807R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 1, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208018 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208018-01	S19

All quality control requirements were acceptable.

Date of Report: 08/07/12
Date Received: 08/01/12
Project: SBMC, F&BI 208018
Date Extracted: 08/01/12
Date Analyzed: 08/01/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
S19 208018-01	0.55	<0.02	<0.02	<0.06	<2	79
Method Blank 02-1359 MB	<0.02	<0.02	<0.02	<0.06	<2	79

Date of Report: 08/07/12
Date Received: 08/01/12
Project: SBMC, F&BI 208018

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 208010-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	81	69-120
Toluene	mg/kg (ppm)	0.5	81	70-117
Ethylbenzene	mg/kg (ppm)	0.5	82	65-123
Xylenes	mg/kg (ppm)	1.5	80	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208018

SAMPLE CHAIN OF CUSTODY

ME 08/01/12 CE/VSI

Page # _____ of _____

Send Report To Chuck Liu

Company Terra Associates Inc

Address 12525 Willows Rd. Suite 101

City, State, ZIP Kirkland, WA, 98034

Phone # (425) 821-7777 Fax # 821-4334

SAMPLERS (signature)

PROJECT NAME/NO.: SBMC

PO#:

REMARKS:

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH ASAP

Rush charges authorized by: _____

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS							Notes
S19	01 A-E	8/1/12	13:50	Soil	5		X	X										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Nicolas R. Hoffman	Terra Associates	8/1/12	14:10
Received by:		Nhan Phan	FEBI	8/1/12	14:10
Relinquished by:					
Received by:			Samples received at 10 °C		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 9, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 2, 2012 from the SBMC, F&BI 208030 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0809R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 2, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208030 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208030-01	S-20
208030-02	S-21

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/09/12
Date Received: 08/02/12
Project: SBMC, F&BI 208030
Date Extracted: 08/02/12
Date Analyzed: 08/02/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
S-20 208030-01	<0.02	<0.02	<0.02	<0.06	<2	79
S-21 208030-02	<0.02	<0.02	<0.02	<0.06	<2	79
Method Blank 02-1365 MB	<0.02	<0.02	<0.02	<0.06	<2	79

Date of Report: 08/09/12
Date Received: 08/02/12
Project: SBMC, F&BI 208030

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 208030-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	77	69-120
Toluene	mg/kg (ppm)	0.5	79	70-117
Ethylbenzene	mg/kg (ppm)	0.5	81	65-123
Xylenes	mg/kg (ppm)	1.5	80	66-120
Gasoline	mg/kg (ppm)	20	105	71-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208030

CHAIN OF CUSTODY ME 08/02/12 US1/CR

Send Report To: CHUCK LIE
Company: Tetra Assoc
Address: 12525 Willows Rd #111
City, State, ZIP: Kirkland WA
Phone #: 425-821-7777 Fax #:

SAMPLERS (signature):
PROJECT NAME/NO.: SBMC
PO #:
REMARKS: Bill SBMC

Page # of
TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260B	cPAHs by 8270C	PAHs by 8270C	Lead							Notes
S-20	01A-E	8-2	11 AM	S	S		X	X											
S-21	02A-E	8-2	11 10	S	S		X	X											

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
www.friedmanbruya.com

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	FAI CHUCK LIE	TAI	8-2	1130
Received by:	Nhan Phan	FEBT	8/2/12	V
Relinquished by:				
Received by:				

Samples received at 16 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 9, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 2, 2012 from the SBMC, F&BI 208032 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0809R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 2, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208032 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208032-01	22

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/09/12
Date Received: 08/02/12
Project: SBMC, F&BI 208032
Date Extracted: 08/02/12
Date Analyzed: 08/02/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
22 208032-01	<0.02	<0.02	<0.02	<0.06	<2	79
Method Blank 02-1365 MB	<0.02	<0.02	<0.02	<0.06	<2	79

Date of Report: 08/09/12
Date Received: 08/02/12
Project: SBMC, F&BI 208032

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 208030-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	77	69-120
Toluene	mg/kg (ppm)	0.5	79	70-117
Ethylbenzene	mg/kg (ppm)	0.5	81	65-123
Xylenes	mg/kg (ppm)	1.5	80	66-120
Gasoline	mg/kg (ppm)	20	105	71-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208032

SAMPLE CHAIN OF CUSTODY

ME 8/2/12 CI2/151

Send Report To CHUCK LIE
Company Terra Assoc
Address 12525 Willows Rd #101
City, State, ZIP Kirkland WA
Phone # _____ Fax # _____

SAMPLERS (signature)
PROJECT NAME/NO. SBME
PO #
REMARKS

Page # _____ of _____
TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	cVOCs by 8260	SVOCs by 8270	HFS						Notes
22	01 A-E	8-2	1250	S	5		X	X										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	CHUCK LIE	TTI	8/2	13:11
Received by:	Nhan Pham	FeBI	8/2/12	13:11
Relinquished by:				
Received by:				

Samples received at 22 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 7, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 1, 2012 from the SMBC, F&BI 208010 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0807R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 1, 2012 by Friedman & Bruya, Inc. from the Terra Associates SMBC, F&BI 208010 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208010-01	S17
208010-02	S18

All quality control requirements were acceptable.

Date of Report: 08/07/12
Date Received: 08/01/12
Project: SMBC, F&BI 208010
Date Extracted: 08/01/12
Date Analyzed: 08/01/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
S17 208010-01	<0.02	<0.02	<0.02	<0.06	<2	81
S18 208010-02	0.14	<0.02	0.044	<0.06	<2	78
Method Blank 02-1359 MB	<0.02	<0.02	<0.02	<0.06	<2	79

Date of Report: 08/07/12
Date Received: 08/01/12
Project: SMBC, F&BI 208010

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 208010-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	81	69-120
Toluene	mg/kg (ppm)	0.5	81	70-117
Ethylbenzene	mg/kg (ppm)	0.5	82	65-123
Xylenes	mg/kg (ppm)	1.5	80	66-120
Gasoline	mg/kg (ppm)	20	100	71-131

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208010

SAMPLE CHAIN OF CUSTODY ME 8/1/12 CI/VS

Send Report To Chuck Lia
Company Terra Associates Inc.
Address 12525 Willows Rd Suite 101
City, State, ZIP Kirkland, WA, 98034
Phone # (425) 821-7777 Fax # 821-4334

SAMPLERS (signature)
PROJECT NAME/NO. SMBC
PO#
REMARKS

Page # 1 of 1

TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH ASAP
Rush charges authorized by

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS						Notes
S17	01A-E	8/1/12	10:45	Soil	5		X	X									
S18	02A-E	8/1/12	10:55	Soil	5		X	X									
																	Samples received at 17 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Nicolas R. Hoffman	Terra Associates	8/1/12	11:34
Received by:	Michele Cortates Poquiz	FEBI	8/1/12	11:34
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 29, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 23, 2012 from the SBMC, F&BI 208329 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0829R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 23, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208329 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208329-01	8-23-5

An 8270D internal standard failed the acceptance criteria for sample 8-23-5 due to matrix interferences. The data were flagged accordingly. The sample was diluted and reanalyzed.

All other quality control requirements were acceptable.

Date of Report: 08/29/12
Date Received: 08/23/12
Project: SBMC, F&BI 208329
Date Extracted: 08/23/12
Date Analyzed: 08/23/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
8-23-5 208329-01	1,700	<250	110
Method Blank 02-1491 MB2	<50	<250	128

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-23-5	Client:	Terra Associates
Date Received:	08/23/12	Project:	SBMC, F&BI 208329
Date Extracted:	08/23/12	Lab ID:	208329-01 1/5
Date Analyzed:	08/23/12	Data File:	082305.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	142 J	50	150
Benzo(a)anthracene-d12	98	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01 J
Acenaphthene	0.096 J
Fluorene	1.4 J
Phenanthrene	1.5 J
Anthracene	<0.01 J
Fluoranthene	0.033 J
Pyrene	0.035
Benz(a)anthracene	<0.01
Chrysene	0.013
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-23-5	Client:	Terra Associates
Date Received:	08/23/12	Project:	SBMC, F&BI 208329
Date Extracted:	08/23/12	Lab ID:	208329-01 1/50
Date Analyzed:	08/24/12	Data File:	082404.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	50	150
Benzo(a)anthracene-d12	99	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
Acenaphthylene	0.14
Acenaphthene	<0.1
Fluorene	1.2
Phenanthrene	1.4
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 208329
Date Extracted:	08/23/12	Lab ID:	02-1490 mb2 1/5
Date Analyzed:	08/23/12	Data File:	082304.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	93	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/29/12
Date Received: 08/23/12
Project: SBMC, F&BI 208329

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208310-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	99	102	64-133	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	104	58-147

Date of Report: 08/29/12
Date Received: 08/23/12
Project: SBMC, F&BI 208329

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208329-01 1/5 and 1/50 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Naphthalene	mg/kg (ppm)	<0.01	<0.01	nm
Acenaphthylene	mg/kg (ppm)	<0.1	<0.1	nm
Acenaphthene	mg/kg (ppm)	0.14	0.14	nm
Fluorene	mg/kg (ppm)	1.2	1.1	9
Phenanthrene	mg/kg (ppm)	1.4	1.3	7
Anthracene	mg/kg (ppm)	<0.1	<0.1	nm
Fluoranthene	mg/kg (ppm)	0.033 J	0.029 J	13
Pyrene	mg/kg (ppm)	0.035	0.032	9
Benz(a)anthracene	mg/kg (ppm)	<0.01	<0.01	nm
Chrysene	mg/kg (ppm)	0.013	0.011	17
Benzo(b)fluoranthene	mg/kg (ppm)	<0.01	<0.01	nm
Benzo(k)fluoranthene	mg/kg (ppm)	<0.01	<0.01	nm
Benzo(a)pyrene	mg/kg (ppm)	<0.01	<0.01	nm
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	<0.01	<0.01	nm
Dibenz(a,h)anthracene	mg/kg (ppm)	<0.01	<0.01	nm
Benzo(g,h,i)perylene	mg/kg (ppm)	<0.01	<0.01	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	91	93	58-121	2
Acenaphthylene	mg/kg (ppm)	0.17	89	92	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	90	92	54-123	2
Fluorene	mg/kg (ppm)	0.17	89	92	56-127	3
Phenanthrene	mg/kg (ppm)	0.17	89	90	55-122	1
Anthracene	mg/kg (ppm)	0.17	87	88	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	91	93	54-129	2
Pyrene	mg/kg (ppm)	0.17	91	94	53-127	3
Benz(a)anthracene	mg/kg (ppm)	0.17	86	87	51-115	1
Chrysene	mg/kg (ppm)	0.17	92	93	55-129	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	90	95	56-123	5
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	97	95	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	85	85	51-118	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	83	87	49-148	5
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	89	91	50-141	2
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	88	91	52-131	3

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208 324 **SAMPLE CHAIN OF CUSTODY** ME 08-23-12 BI1/V81

Send Report To: Chuck Lie
Company: Terra Associates Inc
Address: 12525 Willows Rd Suite 101
City, State, ZIP: Kirkland, WA 98034
Phone #: (425) 821-7777 Fax #: 821-4334

SAMPLERS (signature): [signature]
PROJECT NAME/NO.: SBMC
PO #:
REMARKS:

Page # ____ of ____
TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH: ASAP

Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	PAHs					Notes
8-23-5	01 A-E	8/23/12	9:15	Soil	5	X						X					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Nicolas R. Hoffman	TAI	8/23/12	9:30
Received by: [signature]	Eric [illegible]	F&B	8/23/12	9:30
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Samples received at 21 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 27, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 20, 2012 from the SMBC, F&BI 208280 project. There are 22 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0827R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 20, 2012 by Friedman & Bruya, Inc. from the Terra Associates SMBC, F&BI 208280 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208280-01	8-20-1
208280-02	8-20-2
208280-03	8-20-3
208280-04	8-20-4

All quality control requirements were acceptable.

Date of Report: 08/27/12
Date Received: 08/20/12
Project: SMBC, F&BI 208280
Date Extracted: 08/20/12
Date Analyzed: 08/20/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
8-20-1 208280-01	520	<250	149
8-20-2 208280-02	410	<250	148
8-20-3 208280-03	1,400	<250	125
8-20-4 208280-04	350	<250	122
Method Blank 02-1464 MB	<50	<250	127

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	8-20-3	Client:	Terra Associates
Date Received:	08/20/12	Project:	SMBC, F&BI 208280
Date Extracted:	08/22/12	Lab ID:	208280-03
Date Analyzed:	08/22/12	Data File:	208280-03.021
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125
Indium	89	60	125
Holmium	90	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	12.5
Arsenic	2.45
Selenium	<1
Silver	<1
Cadmium	<1
Barium	71.4
Lead	4.27

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SMBC, F&BI 208280
Date Extracted:	08/22/12	Lab ID:	I2-545 mb
Date Analyzed:	08/22/12	Data File:	I2-545 mb.008
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	98	60	125
Indium	93	60	125
Holmium	96	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	<1
Lead	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/27/12
Date Received: 08/20/12
Project: SMBC, F&BI 208280
Date Extracted: 08/22/12
Date Analyzed: 08/22/12

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Total Mercury
8-20-3 208280-03	<0.1
Method Blank	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	8-20-3	Client:	Terra Associates
Date Received:	08/20/12	Project:	SMBC, F&BI 208280
Date Extracted:	08/22/12	Lab ID:	208280-03
Date Analyzed:	08/22/12	Data File:	082222.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	Not Applicable	Project:	SMBC, F&BI 208280
Date Extracted:	08/22/12	Lab ID:	02-1452 mb2
Date Analyzed:	08/22/12	Data File:	082219.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Methylene chloride	<0.5	o-Xylene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Styrene	<0.05
trans-1,2-Dichloroethene	<0.05	Isopropylbenzene	<0.05
1,1-Dichloroethane	<0.05	Bromoform	<0.05
2,2-Dichloropropane	<0.05	n-Propylbenzene	<0.05
cis-1,2-Dichloroethene	<0.05	Bromobenzene	<0.05
Chloroform	<0.05	1,3,5-Trimethylbenzene	<0.05
2-Butanone (MEK)	<0.5	1,1,2,2-Tetrachloroethane	<0.05
1,2-Dichloroethane (EDC)	<0.05	1,2,3-Trichloropropane	<0.05
1,1,1-Trichloroethane	<0.05	2-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	4-Chlorotoluene	<0.05
Carbon tetrachloride	<0.05	tert-Butylbenzene	<0.05
Benzene	<0.03	1,2,4-Trimethylbenzene	<0.05
Trichloroethene	<0.03	sec-Butylbenzene	<0.05
1,2-Dichloropropane	<0.05	p-Isopropyltoluene	<0.05
Bromodichloromethane	<0.05	1,3-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,4-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dichlorobenzene	<0.05
cis-1,3-Dichloropropene	<0.05	1,2-Dibromo-3-chloropropane	<0.5
Toluene	<0.05	1,2,4-Trichlorobenzene	<0.25
trans-1,3-Dichloropropene	<0.05	Hexachlorobutadiene	<0.25
1,1,2-Trichloroethane	<0.05	Naphthalene	<0.05
2-Hexanone	<0.5	1,2,3-Trichlorobenzene	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082

Client Sample ID:	8-20-3	Client:	Terra Associates
Date Received:	08/20/12	Project:	SMBC, F&BI 208280
Date Extracted:	08/22/12	Lab ID:	208280-03
Date Analyzed:	08/22/12	Data File:	082210.D\ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	108	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SMBC, F&BI 208280
Date Extracted:	08/22/12	Lab ID:	02-1474 mb2
Date Analyzed:	08/22/12	Data File:	082208.D\ECD1A.CH
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm)	Operator:	mwdl

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	120	50	150

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-20-1	Client:	Terra Associates
Date Received:	08/20/12	Project:	SMBC, F&BI 208280
Date Extracted:	08/20/12	Lab ID:	208280-01 1/5
Date Analyzed:	08/21/12	Data File:	082022.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	80	50	150
Benzo(a)anthracene-d12	97	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	0.020
Fluorene	0.25
Phenanthrene	0.069
Anthracene	<0.01
Fluoranthene	0.010
Pyrene	0.017
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-20-2	Client:	Terra Associates
Date Received:	08/20/12	Project:	SMBC, F&BI 208280
Date Extracted:	08/20/12	Lab ID:	208280-02 1/5
Date Analyzed:	08/21/12	Data File:	082023.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	50	150
Benzo(a)anthracene-d12	107	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	0.14
Fluorene	0.64
Phenanthrene	0.82
Anthracene	<0.01
Fluoranthene	0.052
Pyrene	0.059
Benz(a)anthracene	0.014
Chrysene	0.016
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	0.011
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-20-3	Client:	Terra Associates
Date Received:	08/20/12	Project:	SMBC, F&BI 208280
Date Extracted:	08/20/12	Lab ID:	208280-03 1/5
Date Analyzed:	08/21/12	Data File:	082024.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	127	50	150
Benzo(a)anthracene-d12	113	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	0.26
Fluorene	1.3
Phenanthrene	1.4
Anthracene	<0.01
Fluoranthene	0.031
Pyrene	0.047
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-20-4	Client:	Terra Associates
Date Received:	08/20/12	Project:	SMBC, F&BI 208280
Date Extracted:	08/20/12	Lab ID:	208280-04 1/5
Date Analyzed:	08/21/12	Data File:	082025.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	102	50	150
Benzo(a)anthracene-d12	108	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	0.24
Fluorene	1.2
Phenanthrene	1.3
Anthracene	<0.01
Fluoranthene	0.74
Pyrene	0.50
Benz(a)anthracene	0.26
Chrysene	0.32
Benzo(a)pyrene	0.38
Benzo(b)fluoranthene	0.51
Benzo(k)fluoranthene	0.19
Indeno(1,2,3-cd)pyrene	0.40
Dibenz(a,h)anthracene	0.059
Benzo(g,h,i)perylene	0.28

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	Not Applicable	Project:	SMBC, F&BI 208280
Date Extracted:	08/20/12	Lab ID:	02-1466 mb rr 1/5
Date Analyzed:	08/21/12	Data File:	082033.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	50	150
Benzo(a)anthracene-d12	111	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/27/12
Date Received: 08/20/12
Project: SMBC, F&BI 208280

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208273-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	96	96	63-146	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	100	79-144

Date of Report: 08/27/12
Date Received: 08/20/12
Project: SMBC, F&BI 208280

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 208240-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	mg/kg (ppm)	50	6.81	94	98	63-120	4
Arsenic	mg/kg (ppm)	10	2.57	116 b	113 b	56-125	3 b
Selenium	mg/kg (ppm)	5	<1	92	91	64-118	1
Silver	mg/kg (ppm)	10	<1	107	108	83-112	1
Cadmium	mg/kg (ppm)	10	<1	102	103	85-117	1
Barium	mg/kg (ppm)	50	22.0	124 b	124 b	65-132	0 b
Lead	mg/kg (ppm)	20	3.05	96	100	64-139	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	104	81-117
Arsenic	mg/kg (ppm)	10	101	79-112
Selenium	mg/kg (ppm)	5	101	83-113
Silver	mg/kg (ppm)	10	109	85-113
Cadmium	mg/kg (ppm)	10	104	88-114
Barium	mg/kg (ppm)	50	99	87-113
Lead	mg/kg (ppm)	20	100	83-118

Date of Report: 08/27/12
Date Received: 08/20/12
Project: SMBC, F&BI 208280

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 208240-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	mg/kg (ppm)	0.125	<0.1	90	104	54-156	14

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	mg/kg (ppm)	0.125	83	73-131

Date of Report: 08/27/12
Date Received: 08/20/12
Project: SMBC, F&BI 208280

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 208266-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	8 vo	10-60
Chloromethane	mg/kg (ppm)	2.5	<0.5	28	10-89
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	26	10-91
Bromomethane	mg/kg (ppm)	2.5	<0.5	38	10-102
Chloroethane	mg/kg (ppm)	2.5	<0.5	36	10-97
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	25	10-94
Acetone	mg/kg (ppm)	12.5	<0.5	60	37-115
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	37	16-100
Methylene chloride	mg/kg (ppm)	2.5	<0.5	45	34-108
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	64	42-103
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	48	19-102
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	57	37-97
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	57	29-105
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	63	41-101
Chloroform	mg/kg (ppm)	2.5	<0.05	65	43-100
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	67	48-104
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	68	43-98
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	59	35-102
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	56	34-100
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	54	30-107
Benzene	mg/kg (ppm)	2.5	<0.03	62	39-98
Trichloroethene	mg/kg (ppm)	2.5	<0.03	63	38-101
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	70	45-101
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	75	45-115
Dibromomethane	mg/kg (ppm)	2.5	<0.05	69	46-101
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	78	52-105
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	79	42-120
Toluene	mg/kg (ppm)	2.5	<0.05	72	45-99
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	85	46-118
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	79	51-104
2-Hexanone	mg/kg (ppm)	12.5	<0.5	91	49-108
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	78	49-101
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	62	38-102
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	81	42-132
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	76	49-105
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	74	47-100
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	76	47-101
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	77	46-112
m,p-Xylene	mg/kg (ppm)	5	<0.1	76	48-102
o-Xylene	mg/kg (ppm)	2.5	<0.05	78	49-101
Styrene	mg/kg (ppm)	2.5	<0.05	80	49-106
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	78	47-104
Bromoform	mg/kg (ppm)	2.5	<0.05	85	25-171
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	78	47-105
Bromobenzene	mg/kg (ppm)	2.5	<0.05	83	48-105
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	79	47-105
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	83	51-108
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	82	50-104
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	78	47-102
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	80	47-102
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	78	48-105
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	80	48-105
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	78	47-106
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	79	47-107
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	74	47-103
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	75	46-102
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	76	48-104
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	84	39-130
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	74	44-106
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	75	44-106
Naphthalene	mg/kg (ppm)	2.5	<0.05	82	48-108
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	73	46-107

Date of Report: 08/27/12
Date Received: 08/20/12
Project: SMBC, F&BI 208280

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	51	48	11-84	6
Chloromethane	mg/kg (ppm)	2.5	63	61	41-99	3
Vinyl chloride	mg/kg (ppm)	2.5	74	72	51-102	3
Bromomethane	mg/kg (ppm)	2.5	78	77	51-111	1
Chloroethane	mg/kg (ppm)	2.5	75	75	53-113	0
Trichlorofluoromethane	mg/kg (ppm)	2.5	81	80	61-113	1
Acetone	mg/kg (ppm)	12.5	85	84	69-132	1
1,1-Dichloroethene	mg/kg (ppm)	2.5	82	82	67-116	0
Methylene chloride	mg/kg (ppm)	2.5	73	72	62-130	1
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	88	86	78-116	2
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	86	84	70-116	2
1,1-Dichloroethane	mg/kg (ppm)	2.5	91	90	79-109	1
2,2-Dichloropropane	mg/kg (ppm)	2.5	106	105	70-123	1
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	94	94	76-113	0
Chloroform	mg/kg (ppm)	2.5	97	95	77-113	2
2-Butanone (MEK)	mg/kg (ppm)	12.5	92	91	76-114	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	102	101	79-114	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	102	100	73-119	2
1,1-Dichloropropene	mg/kg (ppm)	2.5	99	97	77-110	2
Carbon tetrachloride	mg/kg (ppm)	2.5	104	102	67-126	2
Benzene	mg/kg (ppm)	2.5	95	94	70-115	1
Trichloroethene	mg/kg (ppm)	2.5	95	95	70-113	0
1,2-Dichloropropane	mg/kg (ppm)	2.5	101	102	79-110	1
Bromodichloromethane	mg/kg (ppm)	2.5	107	107	76-119	0
Dibromomethane	mg/kg (ppm)	2.5	99	98	78-115	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	103	102	80-120	1
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	113	113	80-117	0
Toluene	mg/kg (ppm)	2.5	101	102	79-112	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	118	119 vo	81-118	1
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	102	103	83-111	1
2-Hexanone	mg/kg (ppm)	12.5	118	119	80-121	1
1,3-Dichloropropane	mg/kg (ppm)	2.5	104	105	81-114	1
Tetrachloroethene	mg/kg (ppm)	2.5	93	93	73-117	0
Dibromochloromethane	mg/kg (ppm)	2.5	112	112	59-143	0
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	104	104	82-113	0
Chlorobenzene	mg/kg (ppm)	2.5	101	101	81-110	0
Ethylbenzene	mg/kg (ppm)	2.5	106	105	79-116	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	107	107	76-121	0
m,p-Xylene	mg/kg (ppm)	5	106	106	80-115	0
o-Xylene	mg/kg (ppm)	2.5	106	106	81-113	0
Styrene	mg/kg (ppm)	2.5	107	107	79-118	0
Isopropylbenzene	mg/kg (ppm)	2.5	107	107	81-114	0
Bromoform	mg/kg (ppm)	2.5	114	114	56-166	0
n-Propylbenzene	mg/kg (ppm)	2.5	107	107	82-114	0
Bromobenzene	mg/kg (ppm)	2.5	103	103	83-113	0
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	110	109	82-115	1
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	107	107	81-116	0
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	105	107	53-136	2
2-Chlorotoluene	mg/kg (ppm)	2.5	107	107	81-113	0
4-Chlorotoluene	mg/kg (ppm)	2.5	106	107	83-111	1
tert-Butylbenzene	mg/kg (ppm)	2.5	106	107	81-113	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	108	107	82-115	1
sec-Butylbenzene	mg/kg (ppm)	2.5	108	108	81-115	0
p-Isopropyltoluene	mg/kg (ppm)	2.5	109	109	82-115	0
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	100	100	81-113	0
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	101	101	82-109	0
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	102	103	82-111	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	112	114	72-123	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	101	102	81-110	1
Hexachlorobutadiene	mg/kg (ppm)	2.5	101	100	78-116	1
Naphthalene	mg/kg (ppm)	2.5	109	109	85-114	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	102	102	86-112	0

Date of Report: 08/27/12
Date Received: 08/20/12
Project: SMBC, F&BI 208280

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 208251-14 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	<0.1	<0.1	nm
Aroclor 1260	mg/kg (ppm)	<0.1	<0.1	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.8	112	115	70-130	3
Aroclor 1260	mg/kg (ppm)	0.8	106	116	70-130	9

Date of Report: 08/27/12
Date Received: 08/20/12
Project: SMBC, F&BI 208280

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208254-19 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	94	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	98	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	93	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	99	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	92	45-124
Anthracene	mg/kg (ppm)	0.17	<0.01	94	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	100	50-125
Pyrene	mg/kg (ppm)	0.17	<0.01	101	41-135
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	93	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	93	45-122
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	105	31-144
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	100	45-130
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	99	39-128
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	113	28-146
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	101	46-129
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	98	37-133

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	97	98	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	95	97	54-121	2
Acenaphthene	mg/kg (ppm)	0.17	96	98	54-123	2
Fluorene	mg/kg (ppm)	0.17	96	97	56-127	1
Phenanthrene	mg/kg (ppm)	0.17	96	96	55-122	0
Anthracene	mg/kg (ppm)	0.17	94	94	50-120	0
Fluoranthene	mg/kg (ppm)	0.17	98	100	54-129	2
Pyrene	mg/kg (ppm)	0.17	100	101	53-127	1
Benz(a)anthracene	mg/kg (ppm)	0.17	90	90	51-115	0
Chrysene	mg/kg (ppm)	0.17	96	99	55-129	3
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	102	109	56-123	7
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	104	99	54-131	5
Benzo(a)pyrene	mg/kg (ppm)	0.17	90	89	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	96	97	49-148	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	95	98	50-141	3
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	97	99	52-131	2

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208280

SAMPLE CHAIN OF CUSTODY

ME 08/20/12

C01

Send Report To: Chuck Liu
Company: Tetra Associates Inc
Address: 12525 Willows Road Suite 101
City, State, ZIP: Kirkland, WA 98034
Phone #: (425) 821-7777 Fax #: 821-4334

SAMPLERS (signature):
PROJECT NAME/NO.: SMBC
PO #:
REMARKS:

TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH: ASAP
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-G	TPH-D	TPH-O	BTEX	VOCs	PAHs	RCRA-8	PCBs			Notes
S-20-1	01	8/20/12	12:20	Soil	1	X					☆					☆ - per NH
S-20-2	02	8/20/12	12:50	Soil	1	X					☆					08/20 @
S-20-3	03	8/20/12	12:56	Soil	1	X		⊗			☆	◯	⊗			
S-20-4	04	8/20/12	13:02	Soil	1	X					☆					⊗ - per NH
																8/22 @

RELINQUISHED BY:	PRINT NAME	COMPANY	DATE	TIME
	Nicolas R. Hoffman	Tetra Associates Inc	8/20/12	13:13
	Nhan Phan	FedEx	8/20/12	13:13

Page 1 of 1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 29, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 23, 2012 from the SBMC, F&BI 208329 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0829R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 23, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208329 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208329-01	8-23-5

An 8270D internal standard failed the acceptance criteria for sample 8-23-5 due to matrix interferences. The data were flagged accordingly. The sample was diluted and reanalyzed.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/29/12
Date Received: 08/23/12
Project: SBMC, F&BI 208329
Date Extracted: 08/23/12
Date Analyzed: 08/23/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
8-23-5 208329-01	1,700	<250	110
Method Blank 02-1491 MB2	<50	<250	128

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-23-5	Client:	Terra Associates
Date Received:	08/23/12	Project:	SBMC, F&BI 208329
Date Extracted:	08/23/12	Lab ID:	208329-01 1/5
Date Analyzed:	08/23/12	Data File:	082305.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	142 J	50	150
Benzo(a)anthracene-d12	98	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01 J
Acenaphthene	0.096 J
Fluorene	1.4 J
Phenanthrene	1.5 J
Anthracene	<0.01 J
Fluoranthene	0.033 J
Pyrene	0.035
Benz(a)anthracene	<0.01
Chrysene	0.013
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-23-5	Client:	Terra Associates
Date Received:	08/23/12	Project:	SBMC, F&BI 208329
Date Extracted:	08/23/12	Lab ID:	208329-01 1/50
Date Analyzed:	08/24/12	Data File:	082404.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	50	150
Benzo(a)anthracene-d12	99	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
Acenaphthylene	0.14
Acenaphthene	<0.1
Fluorene	1.2
Phenanthrene	1.4
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 208329
Date Extracted:	08/23/12	Lab ID:	02-1490 mb2 1/5
Date Analyzed:	08/23/12	Data File:	082304.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	50	150
Benzo(a)anthracene-d12	93	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/29/12
Date Received: 08/23/12
Project: SBMC, F&BI 208329

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208310-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	99	102	64-133	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	104	58-147

Date of Report: 08/29/12
Date Received: 08/23/12
Project: SBMC, F&BI 208329

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208329-01 1/5 and 1/50 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Naphthalene	mg/kg (ppm)	<0.01	<0.01	nm
Acenaphthylene	mg/kg (ppm)	<0.1	<0.1	nm
Acenaphthene	mg/kg (ppm)	0.14	0.14	nm
Fluorene	mg/kg (ppm)	1.2	1.1	9
Phenanthrene	mg/kg (ppm)	1.4	1.3	7
Anthracene	mg/kg (ppm)	<0.1	<0.1	nm
Fluoranthene	mg/kg (ppm)	0.033 J	0.029 J	13
Pyrene	mg/kg (ppm)	0.035	0.032	9
Benz(a)anthracene	mg/kg (ppm)	<0.01	<0.01	nm
Chrysene	mg/kg (ppm)	0.013	0.011	17
Benzo(b)fluoranthene	mg/kg (ppm)	<0.01	<0.01	nm
Benzo(k)fluoranthene	mg/kg (ppm)	<0.01	<0.01	nm
Benzo(a)pyrene	mg/kg (ppm)	<0.01	<0.01	nm
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	<0.01	<0.01	nm
Dibenz(a,h)anthracene	mg/kg (ppm)	<0.01	<0.01	nm
Benzo(g,h,i)perylene	mg/kg (ppm)	<0.01	<0.01	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	91	93	58-121	2
Acenaphthylene	mg/kg (ppm)	0.17	89	92	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	90	92	54-123	2
Fluorene	mg/kg (ppm)	0.17	89	92	56-127	3
Phenanthrene	mg/kg (ppm)	0.17	89	90	55-122	1
Anthracene	mg/kg (ppm)	0.17	87	88	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	91	93	54-129	2
Pyrene	mg/kg (ppm)	0.17	91	94	53-127	3
Benz(a)anthracene	mg/kg (ppm)	0.17	86	87	51-115	1
Chrysene	mg/kg (ppm)	0.17	92	93	55-129	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	90	95	56-123	5
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	97	95	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	85	85	51-118	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	83	87	49-148	5
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	89	91	50-141	2
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	88	91	52-131	3

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208327 **SAMPLE CHAIN OF CUSTODY** ME 08-23-12 BI1/V81

Send Report To Chuck Lie

Company Terra Associates Inc

Address 12525 Willows Rd Suite 101

City, State, ZIP Kirkland, WA 98034

Phone # (425) 821-7777 Fax # 821-4334

SAMPLERS (signature)

PROJECT NAME/NO. SBMC

PO #

REMARKS

Page # ___ of ___

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH ASAP

Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	PAHs						Notes
8-23-5	01A-E	8/23/12	9:15	soil	5	X						X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Nicolas R. Hoffman	TAI	8/23/12	9:30
Received by:	[signature]	Eric [illegible]	F&B	8/23/12	9:30
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

Samples received at 21 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 10, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 8, 2012 from the SBMC, F&BI 208098 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0810R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 8, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208098 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208098-01	AOC3-1

All quality control requirements were acceptable.

Date of Report: 08/10/12
Date Received: 08/08/12
Project: SBMC, F&BI 208098
Date Extracted: 08/08/12
Date Analyzed: 08/08/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC3-1 208098-01	<50	<250	109
Method Blank 02-1402 MB	<50	<250	110

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AOC3-1	Client:	Terra Associates
Date Received:	08/08/12	Project:	SBMC, F&BI 208098
Date Extracted:	08/08/12	Lab ID:	208098-01 1/5
Date Analyzed:	08/08/12	Data File:	080811.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	115	50	150
Benzo(a)anthracene-d12	126	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.016
Acenaphthylene	0.010
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.065
Anthracene	0.011
Fluoranthene	0.17
Pyrene	0.17
Benz(a)anthracene	0.069
Chrysene	0.087
Benzo(a)pyrene	0.087
Benzo(b)fluoranthene	0.097
Benzo(k)fluoranthene	0.034
Indeno(1,2,3-cd)pyrene	0.069
Dibenz(a,h)anthracene	0.010
Benzo(g,h,i)perylene	0.057

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 208098
Date Extracted:	08/08/12	Lab ID:	02-1399 mb2 1/5
Date Analyzed:	08/08/12	Data File:	080810.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	114	50	150
Benzo(a)anthracene-d12	121	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/10/12
Date Received: 08/08/12
Project: SBMC, F&BI 208098

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208095-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	88	90	63-146	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	84	79-144

Date of Report: 08/10/12
Date Received: 08/08/12
Project: SBMC, F&BI 208098

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208088-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	92	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	96	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	96	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	97	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	95	45-124
Anthracene	mg/kg (ppm)	0.17	<0.01	96	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	97	50-125
Pyrene	mg/kg (ppm)	0.17	<0.01	99	41-135
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	92	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	96	45-122
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	98	31-144
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	97	45-130
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	94	39-128
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	103	28-146
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	89	46-129
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	89	37-133

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	95	104	58-121	9
Acenaphthylene	mg/kg (ppm)	0.17	95	104	54-121	9
Acenaphthene	mg/kg (ppm)	0.17	97	106	54-123	9
Fluorene	mg/kg (ppm)	0.17	97	107	56-127	10
Phenanthrene	mg/kg (ppm)	0.17	97	105	55-122	8
Anthracene	mg/kg (ppm)	0.17	97	106	50-120	9
Fluoranthene	mg/kg (ppm)	0.17	97	105	54-129	8
Pyrene	mg/kg (ppm)	0.17	96	105	53-127	9
Benz(a)anthracene	mg/kg (ppm)	0.17	91	100	51-115	9
Chrysene	mg/kg (ppm)	0.17	98	108	55-129	10
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	97	104	56-123	7
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	97	109	54-131	12
Benzo(a)pyrene	mg/kg (ppm)	0.17	92	101	51-118	9
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	107	111	49-148	4
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	96	105	50-141	9
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	95	106	52-131	11

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208098

SAMPLE CHAIN OF CUSTODY

ME 8/8/12 B01

Send Report To Chuck Lie
Company Terra Associates Inc
Address 12525 Willows Rd Suite 101
City, State, ZIP Kirkland, WA, 98034
Phone #(425) 821-7777 Fax # 821-4334

SAMPLERS (signature)
PROJECT NAME/NO. SBMC
PO #
REMARKS

Page # 1 of 1
TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH ASAP
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	PAHs						Notes
AOC3-1	01	8/8/12	8:45	Soil	1	X						X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS-COC-002.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Nicolas R. Hoffman	TAI	8/8/12	9:25
Received by:	David	F&B	"	"
Relinquished by:				
Received by:				

Samples received at 22 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 9, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98304

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 8, 2012 from the SBMC, F&BI 208107 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0809R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 8, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208107 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208107-01	AOC3-2
208107-02	AOC3-3

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/09/12
Date Received: 08/08/12
Project: SBMC, F&BI 208107
Date Extracted: 08/08/12
Date Analyzed: 08/08/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC3-2 208107-01	<50	<250	103
AOC3-3 208107-02	<50	<250	102
Method Blank 02-1402 MB	<50	<250	110

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AOC3-2	Client:	Terra Associates
Date Received:	08/08/12	Project:	SBMC, F&BI 208107
Date Extracted:	08/08/12	Lab ID:	208107-01 1/5
Date Analyzed:	08/08/12	Data File:	080816.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	118	50	150
Benzo(a)anthracene-d12	130	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AOC3-3	Client:	Terra Associates
Date Received:	08/08/12	Project:	SBMC, F&BI 208107
Date Extracted:	08/08/12	Lab ID:	208107-02 1/5
Date Analyzed:	08/08/12	Data File:	080817.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	115	50	150
Benzo(a)anthracene-d12	123	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 208107
Date Extracted:	08/08/12	Lab ID:	02-1399 mb2 1/5
Date Analyzed:	08/08/12	Data File:	080810.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	114	50	150
Benzo(a)anthracene-d12	121	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/09/12
Date Received: 08/08/12
Project: SBMC, F&BI 208107

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208095-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	88	90	63-146	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	84	79-144

Date of Report: 08/09/12
Date Received: 08/08/12
Project: SBMC, F&BI 208107

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208088-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	92	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	96	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	96	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	97	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	95	45-124
Anthracene	mg/kg (ppm)	0.17	<0.01	96	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	97	50-125
Pyrene	mg/kg (ppm)	0.17	<0.01	99	41-135
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	92	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	96	45-122
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	98	31-144
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	97	45-130
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	94	39-128
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	103	28-146
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	89	46-129
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	89	37-133

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	95	104	58-121	9
Acenaphthylene	mg/kg (ppm)	0.17	95	104	54-121	9
Acenaphthene	mg/kg (ppm)	0.17	97	106	54-123	9
Fluorene	mg/kg (ppm)	0.17	97	107	56-127	10
Phenanthrene	mg/kg (ppm)	0.17	97	105	55-122	8
Anthracene	mg/kg (ppm)	0.17	97	106	50-120	9
Fluoranthene	mg/kg (ppm)	0.17	97	105	54-129	8
Pyrene	mg/kg (ppm)	0.17	96	105	53-127	9
Benz(a)anthracene	mg/kg (ppm)	0.17	91	100	51-115	9
Chrysene	mg/kg (ppm)	0.17	98	108	55-129	10
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	97	104	56-123	7
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	97	109	54-131	12
Benzo(a)pyrene	mg/kg (ppm)	0.17	92	101	51-118	9
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	107	111	49-148	4
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	96	105	50-141	9
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	95	106	52-131	11

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208107

SAMPLE CHAIN OF CUSTODY

ME 08-08-12 B01 BI1

Send Report To: Chuck Liu
Company: Terra Associates Inc
Address: 12525 Willows Rd Suite 101
City, State, ZIP: Kirkland WA, 98034
Phone #: (425) 821-7777 Fax #: 821-4334

SAMPLERS (signature): [signature]
PROJECT NAME/NO.: SBMC
PO #:
REMARKS:

Page # ___ of ___
TURNAROUND TIME
☐ Standard (2 Weeks)
☑ RUSH Asap
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	PAH's					Notes
AoC3-2	01	8/8/12	12:55	Soil	1	X						X					
AoC3-3	02	8/8/12	14:10	Soil	1	X						X					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Nicolas R. Hoffmann	TAI	8/8/12	14:25
Received by:	[signature]	Dano	F+BI	"	"
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

Samples received at ___ °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 14, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 9, 2012 from the SBMC, F&BI 208119 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0814R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 9, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208119 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208119-01	AOC3-4

All quality control requirements were acceptable.

Date of Report: 08/14/12
Date Received: 08/09/12
Project: SBMC, F&BI 208119
Date Extracted: 08/09/12
Date Analyzed: 08/09/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
AOC3-4 208119-01	<50	<250	95
Method Blank 02-1410 MB	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AOC3-4	Client:	Terra Associates
Date Received:	08/09/12	Project:	SBMC, F&BI 208119
Date Extracted:	08/09/12	Lab ID:	208119-01 1/5
Date Analyzed:	08/09/12	Data File:	080911.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	118	50	150
Benzo(a)anthracene-d12	109	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 208119
Date Extracted:	08/09/12	Lab ID:	02-1414 mb 1/5
Date Analyzed:	08/09/12	Data File:	080910.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	133	50	150
Benzo(a)anthracene-d12	109	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/14/12
Date Received: 08/09/12
Project: SBMC, F&BI 208119

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208114-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	95	64-133	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	98	58-147

Date of Report: 08/14/12
Date Received: 08/09/12
Project: SBMC, F&BI 208119

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208115-04 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	0.031	73	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	84	52-121
Acenaphthene	mg/kg (ppm)	0.17	0.031	81	51-123
Fluorene	mg/kg (ppm)	0.17	0.031	80	37-137
Phenanthrene	mg/kg (ppm)	0.17	0.24	81 b	45-124
Anthracene	mg/kg (ppm)	0.17	0.042	81 b	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.30	108 b	50-125
Pyrene	mg/kg (ppm)	0.17	0.27	109 b	41-135
Benz(a)anthracene	mg/kg (ppm)	0.17	0.13	84 b	23-144
Chrysene	mg/kg (ppm)	0.17	0.16	87 b	45-122
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.19	106 b	31-144
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	0.081	77 b	45-130
Benzo(a)pyrene	mg/kg (ppm)	0.17	0.15	95 b	39-128
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	0.14	81 b	28-146
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	92	46-129
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	0.10	83 b	37-133

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	93	92	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	92	89	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	95	94	54-123	1
Fluorene	mg/kg (ppm)	0.17	94	91	56-127	3
Phenanthrene	mg/kg (ppm)	0.17	93	93	55-122	0
Anthracene	mg/kg (ppm)	0.17	94	95	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	95	93	54-129	2
Pyrene	mg/kg (ppm)	0.17	94	92	53-127	2
Benz(a)anthracene	mg/kg (ppm)	0.17	90	83	51-115	8
Chrysene	mg/kg (ppm)	0.17	97	99	55-129	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	95	87	56-123	9
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	105	111	54-131	6
Benzo(a)pyrene	mg/kg (ppm)	0.17	95	93	51-118	2
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	88	79	49-148	11
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	94	93	50-141	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	95	96	52-131	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208114

SAMPLE CHAIN OF CUSTODY

ME 8-9-2012

BI1

Send Report To: Chucks Lie
Company: Tarea Associates Inc
Address: 12525 Willows Rd Suite 101
City, State, ZIP: Kirkland WA 98034
Phone #: (425) 821-7777 Fax #: 821-4334

SAMPLERS (signature):
PROJECT NAME/NO.: SBMC
PO #:
REMARKS:

Page # 1 of 1
TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH ASAP
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260B	cPAHs by 8270C	SVOCs by 8270C	PAHs					Notes
AOC3-4	01	8/9/12	11:10	Soil	1	X						X					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
Project Manager:

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Nicolas Hoffman	TAI	8/9/12	11:23
Received by:	Matt Laugstrom	FBInc	8/9/12	1123
Relinquished by:				
Received by:				

Samples received at 19 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 14, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 9, 2012 from the SBMC, F&BI 208121 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0814R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 9, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208121 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208121-01	AOC3-5

All quality control requirements were acceptable.

Date of Report: 08/14/12
Date Received: 08/09/12
Project: SBMC, F&BI 208121
Date Extracted: 08/09/12
Date Analyzed: 08/09/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
AOC3-5 208121-01	<50	<250	104
Method Blank 02-1410 MB	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AOC3-5	Client:	Terra Associates
Date Received:	08/09/12	Project:	SBMC, F&BI 208121
Date Extracted:	08/09/12	Lab ID:	208121-01 1/5
Date Analyzed:	08/09/12	Data File:	080912.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	125	50	150
Benzo(a)anthracene-d12	115	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 208121
Date Extracted:	08/09/12	Lab ID:	02-1414 mb 1/5
Date Analyzed:	08/09/12	Data File:	080910.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	133	50	150
Benzo(a)anthracene-d12	109	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/14/12
Date Received: 08/09/12
Project: SBMC, F&BI 208121

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208114-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	95	64-133	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	98	58-147

Date of Report: 08/14/12
Date Received: 08/09/12
Project: SBMC, F&BI 208121

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208115-04 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	0.031	73	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	84	52-121
Acenaphthene	mg/kg (ppm)	0.17	0.031	81	51-123
Fluorene	mg/kg (ppm)	0.17	0.031	80	37-137
Phenanthrene	mg/kg (ppm)	0.17	0.24	81 b	45-124
Anthracene	mg/kg (ppm)	0.17	0.042	81 b	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.30	108 b	50-125
Pyrene	mg/kg (ppm)	0.17	0.27	109 b	41-135
Benz(a)anthracene	mg/kg (ppm)	0.17	0.13	84 b	23-144
Chrysene	mg/kg (ppm)	0.17	0.16	87 b	45-122
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.19	106 b	31-144
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	0.081	77 b	45-130
Benzo(a)pyrene	mg/kg (ppm)	0.17	0.15	95 b	39-128
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	0.14	81 b	28-146
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	92	46-129
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	0.10	83 b	37-133

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	93	92	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	92	89	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	95	94	54-123	1
Fluorene	mg/kg (ppm)	0.17	94	91	56-127	3
Phenanthrene	mg/kg (ppm)	0.17	93	93	55-122	0
Anthracene	mg/kg (ppm)	0.17	94	95	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	95	93	54-129	2
Pyrene	mg/kg (ppm)	0.17	94	92	53-127	2
Benz(a)anthracene	mg/kg (ppm)	0.17	90	83	51-115	8
Chrysene	mg/kg (ppm)	0.17	97	99	55-129	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	95	87	56-123	9
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	105	111	54-131	6
Benzo(a)pyrene	mg/kg (ppm)	0.17	95	93	51-118	2
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	88	79	49-148	11
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	94	93	50-141	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	95	96	52-131	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208121

SAMPLE CHAIN OF CUSTODY

ME 8/9/12 B0.1

Send Report To: Chuck Lin
Company: Terra Associates Inc
Address: 12525 Willows Rd Suite 101
City, State, ZIP: Kirkland, WA, 98034
Phone #: 425 821-7777 Fax #: 821-4334

SAMPLERS (signature):
PROJECT NAME/NO.: SBMC
PO #:
REMARKS:

Page # ___ of ___
TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8260B	VOCs by 8260B	cPAHs by 8270C	PAHs by 8270C	PAHs					Notes
AOC3-5	01	8/9/12	12:38	Soil	1	X					X						

Professional Service Industries, Inc.
[illegible]

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Nicolas Hoffman	TAI	8/9/12	12:55
Received by:	Michael Erdahl	PSI	↓	↓
Relinquished by:				
Received by:				

Samples received at [illegible]

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 13, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 10, 2012 from the SBMC, F&BI 208137 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0813R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 10, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208137 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208137-01	AOC3-6
208137-02	AOC3-7
208137-03	AOC3-8

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/13/12
Date Received: 08/10/12
Project: SBMC, F&BI 208137
Date Extracted: 08/10/12
Date Analyzed: 08/10/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AOC3-6 208137-01	<50	<250	107
AOC3-7 208137-02	<50	<250	105
AOC3-8 208137-03	<50	<250	108
Method Blank 02-1417 MB	<50	<250	96

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AOC3-6	Client:	Terra Associates
Date Received:	08/10/12	Project:	SBMC, F&BI 208137
Date Extracted:	08/10/12	Lab ID:	208137-01 1/5
Date Analyzed:	08/10/12	Data File:	081005.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	110	50	150
Benzo(a)anthracene-d12	124	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AOC3-7	Client:	Terra Associates
Date Received:	08/10/12	Project:	SBMC, F&BI 208137
Date Extracted:	08/10/12	Lab ID:	208137-02 1/5
Date Analyzed:	08/10/12	Data File:	081006.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	122	50	150
Benzo(a)anthracene-d12	137	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	0.017
Pyrene	0.023
Benz(a)anthracene	0.011
Chrysene	0.011
Benzo(a)pyrene	0.011
Benzo(b)fluoranthene	0.011
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	AOC3-8	Client:	Terra Associates
Date Received:	08/10/12	Project:	SBMC, F&BI 208137
Date Extracted:	08/10/12	Lab ID:	208137-03 1/5
Date Analyzed:	08/10/12	Data File:	081007.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	106	50	150
Benzo(a)anthracene-d12	112	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.024
Acenaphthylene	0.088
Acenaphthene	<0.01
Fluorene	0.017
Phenanthrene	0.26
Anthracene	0.12
Fluoranthene	1.1
Pyrene	1.3
Benz(a)anthracene	0.54
Chrysene	0.65
Benzo(a)pyrene	0.64
Benzo(b)fluoranthene	0.69
Benzo(k)fluoranthene	0.25
Indeno(1,2,3-cd)pyrene	0.44
Dibenz(a,h)anthracene	0.10
Benzo(g,h,i)perylene	0.40

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 208137
Date Extracted:	08/10/12	Lab ID:	02-1414 mb2 1/5
Date Analyzed:	08/10/12	Data File:	081004.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	126	50	150
Benzo(a)anthracene-d12	151	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/13/12
Date Received: 08/10/12
Project: SBMC, F&BI 208137

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208134-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	93	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	79-144

Date of Report: 08/13/12
Date Received: 08/10/12
Project: SBMC, F&BI 208137

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208115-04 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	0.031	73	44-129
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	84	52-121
Acenaphthene	mg/kg (ppm)	0.17	0.031	81	51-123
Fluorene	mg/kg (ppm)	0.17	0.031	80	37-137
Phenanthrene	mg/kg (ppm)	0.17	0.24	81 b	45-124
Anthracene	mg/kg (ppm)	0.17	0.042	81 b	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.30	108 b	50-125
Pyrene	mg/kg (ppm)	0.17	0.27	109 b	41-135
Benz(a)anthracene	mg/kg (ppm)	0.17	0.13	84 b	23-144
Chrysene	mg/kg (ppm)	0.17	0.16	87 b	45-122
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.19	106 b	31-144
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	0.081	77 b	45-130
Benzo(a)pyrene	mg/kg (ppm)	0.17	0.15	95 b	39-128
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	0.14	81 b	28-146
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	92	46-129
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	0.10	83 b	37-133

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	93	92	58-121	1
Acenaphthylene	mg/kg (ppm)	0.17	92	89	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	95	94	54-123	1
Fluorene	mg/kg (ppm)	0.17	94	91	56-127	3
Phenanthrene	mg/kg (ppm)	0.17	93	93	55-122	0
Anthracene	mg/kg (ppm)	0.17	94	95	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	95	93	54-129	2
Pyrene	mg/kg (ppm)	0.17	94	92	53-127	2
Benz(a)anthracene	mg/kg (ppm)	0.17	90	83	51-115	8
Chrysene	mg/kg (ppm)	0.17	97	99	55-129	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	95	87	56-123	9
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	105	111	54-131	6
Benzo(a)pyrene	mg/kg (ppm)	0.17	95	93	51-118	2
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	88	79	49-148	11
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	94	93	50-141	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	95	96	52-131	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208137

SAMPLE CHAIN OF CUSTODY

ME 08-10-12 BEI

Send Report To: Chuck Lie
Company: Terra Associates Inc.
Address: 12525 Willows Rd Suite 101
City, State, ZIP: Kirkland, WA 98034
Phone #: (425) 821-777? Fax #: 821-4334

SAMPLERS (signature):
PROJECT NAME/NO.: SBMC
PO #:
REMARKS:

Page # ___ of ___

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH Asap

Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	PAHs					Notes
AOC3-6	01	8/10/12	9:50	Soil	1	X						X					
AOC3-7	02	8/10/12	10:03	Soil	1	X						X					
AOC3-8	03	8/10/12	10:10	Soil	1	X						X					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Nicolas R. Hoffman	TAI	8/10/12	10:20
Received by:	DID	F+BI	"	"
Relinquished by:				
Received by:				

Samples received at 21 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 17, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 14, 2012 from the SBMC, F&BI 208180 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0817R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 14, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208180 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208180-01	8-14-9

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/17/12
Date Received: 08/14/12
Project: SBMC, F&BI 208180
Date Extracted: 08/14/12
Date Analyzed: 08/15/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
8-14-9 208180-01	<50	<250	113
Method Blank 02-1432 MB	<50	<250	113

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-14-9	Client:	Terra Associates
Date Received:	08/14/12	Project:	SBMC, F&BI 208180
Date Extracted:	08/14/12	Lab ID:	208180-01 1/5
Date Analyzed:	08/14/12	Data File:	081406.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	133	50	150
Benzo(a)anthracene-d12	143	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.063
Acenaphthylene	0.087
Acenaphthene	<0.01
Fluorene	0.040
Phenanthrene	0.39
Anthracene	0.059
Fluoranthene	0.82
Pyrene	0.98
Benz(a)anthracene	0.36
Chrysene	0.47
Benzo(a)pyrene	0.46
Benzo(b)fluoranthene	0.47
Benzo(k)fluoranthene	0.18
Indeno(1,2,3-cd)pyrene	0.34
Dibenz(a,h)anthracene	0.058
Benzo(g,h,i)perylene	0.32

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 208180
Date Extracted:	08/14/12	Lab ID:	02-1431 mb 1/5
Date Analyzed:	08/14/12	Data File:	081405.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	50	150
Benzo(a)anthracene-d12	93	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/17/12
Date Received: 08/14/12
Project: SBMC, F&BI 208180

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208183-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	95	94	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	79-144

Date of Report: 08/17/12
Date Received: 08/14/12
Project: SBMC, F&BI 208180

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208180-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	0.063	71 b	44-129
Acenaphthylene	mg/kg (ppm)	0.17	0.087	88 b	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	88	51-123
Fluorene	mg/kg (ppm)	0.17	0.040	82 b	37-137
Phenanthrene	mg/kg (ppm)	0.17	0.39	36 b	45-124
Anthracene	mg/kg (ppm)	0.17	0.059	83 b	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.82	15 b	50-125
Pyrene	mg/kg (ppm)	0.17	0.98	2 b	41-135
Benz(a)anthracene	mg/kg (ppm)	0.17	0.36	54 b	23-144
Chrysene	mg/kg (ppm)	0.17	0.47	33 b	45-122
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.47	43 b	31-144
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	0.18	57 b	45-130
Benzo(a)pyrene	mg/kg (ppm)	0.17	0.46	37 b	39-128
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	0.34	39 b	28-146
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	0.058	70 b	46-129
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	0.32	38 b	37-133

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	92	94	58-121	2
Acenaphthylene	mg/kg (ppm)	0.17	94	97	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	95	97	54-123	2
Fluorene	mg/kg (ppm)	0.17	93	98	56-127	5
Phenanthrene	mg/kg (ppm)	0.17	93	95	55-122	2
Anthracene	mg/kg (ppm)	0.17	95	96	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	95	97	54-129	2
Pyrene	mg/kg (ppm)	0.17	95	98	53-127	3
Benz(a)anthracene	mg/kg (ppm)	0.17	89	92	51-115	3
Chrysene	mg/kg (ppm)	0.17	98	99	55-129	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	95	94	56-123	1
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	98	100	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	91	91	51-118	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	97	104	49-148	7
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	94	95	50-141	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	94	95	52-131	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208180

SAMPLE CHAIN OF CUSTODY

ME 08-14-12

RE1

Send Report To: Chuck Li
Company: Terra Associates Inc
Address: 12525 Willows Rd - Suite 101
City, State, ZIP: Kirkland, WA 98034
Phone #: (425) 821-7777 Fax #: 821-4334

SAMPLERS (signature):

PROJECT NAME/NO.: SBMC

PO #:

REMARKS:

Page # of

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH ASAP

Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

ANALYSES REQUESTED

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260B	SVOCs by 8270C	PAHs	PAHs				Notes
											PAHs					
S-14-9	01	8/14/12	11:33	Soil	1	X					X					

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Nicolas R. Hoffman	TAI	8/14/12	12:10
Received by:	HONG NGUYEN	FAL	"	"
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

cool 18 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

August 17, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on August 15, 2012 from the SBMC, F&BI 208202 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0817R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 15, 2012 by Friedman & Bruya, Inc. from the Terra Associates SBMC, F&BI 208202 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
208202-01	8-15-10

All quality control requirements were acceptable.

Date of Report: 08/17/12
Date Received: 08/15/12
Project: SBMC, F&BI 208202
Date Extracted: 08/15/12
Date Analyzed: 08/16/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
8-15-10 208202-01	160	<250	104
Method Blank 02-1432 MB2	<50	<250	120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	8-15-10	Client:	Terra Associates
Date Received:	08/15/12	Project:	SBMC, F&BI 208202
Date Extracted:	08/15/12	Lab ID:	208202-01 1/5
Date Analyzed:	08/15/12	Data File:	081515.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	80	50	150
Benzo(a)anthracene-d12	81	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	SBMC, F&BI 208202
Date Extracted:	08/15/12	Lab ID:	02-1431 mb2 1/5
Date Analyzed:	08/15/12	Data File:	081514.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	86	50	150
Benzo(a)anthracene-d12	86	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 08/17/12
Date Received: 08/15/12
Project: SBMC, F&BI 208202

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208183-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	95	94	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	92	79-144

Date of Report: 08/17/12
Date Received: 08/15/12
Project: SBMC, F&BI 208202

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 208180-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	0.063	71 b	44-129
Acenaphthylene	mg/kg (ppm)	0.17	0.087	88 b	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	88	51-123
Fluorene	mg/kg (ppm)	0.17	0.040	82 b	37-137
Phenanthrene	mg/kg (ppm)	0.17	0.39	36 b	45-124
Anthracene	mg/kg (ppm)	0.17	0.059	83 b	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.82	15 b	50-125
Pyrene	mg/kg (ppm)	0.17	0.98	2 b	41-135
Benz(a)anthracene	mg/kg (ppm)	0.17	0.36	54 b	23-144
Chrysene	mg/kg (ppm)	0.17	0.47	33 b	45-122
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.47	43 b	31-144
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	0.18	57 b	45-130
Benzo(a)pyrene	mg/kg (ppm)	0.17	0.46	37 b	39-128
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	0.34	39 b	28-146
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	0.058	70 b	46-129
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	0.32	38 b	37-133

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	92	94	58-121	2
Acenaphthylene	mg/kg (ppm)	0.17	94	97	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	95	97	54-123	2
Fluorene	mg/kg (ppm)	0.17	93	98	56-127	5
Phenanthrene	mg/kg (ppm)	0.17	93	95	55-122	2
Anthracene	mg/kg (ppm)	0.17	95	96	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	95	97	54-129	2
Pyrene	mg/kg (ppm)	0.17	95	98	53-127	3
Benz(a)anthracene	mg/kg (ppm)	0.17	89	92	51-115	3
Chrysene	mg/kg (ppm)	0.17	98	99	55-129	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	95	94	56-123	1
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	98	100	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	91	91	51-118	0
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	97	104	49-148	7
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	94	95	50-141	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	94	95	52-131	1

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208802

SAMPLE CHAIN OF CUSTODY

ME 08-15-12 BI1

Send Report To: Chuck Lie

Company: Terra Associates Inc.

Address: 12525 Willows Road Suite 101

City, State, ZIP: Kirkland, WA 98034

Phone #: (425) 821-7777 Fax #: 821-4334

SAMPLERS (signature): [signature]

PROJECT NAME/NO.: SBMC

PO #:

REMARKS:

Page # ___ of ___

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH ASAP
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	PAH's					Notes
8-15-10	01	8/15/12	14:00	Soil	1	X						X					

Friedman & Bruya, Inc.
[illegible]

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Nicolas R. Hoffman	TAI	8/15/12	14:04
Received by:	[signature]	D. Au	FxBI	"	"
Relinquished by:					
Received by:					

Samples received at 27 °C

APPENDIX C

TRUCK TICKETS – REMEDIAL EXCAVATIONS

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2381 W Commodore Way, Seattle
Seaton, WA 98102
Contract: LW-12295

SITE	TICKET	GRID
01	521710	

SCALE OPERATOR: BLOOO26 DRINDA L

DATE IN	TIME IN
25 July 2012	8:04 am

DATE OUT	TIME OUT
25 July 2012	8:30 am

VEHICLE	ROLL OFF
SOIL	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 90,460.00 lb PETRA
Tare Weight 41,700.00 lb
Net Weight 48,760.00 lb 24.38 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
24.38	TN	SW-CONT SOIL W/FUEL				
		Manifest				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

AFETY MEMOS:
Hard hats MUST be worn.
High Visibility vests MUST be worn.
Passengers MUST remain in vehicle at all times.

SIGNATURE [signature]

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
040185 - 0003
TD Excavating LLC
2581 W Commodore Way, Seattle
Easton, WA 9810[illegible]
Contract: EW12[illegible]

SITE	TICKET	GRID
01	[illegible]1278[illegible]	

WEIGHMASTER	
[illegible]WOOD, HEATHER M	

DATE IN	TIME IN
[illegible] JULY 2012	10:[illegible] am

DATE OUT	TIME OUT
[illegible] JULY 2012	10:[illegible] am

VEHICLE	ROLL OFF
3011	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight [illegible],[illegible]0.00 lb [illegible] RETRA[illegible]
Tare Weight 3[illegible],[illegible]0.00 lb
Net Weight [illegible],[illegible]0.00 lb 27.[illegible] TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
		[illegible] CONT SOIL GRAVEL				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
3331 W Commodore Way, Suite B
Easton, WA
Contract: LW-12295

SITE	TICKET	GRID
01	541353	

SCALE OPERATOR: LESLIE D

DATE IN	TIME IN
25 July 2012	12:04 pm
DATE OUT	TIME OUT
25 July 2012	12:29 pm
VEHICLE: 371	ROLL OFF
REFERENCE	ORIGIN: SEATTLE/KING

00 Gross Weight 94,040.00 lb
Tare Weight 65,160.00 lb
Net Weight 57,880.00 lb 28.94 TN

PETRA

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
28.94	TN	SS-CONT SOIL W/FUEL				

Manifest:

NET AMOUNT
TENDERED
CHANGE
CREW NO.

FETY MEMOS:
ard hats MUST be worn.
High Visibility vests MUST be worn.
assengers MUST remain in vehicle at all times.

SIGNATURE: Dale L. King

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
T060143 - 0003
TD Excavating LLC
2391 W Commodore Way, Seattle
Easton, WA 98925
Contract# JJ-12295

SITE	TICKET	GRID
01	54123.2	

SCALE OPERATOR
LESLIE J

DATE IN	TIME IN
25 JULY 2012	1:54 PM
DATE OUT	TIME OUT
25 JULY 2012	2:50 PM

VEHICLE	ROLL OFF
SOIL	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 54,000.00 LB
Tare Weight 29,540.00 LB
Net Weight 24,460.00 LB 29.73 TN

PETRA

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
29.73	TN	SW-CONT SOIL WATER				

Main Yard

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060123 - 0008
TD Excavating LLC
2381 W Commodore Way, Seattle
Easton, WA 98108
Contract: LW-12295

SITE	TICKET	GRID
01	52101	

SCALE OPERATOR
IN 00026 DETMON 1

DATE IN	TIME IN
26 July 2012	7:42 am
DATE OUT	TIME OUT
26 July 2012	8:05 am
VEHICLE	ROLL OFF
SOIL	
REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight: 93,330.00 lb
Tare Weight: 35,400.00 lb
Net Weight: 58,060.00 lb 29.03 TN

PETRA

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
29.03	TN	SW-CONT SOIL W/FUEL				
		Manifest				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

FETY MEMOS:
ard hats MUST be worn.
High Visibility vests MUST be worn.
assengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0008
TD Excavating LLC
2531 W Commodore Way, Seattle
Easton, WA 981600697
Contract: LH-12295

SITE	TICKET	GRID
01	542139	

SCALE OPERATOR
IN C0026 DRINDA L

DATE IN	TIME IN
26 JULY 2012	9:20 AM

DATE OUT	TIME OUT
26 JULY 2012	9:41 AM

VEHICLE	ROLL OFF
6011	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 92,360.00 lb
Tare Weight 33,240.00 lb
Net Weight 59,120.00 lb 29.56 TN

PETRA

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
29.56	TN	SY-CONT SOIL W/FUEL				

Manifested

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2331 W Commodore Way, Seattle
Easton, WA 5015690697
Contract: LW-12295

SITE	TICKET	GRID
01	542206	

SCALE OPERATOR: DL00026 DEINDA L

DATE IN	TIME IN
26 July 2012	10:59 am
DATE OUT	TIME OUT
26 July 2012	11:20 am

VEHICLE	ROLL OFF
SOIL	

REFERENCE:

ORIGIN: SEATTLE/KING

00 Gross Weight 93,700.00 lb PETRA
Tare Weight 36,700.00 lb
Net Weight 57,000.00 lb 28.50 TN

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
28.50	TN	SW-CONT SOIL W/FUEL				

Manifest #

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

FETY MEMOS:

ard hats MUST be worn.
High Visibility vests MUST be worn.
assengers MUST remain in vehicle at all times.

SIGNATURE: Dan T

GRD AND LANDER
GRD AND LANDER

SEATTLE, WA
050163 - 0003
TD Excavating LLC
2331 W Commodore Way, Seattle
Everett, WA 98199
Contract LW-12295

SITE	TICKET	GRID
01	[illegible]2271	

SCALE OPERATOR: LESLIE U

DATE IN	TIME IN
25 July 2012	12:31 pm
DATE OUT	TIME OUT
25 July 2012	1:03 pm
VEHICLE	ROLL OFF
SBT	
REFERENCE	ORIGIN
	SEATTLE/KING

GO Gross Weight: 96,300.00 lb
Tare Weight: 34,740.00 lb
Net Weight: 61,560.00 lb 30.78 TN

PETRA

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
30.78	TN	SW-CONT SOIL W/FUEL				

Hard Tests

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2301 W Commodore Way, Seattle
Easton, WA 98107
Contract: LW-12295

SITE	TICKET	GRID
01	54239	

SCALE OPERATOR: LESLIE H

DATE IN	TIME IN
26 July 2012	2:46 PM
DATE OUT	TIME OUT
26 July 2012	2:52 PM
VEHICLE: 60TN	ROLL OFF
REFERENCE:	ORIGIN: SEATTLE/KING

00 Gross Weight: 96,240.00 lb
Tare Weight: 34,780.00 lb
Net Weight: 61,460.00 lb 30.73 TN

PET84

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
30.73	TN	SW-CONT SOIL W/FUEL				

Manifest:

NET AMOUNT
TENDERED
CHANGE
CHECK NO. 27

SAFETY MEMOS:
Hard hats MUST be worn.
High Visibility vests MUST be worn.
Passengers MUST remain in vehicle at all times.

SIGNATURE: Dale L. Harris

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
98134 - 0003
TJ Excavating LLC
[illegible] W Commodore Way, Seattle
[illegible], WA
Contractor [illegible]

SITE	TICKET	GRID
[illegible]	[illegible]	

SCALE OPERATOR: MOORE, HEATHER M

DATE IN	TIME IN
31 [illegible]	[illegible] pm

DATE OUT	TIME OUT
31 [illegible]	[illegible] pm

VEHICLE	ROLL OFF
[illegible]	

REFERENCE	ORIGIN
	SEATTLE/KING

Gross Weight 98,280.00 lb PETRO
Tare Weight 35,280.00 lb
Net Weight [illegible] lb [illegible] Tn

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
[illegible]	Tn	CONT SOIL [illegible]				
		Manual Weight				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE: [signature]

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060162 - 0003
TD Excavating LLC
2301 N Commodore Way, Seattle
Ferndale, WA 98248
Contract: LW-12276

SITE	TICKET	GRID
01	[illegible]	

SCALE OPERATOR
[illegible]

DATE IN	TIME IN
31 July 2012	1:15 pm
DATE OUT	TIME OUT
31 July 2012	1:36 pm
VEHICLE	ROLL OFF
6011	
REFERENCE	ORIGIN
	SEATTLE/KING

06 Gross Weight 59,660.00 lb
Tare Weight 39,300.00 lb
Net Weight 20,360.00 lb 10.18 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
10.1	TN	SW-CONT SOIL W/FUEL				

Manifested

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

AFETY MEMOS:
Hard hats MUST be worn.
High Visibility vests MUST be worn.
Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060169 - 0003
TD Excavating LLC
2301 [illegible] W Commodore Way, Seattle
Edison, WA [illegible]
Contract# [illegible]

SITE	TICKET	GRID
01	[illegible]	

SCALE OPERATOR: [illegible] DEINDA [illegible]

DATE IN	TIME IN
31 JUL 2012	[illegible] am

DATE OUT	TIME OUT
31 JUL 2012	10:07 am

VEHICLE	ROLL OFF
2011	

REFERENCE	ORIGIN
	SEATTLE KING

GO Gross Weight 107,360.00 lb FETHM
Tare Weight 34,920.00 lb
Net Weight 72,440.00 lb 36.22 TN

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
36.2	TN	SO-CONT SOIL W/FUR				
		Hand Treat				

NET AMOUNT

TENDERED

CHANGE

CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
098143 - 0003
TD Excavating LLC
2301 W. Commodore Way, Seattle
[illegible], WA 9813[illegible]
Contract# LU-12275

SITE	TICKET	GRID
01	5[illegible]3	

SCALE OPERATOR: [illegible]

DATE IN	TIME IN
31 July 2012	[illegible] am

DATE OUT	TIME OUT
31 July 2012	[illegible] am

VEHICLE	ROLL OFF
[illegible]	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 91,380.00 lb METRA
Tare Weight 34,[illegible].00 lb
Net Weight 5[illegible],[illegible].00 lb 2[illegible].[illegible] TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
2[illegible].[illegible]	TN	SW-CONT SOIL W/FUEL				
		Manifest:				

NET AMOUNT

TENDERED

CHANGE

CHECK NO.

[SA]FETY MEMOS:
[Ha]rd hats MUST be worn.
High Visibility vests MUST be worn.
[Pa]ssengers MUST remain in vehicle at all times.

SIGNATURE [signature]

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA

TD Excavating LLC

SITE	TICKET	GRID
01	5N3702	

WEIGHMASTER: LESLIE U

DATE IN	TIME IN
31 JULY 2012	2:40 PM

DATE OUT	TIME OUT
31 JULY 2012	3:20 PM

VEHICLE	ROLL OFF
SOIL	

DESTINATION	ORIGIN
	SEATTLE, KING

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
		SOIL				

NET AMOUNT

TENDERED

CHANGE

CHECK NO.

SAFETY MEMOS:

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

SRD AND LANDER
SRD AND LANDER

SEATTLE, WA
040153 - 0003
TD Excavating LLC
2351 W Commodore Way, Seattle
Seattle, WA 98199
Contract: LM-12295

SITE	TICKET	GRID
01	55407	

SCALE OPERATOR: LESLIE U

DATE IN	TIME IN
1 August 2012	1139 PM
DATE OUT	TIME OUT
1 August 2012	157 PM
VEHICLE	ROLL OFF
SOIL	
REFERENCE	ORIGIN
	SEATTLE, KING

00 Gross Weight 193,720.00 lb
Tare Weight 89,220.00 lb
Net Weight 88,500.00 lb 94.25 TN

RETRN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
94.25	TN	SO-CONT SOIL DISPOSAL				

Manifest:

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

AFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

SRD AND LANDER
SRD AND LANDER

SEATTLE, WA
980163 - 0003
TD Excavating LLC
2391 W Commodore Way, Seattle
Everson, WA
Contract: LW-13299

SITE	TICKET	GRID
01	54130	

SCALE OPERATOR: LESLIE U

DATE IN	TIME IN
1 AUGUST 2012	8:27 AM

DATE OUT	TIME OUT
1 August 2012	1:55 PM

VEHICLE: SOIL
HOLE OFF:
REFERENCE:
ORIGIN: SEATTLE/KING

Gross Weight 96,540.00 lb
Tare Weight 34,660.00 lb
Net Weight 61,880.00 lb 30.94 TN

petra

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
30.94	TN	SU-CONT SOIL W/TUBE				
		Manifest				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

SITE	TICKET	GRID
01	E43974	

SCALE OPERATOR: DL00024 DRINDA L

DATE IN: 1 August 2012 — TIME IN: 10:46 am

DATE OUT: 1 August 2012 — TIME OUT: 11:20 am

ROLL OFF:

VEHICLE: SOIL

REFERENCE: — ORIGIN: SEATTLE/KING

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2381 W Commodore Way, Seattle
Easton, WA 9999999
Contract: LW-12295

PETRA

00 Gross Weight 98,960.00 lb
Tare Weight 34,920.00 lb
Net Weight 64,040.00 lb 32.02 TN

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
32.02	TN	SU-CONT SOIL W/FUEL				
		Manifest:				

NET AMOUNT:

TENDERED:

CHANGE:

CHECK NO.:

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE: [signature]

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 -- 0003
TD Excavating LLC
2301 W Commodore Way, Seattle
Easton, WA
Contract: LW-12295

SITE	TICKET	GRID
01	542872	

SCALE OPERATOR: DL00026 DENNIS L

DATE IN	TIME IN
1 August 2012	8:03 AM
DATE OUT	**TIME OUT**
1 August 2012	8:21 AM
VEHICLE	**ROLL OFF**
CDJ1	
REFERENCE	**ORIGIN**
	SEATTLE/KING

Gross Weight 93,800.00 lb
Tare Weight 34,960.00 lb
Net Weight 58,840.00 lb 29.42 TN

PETRO

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
29.42	TN	CONT SOIL W/FUEL				
		Item Test1				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn
- High Visibility vests MUST be worn
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060143 - 0003
TD Excavating LLC
2301 W Commodore Way, Seattle
Easton, WA
Contract# LW-12295

SITE	TICKET	GRID
01	54260	0

SCALE OPERATOR: 1L00026 BRENDA L

DATE IN: 2 August 2012 TIME IN: 7:30 am

DATE OUT: 2 August 2012 TIME OUT: 8:06 am

VEHICLE: SOIL ROLL OFF:

REFERENCE: ORIGIN: SEATTLE/KING

.00 Gross Weight 100,620.00 lb PETRA
Tare Weight 35,060.00 lb
Net Weight 65,560.00 lb 32.78 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
32.78	TN	SW-CONT SOIL W/FUEL				
		Manifest:				

NET AMOUNT

TENDERED

CHANGE

CHECK NO.

AFETY MEMOS:
Hard hats MUST be worn.
High Visibility vests MUST be worn.
assengers MUST remain in vehicle at all times. SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2331 W Commodore Way, Seattle
Easton, WA
Contract, LW-12295

SITE	TICKET	GRID
01	5[illegible]230	

SCALE OPERATOR: DL0002 DRINDA J

DATE IN	TIME IN
2 August 2012	9:33 am
DATE OUT	**TIME OUT**
2 August 2012	9:55 am
VEHICLE	**ROLL OFF**
CD11	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 106,360.00 lb
Tare Weight 35,860.00 lb
Net Weight 70,500.00 lb 35.25 TN

FILTRA

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
35.25	TN	SW-CONT SOIL W/FUEL				
		Minimum				

NET AMOUNT

TENDERED

CHANGE

CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
030183 - 0003
TD Excavating LLC
2301 W Commodore Way, Seattle
Easton, WA 981019420
Contract: LW-12295

SITE	TICKET	GRID
01	544719	

SCALE OPERATOR: DL00326 DKINDALL

DATE IN	TIME IN
3 August 2012	9:07 am

DATE OUT	TIME OUT
3 August 2012	9:29 am

VEHICLE	ROLL OFF
SOIL	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 102,480.00 lb PETRA
Tare Weight 35,120.00 lb
Net Weight 67,360.00 lb 33.68 TN

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
33.68	TN	SP-CONT SOIL W/FUEL				
		Manifest:				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
Hard hats MUST be worn.
High Visibility vests MUST be worn.
Passengers MUST remain in vehicle at all times.

SIGNATURE: [signature]

SITE	TICKET	GRID

SCALE OPERATOR

DATE IN	TIME IN
DATE OUT	TIME OUT
VEHICLE	ROLL OFF
REFERENCE	ORIGIN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2331 6 Companions Way, Seattle
Easton, WA 981013420
Contract: LW-12295

SITE	TICKET	GRID
01	564762	

SCALE OPERATOR
DL00026 DENISE L.

DATE IN	TIME IN
3 August 2012	9:54 am
DATE OUT	TIME OUT
3 August 2012	10:10 am
VEHICLE	ROLL OFF
501	
REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight: 117,960.00 lb WA/PATH
Tare Weight: 38,560.00 lb
Net Weight: 79,400.00 lb 39.70 TN

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
39.70	TN	SW-CONT SOIL W/FUEL				

Manifests:

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
98134 - 0000
[illegible] Excavating, LLC
[illegible] SW Commodore WAY, Ste [illegible]
[illegible], WA [illegible]
Contractor Lic [illegible]

SITE	TICKET	GRID
01	[illegible]	

SCALE OPERATOR
LESLIE U

DATE IN	TIME IN
[illegible] August 2012	[illegible]:56 pm

DATE OUT	TIME OUT
[illegible] August 2012	[illegible]:22 pm

VEHICLE	ROLL OFF
SOIL	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 99,000.00 lb PETRA[illegible]
Tare Weight 34,800.00 lb
Net Weight 64,200.00 lb 32.10 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
32.10	TN	SU-CONT SOIL W/FUEL				
		Hand [illegible]				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
040163 - 0003
JD Excavating LLC
2331 W Commodore Way Seattle
[illegible]
Contract: [illegible]

SITE	TICKET	GRID
01	[illegible]	

SCALE OPERATOR	
LESLIE D	
DATE IN	**TIME IN**
6 August 2012	11:00 am
DATE OUT	**TIME OUT**
6 August 2012	11:23 am
VEHICLE	**ROLL OFF**
CDL	
REFERENCE	**ORIGIN**
	SEATTLE/KING

00 Gross Weight 95,720.00 lb
Tare Weight [illegible],220.00 lb
Net Weight 66,500.00 lb 33.25 TN

PETRA

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
33.25	TN	SW-CONT SOIL W/FUEL				
		manifest				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
98143 - [illegible]
TD Excavating LLC
[illegible] [illegible] Commercial Way, Seattle
Easton, WA 98109
Contract, WN-12245

SITE	TICKET	GRID
01	[illegible]	

SCALE OPERATOR: LESLIE H

DATE IN	TIME IN
6 August 2012	[illegible] am

DATE OUT	TIME OUT
6 August 2012	[illegible] am

VEHICLE	ROLL OFF
[illegible]	

REFERENCE	ORIGIN
	SEATTLE/KING

(A) Gross Weight [illegible] LB   METRA
Tare Weight [illegible] LB
Net Weight [illegible] LB 28.77 TN

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
[illegible]	TN	SUB-CONT. SOIL W/FUEL				
		Hand Test				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
660163 - 0003
TD Excavating LLC
[illegible] W. Commodore Way, Seattle
Easton, WA 98045
Contractor Lic [illegible]

SITE	TICKET [illegible]	GRID
[illegible] FERTIBO	SCALE OPERATOR	
DATE IN [illegible] 2012	TIME IN [illegible]	
DATE OUT [illegible] 2012	TIME OUT [illegible]	
VEHICLE	ROLL OFF	
REFERENCE PETRO	ORIGIN SEATTLE, KING	

~~[illegible] Gross Weight [illegible] lb~~
Tare Weight 34,760.00 lb
Net Weight [illegible],560.00 lb [illegible] TN

QTY [illegible]	UNIT [illegible]	DESCRIPTION [illegible] CONT [illegible]	RATE	EXTENSION	TAX	TOTAL
		Manifest				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

[S]AFETY MEMOS:
[H]ard hats MUST be worn.
High Visibility vests MUST be worn.
[P]assengers MUST remain in vehicle at all times.

SIGNATURE [signature]

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TDI Excavating LLC
2981 W Commadore Way, Seattle
Easton, WA 98925
Contract: LW-12295

SITE	TICKET	GRID
01	547074	

SCALE OPERATOR
DL00026 DRINDA I

DATE IN	TIME IN
10 August 2012	9:32 am
DATE OUT	TIME OUT
10 August 2012	5:49 pm

VEHICLE	ROLL OFF
SOIL	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 94,700.00 lb
Tare Weight 34,900.00 lb
Net Weight 59,800.00 lb 29.90 TN

PETRA

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
29.90	TN	SW-CONT SOIL W/FUEL				
		Manifest:				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:
Hard hats MUST be worn.
High Visibility vests MUST be worn.
Passengers MUST remain in vehicle at all times.

SIGNATURE

D AND LANDER
D AND LANDER

ATTLE, WA
0162 - 0003
Excavating LLC
2361 W Commodore Way, Seattle
aston, WA
ntract: LW-1229E

SITE	TICKET	GRID
01	547161	

SCALE OPERATOR
DL00026 DFINDA L

DATE IN	TIME IN
10 August 2012	11:11 am
DATE OUT	**TIME OUT**
10 August 2012	11:29 am
VEHICLE	**ROLL OFF**
901L	
REFERENCE	**ORIGIN**
	SEATTLE/KING

00 Gross Weight 92,680.00 lb
Tare Weight 35,000.00 lb
Net Weight 57,680.00 lb 28.84 TN

PETRA

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
28.84	TN	SW-CONT SOIL W/FUEL				
		Manifest:				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

ETY MEMOS:
ard hats MUST be worn.
gh Visibility vests MUST be worn.
ssengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2361 W Commodore Way, Seattle
Easton, WA 98124
Contract: LW-12295

SITE	TICKET	GRID
01	547236	

SCALE OPERATOR: LESLIE U

DATE IN	TIME IN
10 August 2012	12:55 pm

DATE OUT	TIME OUT
10 August 2012	1:14 pm

VEHICLE	ROLL OFF
SOIL	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 92,080.00 LB PETRA
Tare Weight 35,480.00 LB
Net Weight 56,600.00 LB 28.30 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
28.30	TN	SW-CONT SOIL W/FUEL				

Manifest:

NET AMOUNT
TENDERED
CHANGE
CHECK NO

SAFETY MEMOS:

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

D AND LANDER
D AND LANDER

ATTLE, WA
0163 - 0003
Excavating LLC
2301 W Commadore Way, Seattle
aston, WA
ntract: LW-12295

SITE	TICKET	GRID
01	547304	

SCALE OPERATOR
LESLIE U

DATE IN	TIME IN
10 August 2012	2:34 pm
DATE OUT	**TIME OUT**
10 August 2012	3:12 pm
VEHICLE	**ROLL OFF**
SOIL	
REFERENCE	**ORIGIN**
	SEATTLE/KING

00 Gross Weight 90,560.00 lb
Tare Weight 34,240.00 lb
Net Weight 56,320.00 lb 27.91 TN

PETRA

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
27.91	TN	SW-CONT SOIL W/FUEL				
		Manifest:				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

ETY MEMOS:
ard hats MUST be worn.
igh Visibility vests MUST be worn.
ssengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 --0003
TD Excavating LLC
2381 W Commadore Way, Seattle
Easton, WA 98925
Contract: LW-12295

SITE	TICKET	GRID
01	548518	

SCALE OPERATOR: HM00028 HEATHER M

DATE IN	TIME IN
15 August 2012	8:02 am

DATE OUT	TIME OUT
15 August 2012	8:16 am

VEHICLE	ROLL OFF
SOIL	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 95,300.00 lb PETRA
Tare Weight 34,680.00 lb
Net Weight 60,620.00 lb 30.31 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
30.31	TN	SW-CONT SOIL WZFUEL				
		Manifest:				

NET AMOUNT
TENDERED
CHANGE
CHECK NO

SAFETY MEMOS:

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2381 W Commodore Way, Seattle
Easton, WA 98134
Contract: LW-12295

SITE	TICKET	GRID
01	[illegible]	

SCALE OPERATOR: HM00028 HEATHER M

DATE IN	TIME IN
15 August 2012	9:30 am

DATE OUT	TIME OUT
15 August 2012	9:57 am

VEHICLE	ROLL OFF
201	

REFERENCE	ORIGIN
	SEATTLE/KING

00 Gross Weight 94,900.00 lb PETRA
Tare Weight 34,700.00 lb
Net Weight 60,200.00 lb 30.10 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
30.10	TN	SW-CONT SOIL W/FUEL				
		Manifest:				

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

AFETY MEMOS:
ard hats MUST be worn.
ligh Visibility vests MUST be worn.
assengers MUST remain in vehicle at all times.

SIGNATURE ______

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2381 W Commodore Way, Seattle
Easton, WA 98124
Contract: LW-12295

SITE	TICKET	GRID
01	542451	

SCALE OPERATOR: TJ 00024 DETNDA

DATE IN	TIME IN
15 August 2012	11:39 am
DATE OUT	**TIME OUT**
15 August 2012	12:01 pm
VEHICLE	**ROLL OFF**
6011	
REFERENCE	**ORIGIN**
	SEATTLE/KING

00 Gross Weight 68,180.00 lb PETRA
Tare Weight 35,640.00 lb
Net Weight 32,540.00 lb 16.27 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
16.27	TN	SW-CONT SOIL W/FUEL				

Manifest:

NET AMOUNT
TENDERED
CHANGE
CHECK NO.

SAFETY MEMOS:

Hard hats MUST be worn.
High Visibility vests MUST be worn.
Passengers MUST remain in vehicle at all times.

SIGNATURE

3RD AND LANDER
3RD AND LANDER

SEATTLE, WA
060163 - 0003
TD Excavating LLC
2381 W Commodore Way, Seattle
Easton, WA 99999
Contract: LW-12295

SITE	TICKET	GRID
01	542234	

SCALE OPERATOR
DLOOOZA DENNIS

DATE IN	TIME IN
15 August 2012	1:51 pm
DATE OUT	**TIME OUT**
15 August 2012	2:17 pm
VEHICLE	**ROLL OFF**
5TTI	
REFERENCE	**ORIGIN**
	SEATTLE/KING

00 Gross Weight 107,720.00 LB FETRA
Tare Weight 35,340.00 LB
Net Weight 72,380.00 LB 36.19 TN

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX	TOTAL
36.19	TN	SW-CONT SOIL W/FUEL				

Manifest:

NETAMOUNT
TENDERED
CHANGE
CHECK NO.

FETY MEMOS:
ard hats MUST be worn.
igh Visibility vests MUST be worn.
assengers MUST remain in vehicle at all times.

SIGNATURE

Activity By Job ID

Report period August 2012
REGIONAL DISPOSAL INTERMODAL

Job ID: LW-12295 **60,163 TD Excavating LLC**

Date	Ticket #	truck	Container		Material Code/Desc	Gross	Tare	Net	Tons	Origin
8/28/12 10:10 an	552,453	SOIL		74	SW-CONT SOIL W/F	98,280	35,620	62,660	31.33	SEATTLE/KING
8/28/12 11:59 an	552,541	SOIL		74	SW-CONT SOIL W/F	100,440	35,400	65,040	32.52	SEATTLE/KING
8/28/12 2:39 pm	552,635	SOIL		74	SW-CONT SOIL W/F	79,020	35,280	43,740	21.87	SEATTLE/KING
Total For Job	**LW-12295**					**3** Loads			**85.72**	TN

area 3

Started date → 8-16-12

APPENDIX D

ANALYTICAL TEST RESULTS – GROUNDWATER

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

November 9, 2012

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

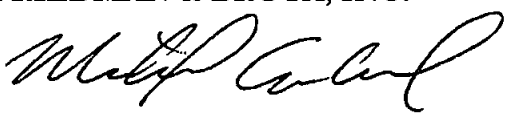
Dear Mr. Lie:

Included are the results from the testing of material submitted on October 17, 2012 from the T-6751, F&BI 210277 project. There are 17 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
NAA1109R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 17, 2012 by Friedman & Bruya, Inc. from the Terra Associates T-6751, F&BI 210277 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
210277-01	MW-1
210277-02	MW-2
210277-03	MW-3
210277-04	MW-4
210277-05	MW-5
210277-06	MW-6

Samples MW-2, MW-5, and MW-6 were sent to Fremont for MCPP herbicide analysis. Review of the enclosed report indicates that all quality assurance were acceptable.

All quality control requirements were acceptable.

Date of Report: 11/09/12
Date Received: 10/17/12
Project: T-6751, F&BI 210277
Date Extracted: 10/19/12
Date Analyzed: 10/20/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW-1 210277-01	47	<1	<1	<3	170	101
Method Blank 02-1907 MB	<1	<1	<1	<3	<100	102

Date of Report: 11/09/12
Date Received: 10/17/12
Project: T-6751, F&BI 210277
Date Extracted: 10/22/12
Date Analyzed: 10/22/12

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-3 210277-03	210 x	<250	124
MW-4 210277-04	7,900 x	3,400 x	59
Method Blank 02-1913 MB	<50	<250	105

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-1	Client:	Terra Associates
Date Received:	10/17/12	Project:	T-6751, F&BI 210277
Date Extracted:	10/18/12	Lab ID:	210277-01
Date Analyzed:	10/22/12	Data File:	210277-01.067
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	107	60	125
Indium	97	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	25.8
Manganese	26.1
Iron Screen	1,170

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-5	Client:	Terra Associates
Date Received:	10/17/12	Project:	T-6751, F&BI 210277
Date Extracted:	10/18/12	Lab ID:	210277-05 x10
Date Analyzed:	10/22/12	Data File:	210277-05 x10.070
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	95	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	13.3
Manganese	16.6
Iron Screen	<2,500

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	T-6751, F&BI 210277
Date Extracted:	10/18/12	Lab ID:	I2-713 mb
Date Analyzed:	10/22/12	Data File:	I2-713 mb rr. 072
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	97	60	125
Indium	99	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Manganese	<1
Iron Screen	<250

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW-1	Client:	Terra Associates
Date Received:	10/17/12	Project:	T-6751, F&BI 210277
Date Extracted:	10/23/12	Lab ID:	210277-01
Date Analyzed:	10/23/12	Data File:	210277-01.052
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	92	60	125
Indium	82	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	19.6
Manganese	2.57
Iron Screen	211

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW-5	Client:	Terra Associates
Date Received:	10/17/12	Project:	T-6751, F&BI 210277
Date Extracted:	10/23/12	Lab ID:	210277-05 x10
Date Analyzed:	10/23/12	Data File:	210277-05 x10.053
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	96	60	125
Indium	89	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	14.1
Manganese	<10
Iron Screen	<2,500

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	T-6751, F&BI 210277
Date Extracted:	10/23/12	Lab ID:	I2-721 mb
Date Analyzed:	10/23/12	Data File:	I2-721 mb.043
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	107	60	125
Indium	103	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Manganese	<1
Iron Screen	<250

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-5	Client:	Terra Associates
Date Received:	10/17/12	Project:	T-6751, F&BI 210277
Date Extracted:	10/23/12	Lab ID:	210277-05 1/2
Date Analyzed:	10/23/12	Data File:	102311.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	108	50	150
Benzo(a)anthracene-d12	122	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.87
Acenaphthylene	<0.1
Acenaphthene	0.28
Fluorene	0.13
Phenanthrene	0.21
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	T-6751, F&BI 210277
Date Extracted:	10/23/12	Lab ID:	02-1926 mb
Date Analyzed:	10/23/12	Data File:	102309.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	110	50	150
Benzo(a)anthracene-d12	111	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Date of Report: 11/09/12
Date Received: 10/17/12
Project: T-6751, F&BI 210277

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 210318-03 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	94	65-118
Toluene	ug/L (ppb)	50	97	72-122
Ethylbenzene	ug/L (ppb)	50	101	73-126
Xylenes	ug/L (ppb)	150	96	74-118
Gasoline	ug/L (ppb)	1,000	105	69-134

Date of Report: 11/09/12
Date Received: 10/17/12
Project: T-6751, F&BI 210277

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	108	113	61-133	5

Date of Report: 11/09/12
Date Received: 10/17/12
Project: T-6751, F&BI 210277

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 210277-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	25.8	66 b	60 b	51-167	10 b
Manganese	ug/L (ppb)	20	26.1	81 b	90 b	54-157	11 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	102	81-118
Manganese	ug/L (ppb)	20	101	81-122

Date of Report: 11/09/12
Date Received: 10/17/12
Project: T-6751, F&BI 210277

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 210318-09 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	98	114	51-167	15
Manganese	ug/L (ppb)	20	4.26	99 b	116 b	54-157	16 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	107	81-118
Manganese	ug/L (ppb)	20	112	81-122

Date of Report: 11/09/12
Date Received: 10/17/12
Project: T-6751, F&BI 210277

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	87	91	67-116	4
Acenaphthylene	ug/L (ppb)	1	93	95	65-119	2
Acenaphthene	ug/L (ppb)	1	89	91	66-118	2
Fluorene	ug/L (ppb)	1	94	97	64-125	3
Phenanthrene	ug/L (ppb)	1	89	91	67-120	2
Anthracene	ug/L (ppb)	1	87	92	65-122	6
Fluoranthene	ug/L (ppb)	1	87	92	65-127	6
Pyrene	ug/L (ppb)	1	88	99	62-130	12
Benz(a)anthracene	ug/L (ppb)	1	85	92	60-118	8
Chrysene	ug/L (ppb)	1	90	94	66-125	4
Benzo(b)fluoranthene	ug/L (ppb)	1	91	95	55-135	4
Benzo(k)fluoranthene	ug/L (ppb)	1	95	95	62-125	0
Benzo(a)pyrene	ug/L (ppb)	1	97	100	58-127	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	98	97	36-142	1
Dibenz(a,h)anthracene	ug/L (ppb)	1	91	95	37-133	4
Benzo(g,h,i)perylene	ug/L (ppb)	1	90	94	34-135	4

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, Washington 98119

RE: 210277
Lab ID: 1210167

November 06, 2012

Attention Michael Erdahl:

Fremont Analytical, Inc. received 3 sample(s) on 10/18/2012 for the analyses presented in the following report.

Herbicides by EPA Method 8151A

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Fremont Analytical

Date: *11/06/2012*

CLIENT: Friedman & Bruya
Project: 210277
Lab Order: 1210167

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210167-001	MW-2	10/17/2012 2:10 PM	10/18/2012 4:00 PM
1210167-002	MW-5	10/17/2012 4:20 PM	10/18/2012 4:00 PM
1210167-003	MW-6	10/17/2012 12:00 PM	10/18/2012 4:00 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Fremont Analytical

Case Narrative

WO#: **1210167**
Date: **11/6/2012**

CLIENT: Friedman & Bruya
Project: 210277

I. SAMPLE RECEIPT:
All samples were received intact.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Fremont Analytical

Analytical Report

WO#: **1210167**
Date Reported: **11/6/2012**

Client: Friedman & Bruya
Project: 210277
Lab ID: 1210167-001
Client Sample ID: MW-2

Collection Date: 10/17/2012 2:10:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Herbicides by EPA Method 8151A				Batch ID: 3540		Analyst: MD
MCPP	ND	8.00		µg/L	1	10/29/2012 2:48:00 PM
Surr: 2,4-Dichlorophenylacetic acid	93.5	50-135		%REC	1	10/29/2012 2:48:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client: Friedman & Bruya
Project: 210277
Lab ID: 1210167-002
Client Sample ID: MW-5

Collection Date: 10/17/2012 4:20:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Herbicides by EPA Method 8151A				Batch ID: 3540		Analyst: MD
MCPP	ND	8.00		µg/L	1	10/29/2012 2:48:00 PM
Surr: 2,4-Dichlorophenylacetic acid	131	50-135		%REC	1	10/29/2012 2:48:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client: Friedman & Bruya
Project: 210277
Lab ID: 1210167-003
Client Sample ID: MW-6

Collection Date: 10/17/2012 12:00:00 P
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Herbicides by EPA Method 8151A				Batch ID: 3540		Analyst: MD
MCPP	ND	8.00		µg/L	1	10/29/2012 2:48:00 PM
Surr: 2,4-Dichlorophenylacetic acid	75.8	50-135		%REC	1	10/29/2012 2:48:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Fremont Analytical

Date: *11/6/2012*

Work Order: 1210167
CLIENT: Friedman & Bruya
Project: 210277

QC SUMMARY REPORT
Herbicides by EPA Method 8151A

Sample ID: **MB-C-3540**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **10/20/2012**		RunNo: **6425**		
Client ID: **MBLKW**	Batch ID: **3540**					Analysis Date: **10/29/2012**		SeqNo: **127624**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MCPP	ND	8.00									
Surr: 2,4-Dichlorophenylacetic acid	2.32		2.000		116	50	135				

Sample ID: **LCS-C-3540**	SampType: **LCS**			Units: **µg/L**		Prep Date: **10/20/2012**		RunNo: **6425**		
Client ID: **LCSW**	Batch ID: **3540**					Analysis Date: **10/29/2012**		SeqNo: **127625**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MCPP	80.9	8.00	100.0	0	80.9	50	150				
Surr: 2,4-Dichlorophenylacetic acid	1.85		2.000		92.3	50	150				

Sample ID: **1210167-002DUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **10/20/2012**		RunNo: **6425**		
Client ID: **BATCH**	Batch ID: **3540**					Analysis Date: **10/29/2012**		SeqNo: **127631**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MCPP	ND	8.00						0	0	50	
Surr: 2,4-Dichlorophenylacetic acid	1.72		2.000		86.2	50	135		0		

Sample ID: **1210167-003AMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **10/20/2012**		RunNo: **6425**		
Client ID: **MW-6**	Batch ID: **3540**					Analysis Date: **10/29/2012**		SeqNo: **127633**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MCPP	61.4	8.00	100.0	0	61.4	50	150				
Surr: 2,4-Dichlorophenylacetic acid	1.45		2.000		72.3	50	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

12-10167

Page# 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
210277	C-115

REMARKS

Please Email Results

TURNAROUND TIME

☒ Standard (2 Weeks)

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins and Furans by 8290	EPH	VPH	Nitrate	Sulfate	Alkalinity	MCPP Herbicides 8151				Notes
MW-2		10/17/12	1410	W	2							X				
MW-5		↓	1620	↓	2							X				
MW-6		↓	1200	↓	2							X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	10/18/12	1115AM
Received by:		Tony Zehr	~~F&B~~ FAI	10/18/12	1600
Relinquished by:					
Received by:					

SAMPLE CHAIN OF CUSTODY

ME 10/17/12 VI/EOB/AI2

210277

Page # 1 of 1

Send Report To Charles Lee
Company Terra Associates
Address 12525 Willows Road Suite 101
City, State, ZIP Kirkland, WA
Phone # 425 821-7777 Fax #

SAMPLERS (signature)
PROJECT NAME/NO. T-6751
PO#
REMARKS Dissolved metals Field Filtered

TURNAROUND TIME
☐ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Dissolved metals As, Fe, Mn	Total metals As, Fe, Mn	MCPP	PAHs		Notes
MW-1	01 A-E	10/17/12	1310	Water	5		X	X				X	X				
MW-2	02 A-B	10/17/12	1410	Water	2									X			
MW-3	03	10/17/12	1450	water	1	X											
MW-4	04	10/17/12	1535	water	1	X											
MW-5	05 A-E	10/17/12	1620	water	5							X	X	X	X		
MW-6	06 A-B	10/17/12	1200	water	2									X			

ANALYSES REQUESTED

Samples received at 3 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Terry Bukowski	Environmental Field Service	10/17/12	1700
Received by:	HONG NGUYEN	FASI	10/17/12	1700
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

January 10, 2013

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on January 4, 2013 from the 6751, F&BI 301037 project. There are 17 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0110R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 4, 2013 by Friedman & Bruya, Inc. from the Terra Associates 6751, F&BI 301037 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
301037-01	MW-1
301037-02	MW-2
301037-03	MW-3
301037-04	MW-4
301037-05	MW-5

All quality control requirements were acceptable.

Date of Report: 01/10/13
Date Received: 01/04/13
Project: 6751, F&BI 301037
Date Extracted: 01/07/13
Date Analyzed: 01/07/13

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW-1 301037-01	34	<1	<1	<3	210	92
MW-2 301037-02	<1	<1	<1	<3	<100	96
Method Blank 03-0037 MB	<1	<1	<1	<3	<100	94

Date of Report: 01/10/13
Date Received: 01/04/13
Project: 6751, F&BI 301037
Date Extracted: 01/07/13
Date Analyzed: 01/07/13

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
MW-3 301037-03	91 x	<250	104
MW-4 301037-04	1,900 x	940 x	110
MW-5 301037-05	1,300 x	690 x	108
Method Blank 03-054 MB	<50	<250	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW-1	Client:	Terra Associates
Date Received:	01/04/13	Project:	6751, F&BI 301037
Date Extracted:	01/08/13	Lab ID:	301037-01 x10
Date Analyzed:	01/09/13	Data File:	301037-01 x10.020
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	92	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	29.7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW-5	Client:	Terra Associates
Date Received:	01/04/13	Project:	6751, F&BI 301037
Date Extracted:	01/08/13	Lab ID:	301037-05
Date Analyzed:	01/09/13	Data File:	301037-05.019
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	86	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	3.00

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	6751, F&BI 301037
Date Extracted:	01/08/13	Lab ID:	I3-009 mb
Date Analyzed:	01/09/13	Data File:	I3-009 mb.013
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	85	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-1	Client:	Terra Associates
Date Received:	01/04/13	Project:	6751, F&BI 301037
Date Extracted:	01/08/13	Lab ID:	301037-01 x10
Date Analyzed:	01/09/13	Data File:	301037-01 x10.015
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	95	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	33.3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-5	Client:	Terra Associates
Date Received:	01/04/13	Project:	6751, F&BI 301037
Date Extracted:	01/08/13	Lab ID:	301037-05
Date Analyzed:	01/09/13	Data File:	301037-05.018
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	87	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	3.30

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	6751, F&BI 301037
Date Extracted:	01/08/13	Lab ID:	I3-008 mb
Date Analyzed:	01/09/13	Data File:	I3-008 mb.008
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	93	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-5	Client:	Terra Associates
Date Received:	01/04/13	Project:	6751, F&BI 301037
Date Extracted:	01/08/13	Lab ID:	301037-05 1/2
Date Analyzed:	01/08/13	Data File:	010806.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	100	50	150
Benzo(a)anthracene-d12	105	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.23
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	6751, F&BI 301037
Date Extracted:	01/08/13	Lab ID:	03-060 mb
Date Analyzed:	01/08/13	Data File:	010805.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	106	50	150
Benzo(a)anthracene-d12	85	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Date of Report: 01/10/13
Date Received: 01/04/13
Project: 6751, F&BI 301037

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 301037-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	84	65-118
Toluene	ug/L (ppb)	50	92	72-122
Ethylbenzene	ug/L (ppb)	50	92	73-126
Xylenes	ug/L (ppb)	150	91	74-118
Gasoline	ug/L (ppb)	1,000	95	69-134

Date of Report: 01/10/13
Date Received: 01/04/13
Project: 6751, F&BI 301037

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	106	113	58-134	6

Date of Report: 01/10/13
Date Received: 01/04/13
Project: 6751, F&BI 301037

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 301037-01 1/10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	29.7	87 b	99 b	51-167	13 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	81-118

Date of Report: 01/10/13
Date Received: 01/04/13
Project: 6751, F&BI 301037

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 301046-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.45	103	103	51-167	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	99	81-118

Date of Report: 01/10/13
Date Received: 01/04/13
Project: 6751, F&BI 301037

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	88	90	67-116	2
Acenaphthylene	ug/L (ppb)	1	89	87	65-119	2
Acenaphthene	ug/L (ppb)	1	91	92	66-118	1
Fluorene	ug/L (ppb)	1	91	88	64-125	3
Phenanthrene	ug/L (ppb)	1	90	90	67-120	0
Anthracene	ug/L (ppb)	1	92	93	65-122	1
Fluoranthene	ug/L (ppb)	1	91	87	65-127	4
Pyrene	ug/L (ppb)	1	88	89	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	79	78	60-118	1
Chrysene	ug/L (ppb)	1	92	92	66-125	0
Benzo(b)fluoranthene	ug/L (ppb)	1	82	81	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	100	100	62-125	0
Benzo(a)pyrene	ug/L (ppb)	1	86	85	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	75	72	36-142	4
Dibenz(a,h)anthracene	ug/L (ppb)	1	75	75	37-133	0
Benzo(g,h,i)perylene	ug/L (ppb)	1	84	84	34-135	0

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

301037

SAMPLE CHAIN OF CUSTODY

ME 01-04-13 /AI2/V1/C04

Page # 1 of 1

Send Report To: Chuck Lim
Company: Terra Associates Inc
Address: 12525 Willows Rd. Suite 101
City, State, ZIP: Kirkland, WA, 98034
Phone # 425 821-7777 Fax # 821-4334

SAMPLERS (signature):
PROJECT NAME/NO.: 6751
PO#:
REMARKS:

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	Total Arsenic	Dissolved Arsenic	PAH's				Notes
MW-1	01A-E	1/4/13	10:00	water	5		X	X				X	X					
MW-2	02A-C	1/4/13	11:00	water	3		X	X										
MW-3	03	1/4/13	11:50	water	1	X												
MW-4	04	1/4/13	12:35	water	1	X												
MW-5	05A-C	1/4/13	13:30	water	3	X						X	X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Nicolas Ray Hoffman	TAI	1/4/13	13:55
Received by:		DOND	FEBI	"	"
Relinquished by:					
Received by:			Samples received at 4 °C		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

June 11, 2013

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on May 29, 2013 from the T-6751, F&BI 305532 project. There are 18 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0611R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 29, 2013 by Friedman & Bruya, Inc. from the Terra Associates T-6751, F&BI 305532 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
305532-01	MW-1
305532-02	MW-2
305532-03	MW-3
305532-04	MW-4
305532-05	MW-5

Phenanthrene was detected in the 8270D SIM method blank. The results were flagged as due to laboratory contamination.

All other quality control requirements were acceptable.

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305532
Date Extracted: 05/29/13
Date Analyzed: 05/29/13

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-1 305532-01	24	<1	<1	<3	130	85
Method Blank 03-1008 MB	<1	<1	<1	<3	<100	83

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305532
Date Extracted: 05/29/13
Date Analyzed: 05/29/13

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING METHOD 8021B

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Surrogate (% Recovery) Limit (50-150)
MW-2 305532-02	<1	<1	<1	<3	85
MW-4 305532-04	<1	<1	<1	7.6	85
Method Blank 03-1008 MB	<1	<1	<1	<3	83

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305532
Date Extracted: 05/31/13
Date Analyzed: 05/31/13

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
MW-3 305532-03	<50	<250	101
MW-4 305532-04	1,400 x	930 x	96
MW-5 305532-05	1,100 x	870 x	98
Method Blank 03-1046 MB	<50	<250	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW-1	Client:	Terra Associates
Date Received:	05/29/13	Project:	T-6751, F&BI 305532
Date Extracted:	05/31/13	Lab ID:	305532-01
Date Analyzed:	06/05/13	Data File:	305532-01.015
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	82	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	42.8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW-5	Client:	Terra Associates
Date Received:	05/29/13	Project:	T-6751, F&BI 305532
Date Extracted:	05/31/13	Lab ID:	305532-05
Date Analyzed:	06/05/13	Data File:	305532-05.016
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	77	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	2.73

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	T-6751, F&BI 305532
Date Extracted:	05/31/13	Lab ID:	I3-296 mb
Date Analyzed:	06/05/13	Data File:	I3-296 mb.008
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	96	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-1	Client:	Terra Associates
Date Received:	05/29/13	Project:	T-6751, F&BI 305532
Date Extracted:	06/04/13	Lab ID:	305532-01 x10
Date Analyzed:	06/05/13	Data File:	305532-01 x10.025
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	83	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	48.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	MW-5	Client:	Terra Associates
Date Received:	05/29/13	Project:	T-6751, F&BI 305532
Date Extracted:	06/04/13	Lab ID:	305532-05
Date Analyzed:	06/05/13	Data File:	305532-05.026
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	69	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	2.88

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	T-6751, F&BI 305532
Date Extracted:	06/04/13	Lab ID:	I3-303 mb
Date Analyzed:	06/05/13	Data File:	I3-303 mb.018
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	88	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-5	Client:	Terra Associates
Date Received:	05/29/13	Project:	T-6751, F&BI 305532
Date Extracted:	06/03/13	Lab ID:	305532-05 1/0.25
Date Analyzed:	06/04/13	Data File:	060409.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	50	150
Benzo(a)anthracene-d12	98	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.46
Acenaphthylene	0.014
Acenaphthene	0.21
Fluorene	0.11
Phenanthrene	0.25
Anthracene	0.042
Fluoranthene	0.034
Pyrene	0.026
Benz(a)anthracene	<0.005 j
Chrysene	<0.005 j
Benzo(a)pyrene	<0.005 j
Benzo(b)fluoranthene	<0.005 j
Benzo(k)fluoranthene	<0.005 j
Indeno(1,2,3-cd)pyrene	<0.005 j
Dibenz(a,h)anthracene	<0.005 j
Benzo(g,h,i)perylene	<0.005 j

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	T-6751, F&BI 305532
Date Extracted:	06/03/13	Lab ID:	03-1063 mb 1/0.25
Date Analyzed:	06/04/13	Data File:	060406.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84	50	150
Benzo(a)anthracene-d12	93	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.005 j
Acenaphthylene	<0.005 j
Acenaphthene	<0.005 j
Fluorene	<0.005 j
Phenanthrene	0.0051 j lc
Anthracene	<0.005 j
Fluoranthene	<0.005 j
Pyrene	<0.005 j
Benz(a)anthracene	<0.005 j
Chrysene	<0.005 j
Benzo(a)pyrene	<0.005 j
Benzo(b)fluoranthene	<0.005 j
Benzo(k)fluoranthene	<0.005 j
Indeno(1,2,3-cd)pyrene	<0.005 j
Dibenz(a,h)anthracene	<0.005 j
Benzo(g,h,i)perylene	<0.005 j

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305532

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 305522-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	90	72-119
Toluene	ug/L (ppb)	50	90	71-113
Ethylbenzene	ug/L (ppb)	50	93	72-114
Xylenes	ug/L (ppb)	150	89	72-113
Gasoline	ug/L (ppb)	1,000	96	70-119

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305532

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	103	116	58-134	12

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305532

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.42	106	99	60-150	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	97	80-111

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305532

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 305522-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.03	99 b	99 b	60-150	0 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-111

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305532

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	86	92	67-116	7
Acenaphthylene	ug/L (ppb)	1	86	92	65-119	7
Acenaphthene	ug/L (ppb)	1	86	93	66-118	8
Fluorene	ug/L (ppb)	1	86	90	64-125	5
Phenanthrene	ug/L (ppb)	1	87	93	67-120	7
Anthracene	ug/L (ppb)	1	86	92	65-122	7
Fluoranthene	ug/L (ppb)	1	88	89	65-127	1
Pyrene	ug/L (ppb)	1	89	97	62-130	9
Benz(a)anthracene	ug/L (ppb)	1	82	88	60-118	7
Chrysene	ug/L (ppb)	1	88	94	66-125	7
Benzo(b)fluoranthene	ug/L (ppb)	1	83	88	55-135	6
Benzo(k)fluoranthene	ug/L (ppb)	1	92	100	62-125	8
Benzo(a)pyrene	ug/L (ppb)	1	84	91	58-127	8
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	82	86	36-142	5
Dibenz(a,h)anthracene	ug/L (ppb)	1	77	81	37-133	5
Benzo(g,h,i)perylene	ug/L (ppb)	1	84	89	34-135	6

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

305532

SAMPLE CHAIN OF CUSTODY ME 05-29-13 B05/A13/V3

Page # 1 of 1

Send Report To Charles Lie
Company Terra Associates, Inc.
Address 12525 Willows Road, Suite 101
City, State, ZIP Kirkland, Washington
Phone # (425) 821-7777 Fax #

SAMPLERS (signature) [signature]
PROJECT NAME/NO. 1-6751 PO#
REMARKS * Dissolved Arsenic Field Filtered
Bill To SBMC

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	Total Arsenic	Dissolved Arsenic*	PAHs			Notes
MW-1	01 A-E	5/28/13	1035	Water	5		X	X				X	X				
MW-2	02A-C	5/28/13	1148	Water	3			X									
MW-3	03A-D	5/28/13	1300	Water	4	X											
MW-4	04 T	5/28/13	1420	Water	4	X		X									
MW-5	05A-E	5/28/13	1550	Water	5	X						X	X		X		
													Samples received at 2 °C				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Terry Bukowski	Environmental Field Services	5/29/13	0800
Received by:	[signature]	Nhan Phan	FEBI	5/29/13	0900
Relinquished by:					
Received by:			Samples received at 2 °C		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

June 11, 2013

Chuck Lie, Project Manager
Terra Associates
12525 Willows Rd NE Ste 101
Kirkland, WA 98034

Dear Mr. Lie:

Included are the results from the testing of material submitted on May 29, 2013 from the T-6751, F&BI 305533 project. There are 12 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
NAA0611R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 29, 2013 by Friedman & Bruya, Inc. from the Terra Associates T-6751, F&BI 305533 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Terra Associates
305533-01	SB-1
305533-02	SB-2

Phenanthrene was detected in the 8270D SIM method blank. The results were flagged as due to laboratory contamination.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305533
Date Extracted: 05/29/13
Date Analyzed: 05/29/13

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING METHOD 8021B

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Surrogate (% Recovery) Limit (50-150)
SB-1 305533-01	<1	<1	<1	<3	84
SB-2 305533-02	<1	<1	<1	<3	86
Method Blank 03-1008 MB	<1	<1	<1	<3	83

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SB-1	Client:	Terra Associates
Date Received:	05/29/13	Project:	T-6751, F&BI 305533
Date Extracted:	06/04/13	Lab ID:	305533-01
Date Analyzed:	06/05/13	Data File:	305533-01.029
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	77	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SB-2	Client:	Terra Associates
Date Received:	05/29/13	Project:	T-6751, F&BI 305533
Date Extracted:	06/04/13	Lab ID:	305533-02
Date Analyzed:	06/05/13	Data File:	305533-02.030
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	81	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	T-6751, F&BI 305533
Date Extracted:	06/04/13	Lab ID:	I3-303 mb
Date Analyzed:	06/05/13	Data File:	I3-303 mb.018
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Indium	88	60	125

Analyte:	Concentration ug/L (ppb)
Arsenic	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	SB-1	Client:	Terra Associates
Date Received:	05/29/13	Project:	T-6751, F&BI 305533
Date Extracted:	06/03/13	Lab ID:	305533-01 1/0.25
Date Analyzed:	06/04/13	Data File:	060410.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	50	150
Benzo(a)anthracene-d12	96	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.005 j
Acenaphthylene	<0.005 j
Acenaphthene	<0.005 j
Fluorene	<0.005 j
Phenanthrene	0.011 fb
Anthracene	<0.005 j
Fluoranthene	0.018
Pyrene	0.017
Benz(a)anthracene	0.0077
Chrysene	0.0078
Benzo(a)pyrene	0.0086
Benzo(b)fluoranthene	0.011
Benzo(k)fluoranthene	<0.005 j
Indeno(1,2,3-cd)pyrene	0.0082
Dibenz(a,h)anthracene	<0.005 j
Benzo(g,h,i)perylene	0.0091

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	SB-2	Client:	Terra Associates
Date Received:	05/29/13	Project:	T-6751, F&BI 305533
Date Extracted:	06/03/13	Lab ID:	305533-02 1/0.25
Date Analyzed:	06/04/13	Data File:	060411.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	85	50	150
Benzo(a)anthracene-d12	89	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.0051 j
Acenaphthylene	<0.005 j
Acenaphthene	<0.005 j
Fluorene	<0.005 j
Phenanthrene	0.0061 j fb
Anthracene	<0.005 j
Fluoranthene	0.0077
Pyrene	0.0051 j
Benz(a)anthracene	<0.005 j
Chrysene	<0.005 j
Benzo(a)pyrene	<0.005 j
Benzo(b)fluoranthene	<0.005 j
Benzo(k)fluoranthene	<0.005 j
Indeno(1,2,3-cd)pyrene	<0.005 j
Dibenz(a,h)anthracene	<0.005 j
Benzo(g,h,i)perylene	<0.005 j

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Terra Associates
Date Received:	NA	Project:	T-6751, F&BI 305533
Date Extracted:	06/03/13	Lab ID:	03-1063 mb 1/0.25
Date Analyzed:	06/04/13	Data File:	060406.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84	50	150
Benzo(a)anthracene-d12	93	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.005 j
Acenaphthylene	<0.005 j
Acenaphthene	<0.005 j
Fluorene	<0.005 j
Phenanthrene	0.0051 j lc
Anthracene	<0.005 j
Fluoranthene	<0.005 j
Pyrene	<0.005 j
Benz(a)anthracene	<0.005 j
Chrysene	<0.005 j
Benzo(a)pyrene	<0.005 j
Benzo(b)fluoranthene	<0.005 j
Benzo(k)fluoranthene	<0.005 j
Indeno(1,2,3-cd)pyrene	<0.005 j
Dibenz(a,h)anthracene	<0.005 j
Benzo(g,h,i)perylene	<0.005 j

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305533

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES USING EPA METHOD 8021B

Laboratory Code: 305522-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	90	72-119
Toluene	ug/L (ppb)	50	90	71-113
Ethylbenzene	ug/L (ppb)	50	93	72-114
Xylenes	ug/L (ppb)	150	89	72-113

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305533

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 305522-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.03	99 b	99 b	60-150	0 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-111

Date of Report: 06/11/13
Date Received: 05/29/13
Project: T-6751, F&BI 305533

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	86	92	67-116	7
Acenaphthylene	ug/L (ppb)	1	86	92	65-119	7
Acenaphthene	ug/L (ppb)	1	86	93	66-118	8
Fluorene	ug/L (ppb)	1	86	90	64-125	5
Phenanthrene	ug/L (ppb)	1	87	93	67-120	7
Anthracene	ug/L (ppb)	1	86	92	65-122	7
Fluoranthene	ug/L (ppb)	1	88	89	65-127	1
Pyrene	ug/L (ppb)	1	89	97	62-130	9
Benz(a)anthracene	ug/L (ppb)	1	82	88	60-118	7
Chrysene	ug/L (ppb)	1	88	94	66-125	7
Benzo(b)fluoranthene	ug/L (ppb)	1	83	88	55-135	6
Benzo(k)fluoranthene	ug/L (ppb)	1	92	100	62-125	8
Benzo(a)pyrene	ug/L (ppb)	1	84	91	58-127	8
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	82	86	36-142	5
Dibenz(a,h)anthracene	ug/L (ppb)	1	77	81	37-133	5
Benzo(g,h,i)perylene	ug/L (ppb)	1	84	89	34-135	6

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

305533

SAMPLE CHAIN OF CUSTODY

ME 05-29-13 AIS / V2

Page # 1 of 1

Send Report To Charles Lie
Company Terra Associates, Inc.
Address 12525 Willows Rd, Suite 101
City, State, ZIP Kirkland, WA
Phone # (425) 821-7777 Fax #

SAMPLERS (signature) Terry Bukowski
PROJECT NAME/NO. T-6751
PO#
REMARKS Bill to SBMC

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	PAHs	Total Arsenic				Notes
SB-1	01 A-F	5/28/13	18.10*	Water	6			X				X	X				
SB-2	02 A-F	5/28/13	1830*	Water	6			X				X	X				
			* per Terry Bukowski (NB) 5/30/13.														

ANALYSES REQUESTED

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Terry Bukowski	Environmental Field Services	5/29/13	0900
Received by:	Nhan Phan	FEBI	5/29/13	0900
Relinquished by:		Samples received at 2 °C		
Received by:				