Final

Environmental Site Assessment Report
Bonjorni Site
Ellensburg, Washington

Prepared for:

State of Washington Department of Ecology

Toxics Cleanup Program

Central Regional Office

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Contract #C1100144; Work Assignment #C11144VV

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Environmental Engineering, Inc.

March 24, 2014

Approval Form

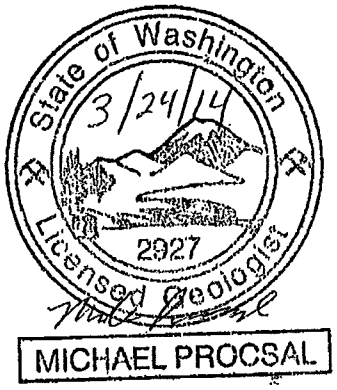
This document contains geologic work and is therefore submitted under the seal of an appropriately licensed professional, as required by Chapters 18.43 and 18.220 Revised Code of Washington (RCW).

Approved by:

Mike Procsal Date: 3/24/14

Mike Procsal, P.G.

Geologist, TerraGraphics Environmental Engineering, Inc.



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Acronyms and Abbreviations

bgs	below ground surface
BTEXN	benzene, toluene, ethylbenzene, total xylenes, and naphthalene
DRO	diesel range organics
Ecology	Washington State Department of Ecology
EDB	ethylene dibromide
EDC	1,2-dichloroethane
ETBE	Ethyl tertiary-butyl ether
GRO	gasoline range organics
LCS	laboratory control sample
mg/kg	milligrams per kilogram
MTBE	methyl tert-butyl ether
MTCA	Model Toxics Control Act
PID	photo-ionization detector
QAPP	Quality Assurance Project Plan
RPD	relative percent difference
SAP	Sampling and Analysis Plan
TAME	Tertiary-amyl methyl ether
TBA	Tertiary-butyl alcohol
TerraGraphics	TerraGraphics Environmental Engineering, Inc.
TPH-Dx	Total Petroleum Hydrocarbons-Diesel and Oil Range Organics
TPH-Gx	Total Petroleum Hydrocarbons-Gasoline Range Organics
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
WAC	Washington Administrative Code

Executive Summary

TerraGraphics Environmental Engineering, Inc. (TerraGraphics) teamed with Hart Crowser, Inc. (under contract with the Washington State Department of Ecology [Ecology]) to identify potential soil and/or groundwater contamination at the Bonjorni Site, located in Ellensburg, Washington (Figure 1). Soil sample results were compared to Washington's Model Toxics Control Act (MTCA) (WAC 173-340) Method A unrestricted cleanup levels (Table 740-1, WAC 173-340-900). During this investigation, no groundwater samples were taken due to the soil conditions and presence of a perched water system. Soil samples were collected to evaluate potential risks associated with petroleum impacted soil at the site to support selection and design of remedial actions. This document summarizes field activities and analytical data collected, and provides recommendations.

Soil Quality

Direct Push Sampling: Soil borings were advanced at 13 locations (BH-1 through BH-13, Figure 2) on November 25 and 26, 2013. A total of ten soil samples (including one duplicate sample) were collected from the soil borings based on field screening results using a portable MiniRae® photo-ionization detector (PID). Samples were not collected from all of the borings either because there were no indications of petroleum impacts or because the next successive boring was sampled instead in order to delineate the outer limits of the potential contaminant plume. Samples were collected from the zone with the highest PID reading. The analytical results indicate that five (including one duplicate) samples were above one or more of the MTCA Method A Unrestricted Soil Cleanup Levels. Detected concentrations (expressed in milligrams per kilogram [mg/kg]) are summarized in Table 1 and those above the cleanup levels are listed below:

	GRO	DRO	Ethylbenzene	Total xylenes	naphthalene	Heavy Oil*
BH-3 (8 ft bgs)	750	-	-	-	-	-
BH-5 (8 ft bgs)	250	-	-	-	-	-
BH-6 (4 ft bgs)	19,000	4,800	25	48	130	4,829.5
BH-11 (11 ft bgs)	400	-	-	-	-	-
Cleanup Level	100	2,000	6	9	5	2,000

Notes:
Feet (ft)
Below ground surface (bgs)
Gasoline range organics (GRO)
Diesel range organics (DRO)
(-) = Not detected above cleanup level
(*) Summation of DRO and Motor Oil values. 1/2 detection limit used where necessary in summation of heavy oil concentrations.
The higher concentration of the original and duplicate is listed for BH-6.

Groundwater

Groundwater monitoring wells were not installed as part of this assessment. A perched groundwater system exists at the site between approximately 6 and 9 feet bgs. Dry soil was encountered approximately 15 feet bgs. The groundwater system at the site appears to be laterally continuous locally and is likely influenced by seasonal effects. Visual and olfactory evidence indicates that the perched water is petroleum impacted locally near BH-6 and possibly near BH-11 based on visual evidence and PID readings.

Summary and Recommendations

This investigation determined that petroleum-impacted soil is present at the site. Petroleum-impacted soil appears to be most prevalent between and south of the former underground storage tanks (USTs) and the former dispenser island as indicated by the soil quality results for borings BH-3, BH-5, BH-6, and BH-11. The lateral extent of petroleum-impacted soil is loosely defined to by an oval shape extending south to the edge of and possibly under Vantage Highway. The vertical extent of impacted soil is from approximately 4 feet bgs to 11 feet bgs with minor impacts observed as deep as 15 feet bgs and as shallow as 2 feet bgs.

Based on the available information and site-specific data collected, TerraGraphics concludes the following:

- Soil concentrations exceed MTCA A Unrestricted Soil Cleanup Levels at the site.
- The lateral extent of petroleum impacted soil has been bounded to the north and east with the possibility of additional impacts to the south beneath Vantage Highway.
- Petroleum impacted soil on the site is estimated at 1,800 cubic yards. This calculation is based on the estimated extent of soil exceeding the MTCA A Unrestricted Soil Cleanup Levels for GRO and a depth range from 0 to 15 feet bgs. This estimated volume includes un-impacted overburden (0 to 2 feet bgs) but does not include potential petroleum-impacted soil located beyond the extent displayed in Figure 3.
- Petroleum impacts to perched groundwater are likely near boring BH-6 and may extend south based on field screening and analytical results.
- Natural attenuation will not likely be an effective remediation strategy due to the elevated levels of GRO in soil.

Based on the available information and site-specific data collected, TerraGraphics recommends the following:

- Complete an additional soil and groundwater investigation to delineate soil impacts that potentially extend off site beneath the highway and to characterize site groundwater.
- Implement a remediation strategy following the remedial alternatives evaluation. The likely alternative based on the results of this assessment is source soil excavation. The perched groundwater will likely affect potential excavation activities between 6 and 9 feet bgs.

Section 1.0 Introduction

The Bonjorni Site (hereinafter, referred to as 'the Site') is located at 5281 Vantage Highway, Ellensburg, Washington (Figure 1). In the fall of 2000, four underground storage tanks (USTs) were removed from the Site from two excavations (Figure 2). While the contents of the USTs are unknown, initial soil sampling indicated that the four USTs contained gasoline. During excavation activities soil samples were collected from the dispenser island area, which contained concentrations of gasoline-range hydrocarbons exceeding Model Toxics Control Act (MTCA) Method A Unrestricted Soil Cleanup Levels (WAC 173-340). No petroleum hydrocarbons were detected from the excavation around the other three USTs.

Groundwater was not encountered during excavation in 2000, which was terminated at 8 feet below ground surface (bgs). Based on previous assessment activities, depth to groundwater was estimated to be 15 feet bgs, and is anticipated to vary seasonally with irrigation activities (Fulcrum 2001). Based on the 2000 excavation report, the disposition of excavated material is unknown and the extent of the impacted soil and groundwater beyond the excavation was not delineated. Recommendations from the report included additional assessment to delineate the full extent of petroleum contamination through further soil sampling and groundwater monitoring (Fulcrum 2001).

The Washington State Department of Ecology (Ecology) contracted Hart Crowser, Inc. and TerraGraphics Environmental Engineering, Inc. (TerraGraphics) to perform site assessment and characterization activities. The objective of this assessment was to delineate the vertical and lateral extent of petroleum-impacted soil and groundwater, and to determine the potential need for remediation.

1.1 2013 Site Assessment Activities

In 2013 Ecology requested additional Site assessment and cleanup support. Ecology contracted Hart Crowser, Inc. and TerraGraphics to perform additional Site assessment and characterization activities. The objective of this assessment is to delineate the full extent of petroleum contamination at the Site to support selection and design of remedial actions. The results from the 2013 Site assessment activities are presented in the Environmental Site Assessment Report herein.

Section 2.0 Field Activities

In general, sampling procedures followed the Sampling Analysis Plan (SAP) / Quality Assurance Project Plan (QAPP) for Site Assessment at the Bonjorni Site, Ellensburg, Washington (TerraGraphics 2013) except for the following changes:

- Groundwater samples were not collected due to dry soil conditions below the visible soil contamination. An apparent perched groundwater system may be locally impacted by petroleum (near BH-6) based on visual and olfactory evidence but field screening at the time of drilling did not indicate that impacts were likely to extend laterally. This decision was made in the field after consulting with Ecologies representative.

2.1 Soil Sampling

Soil borings were advanced at 13 locations (BH-1 through BH-13, Figure 2) on November 25 and 26, 2013. Soil borings were advanced on an approximate 20 foot grid and were advanced outward in all directions until un-impacted soils were observed. A total of ten soil samples (including one duplicate sample) were collected from the soil borings based on field screening results using a portable MiniRae® photo-ionization detector (PID). Samples were not collected from all of the borings either because there were no indications of petroleum impacts (BH-4, BH-7, and BH-12) or because the next successive boring was sampled (BH-9 instead of BH-13). Samples were collected from the zone with the highest PID reading.

Photographs were taken during the boring and sampling processes and are included as Appendix A. Borings were advanced using a truck mounted Geoprobe® utilizing a single tube Geoprobe® 2-inch diameter 5-foot length macro-core barrel driven in 5-foot increments (e.g., 0-5 feet, 5-10 feet, 10-15 feet, etc.) to the target depth of the borehole. A new Geoprobe® macro-core liner was used to collect each sample interval. All soil that was retrieved from the boreholes was screened in the field using a portable MiniRae® PID to check for the presence of volatile organic compounds.

Samples were sent to Test America Labs in Seattle, Washington, where they were analyzed for the following:

- Benzene, toluene, ethylbenzene, total xylenes, and naphthalene (BTEXN) by U.S. Environmental Protection Agency (USEPA) Method 8260B (USEPA 1992);
- Methyl tert-butyl ether (MTBE) using USPEA Method 8260B (USEPA 1992);
- Tertiary-butyl alcohol (TBA) by USEPA Method 8260B (USEPA 1992);
- Tertiary-amyl methyl ether (TAME) by USEPA Method 8260B (USEPA 1992);
- Ethyl tertiary-butyl ether (ETBE) by USEPA Method 8260B (USEPA 1992);
- Ethylene dibromide (EDB) by USEPA Method 8260B (USEPA 1992);
- 1,2-dichloroethane (EDC) using USEPA Method 8260B (USEPA 1996);
- Total Petroleum Hydrocarbons-Gasoline Range Organics (GRO) (TPH-Gx) using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997);
- Total Petroleum Hydrocarbons-Diesel and Oil Range Organics (DRO) (TPH-Dx and TPH-Dx-Motor Oil) using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997); and
- Total recoverable lead using USEPA Method 200.8/6020 (USEPA 1994).

Complete laboratory data sheets and chain-of-custody documentation are included as Appendix B.

Section 3.0 Results

The data quality objectives as set forth in the SAP/QAPP (TerraGraphics 2013) have been achieved. As a result, no data were rejected and the final completeness of the study was assessed at 100%. The following sections summarize the soil and groundwater analytical results.

3.1 Soil Sample Analysis

Five (including one duplicate) of the ten samples were above one or more of the Method A Unrestricted Soil Cleanup Levels. Detected concentrations (expressed in milligrams per kilogram [mg/kg]) are summarized in Table 1 and those above the cleanup levels are listed below:

	GRO	DRO	Ethylbenzene	Total xylenes	naphthalene	Heavy Oil*
BH-3 (8 ft bgs)	750	-	-	-	-	-
BH-5 (8 ft bgs)	250	-	-	-	-	-
BH-6 (4 ft bgs)	19,000	4,800	25	48	130	4,829.5
BH-11 (11 ft bgs)	400	-	-	-	-	-
Cleanup Level	100	2,000	6	9	5	2,000

Notes:
Feet (ft)
Below ground surface (bgs)
(-) = Not detected above cleanup level
(*) Summation of DRO and Motor Oil values. 1/2 detection limit used where necessary in summation of heavy oil concentrations.
The higher concentration of the original and the duplicate is listed for BH-6.

In addition to these results, other boring locations that exhibited petroleum impacts (primarily gasoline) are indicated by PID readings and staining noted in the borings logs.

3.1.1 Estimated Volume of Petroleum Impacted Soil

The lateral extent of petroleum impacted soil exceeding cleanup levels has been bounded to the north, east, and west based on analytical and field screening results It is possible that petroleum impacted soil may be present south of BH-11 and extend beneath Vantage Highway. However, volatile organic compounds (VOCs) were not detected at this location and the difference in GRO concentrations between BH-11 and BH-5 is two orders of magnitude less; therefore, petroleum-impacted soils likely do not extend substantially to the south.

Figure 3 shows the estimated extent of petroleum impacted soil that exceeds MTCA Method A Unrestricted Soil Cleanup Level of 100 mg/kg for GRO. The vertical extent of petroleum-impacted soil appears to be greatest from 4 to 11 feet bgs with minor impacts as shallow as 2 feet bgs and as deep as 15 feet bgs. Using a conservative approach, an estimate of the petroleum-impacted soil was calculated using a depth range of 0 to 15 feet bgs and a lateral extent as

interpreted from the GRO isocontour of 100 mg/kg (Figure 3). The volume of petroleum-impacted soil on the site is estimated at 1,800 cubic yards that includes potentially un-impacted overburden soils (0 to 2 feet bgs). This estimated volume does not include potential petroleum-impacted soil located beyond the extent displayed in Figure 3.

3.2 Geology and Hydrogeology

In general, site lithology consists of fill material from 0 feet to 1 foot bgs, and silt/clays from 1 foot to 5 feet bgs with silty, poorly sorted gravel from about 6 feet to 12 feet bgs. More detailed information of the subsurface conditions can be found in the boring logs included as Appendix C.

During drilling, wet soil was encountered at most of the borings from about 6 to 9 feet bgs. However, dry soil was encountered beneath the wet soils around 15 feet bgs. The water bearing zone appears to be a perched water system that is laterally continuous locally. Although visual and olfactory evidence showed no impacts at most boring locations, it is possible that groundwater has been impacted at the site.

3.3 Data Evaluation

Data quality objectives and criteria were outlined in Section 4.0 of the SAP/QAPP (TerraGraphics 2013). TerraGraphics reviewed field documentation, results of field and laboratory QA/QC samples, and data reported by the laboratory to ensure that the data had been recorded, transmitted, and processed correctly, and to determine that data quality objectives were met.

3.3.1 Sample Preservation & Holding Time

TerraGraphics delivered samples on ice to Test America Labs outside the 48-hour hold time for VOC analysis on the following samples:

- BH-1 7'
- BH-2 8'
- BH-8 8'
- BH-9 4'
- BH-12 10'
- Trip Blank

All sample holding times that exceed lab specifications have been qualified as estimates (with a J flag). Since the samples were delivered to lab beyond the 48 hour hold time the lab was not able to process the samples within the specified holding time. The sample results may be biased slightly low and are acceptable for use as qualified.

All other preservation requirements were met for all samples and Test America Lab's sample receiving documentation indicates the cooler temperature was 1.9°C upon delivery, which is within the temperature requirements specified in the SAP/QAPP (TerraGraphics 2013).

3.3.2 Data Tracking and Field Documentation

Collection dates and times for all samples were recorded in a field logbook. Samples submitted for laboratory analysis were recorded on a chain-of-custody form, which was completed and checked before samples were delivered to the lab.

3.3.3 Accuracy

Accuracy was assessed based on percent recoveries of laboratory control sample (LCS) analysis. The SAP/QAPP required frequency of LCS sample analysis was met. The following analytes had percent recoveries outside of the range specified in the SAP/QAPP (50%-125%): benzene (135% recovery), ethylbenzene (128% recovery), o-xylene (126% recovery), naphthalene (135% recovery), ETBE (130% recovery), and TAME (136% recovery). These analytes were qualified with a J based on the LCS results. All other LCS percent recoveries were within the acceptable range.

3.3.4 Precision

Precision was assessed based on relative percent difference (RPD) of a LCS duplicate. The required frequency of LCS duplicates and RPD range were met. No data were qualified based on LCS duplicate analysis.

A field duplicated was collected to examine variability in field procedures. One field duplicate was collected immediately after the original sample was collected at borehole BH-6 4'. The RPD for ethylbenzene (56%) and naphthalene (57%) were above the SAP/QAPP requirement (<50%) and are J qualified.

3.3.5 Data Comparability

Soil samples were collected and analyzed using current accepted methods and procedures. All results are usable and are suitable for to comparison with past or future laboratory data collected at this site.

3.3.6 Data Completeness

The final completeness for the study is assessed at 100%.

Section 4.0 Summary

This investigation determined that petroleum-impacted soil is present at the site. Petroleum-impacted soil appears to be most prevalent between and south of the former USTs and dispenser island as indicated by the soil quality results for borings BH-3, BH-5, BH-6, and BH-11. The lateral extent of petroleum impacted soil is loosely defined to be an oval shape extending south to the edge of and possibly under Vantage Highway. The vertical extent of impacted soil is from approximately 4 feet bgs to 11 feet bgs with minor impacts observed as deep as 15 feet bgs and as shallow as 2 feet bgs.

A perched groundwater lens was encountered approximately between 6 and 9 feet bgs and appears to be influenced by seasonal effects (Fulcrum 2001). Dry soil was encountered around 15 feet bgs. Groundwater impacts are likely present near BH-6 and may be present at other locations including BH-11 based upon elevated soil concentrations at the groundwater interface.

Section 5.0 Conclusions and Recommendations

Based on the information obtained during the site assessment, remedial action is recommended at the site. Conclusions and recommendations are summarized in the following sections.

5.1 Conclusions

Based on the available information and site-specific data collected, TerraGraphics concludes the following:

- Soil concentrations exceed MTCA A Cleanup Levels at the site.
- The lateral extent of petroleum impacted soil has been bounded to the north, east, and west, with the possibility of additional impacts to the south beneath Vantage Highway.
- The volume of petroleum impacted soil on the site is estimated at 1,800 cubic yards. This calculation is based on the estimated extent of soil exceeding the MTCA A Unrestricted Soil Cleanup Levels for GRO and a depth range from 0 to 15 feet bgs. This estimated volume includes potentially un-impacted overburden (0 to 2 feet bgs) but does not include potential petroleum-impacted soils located beyond the extent displayed in Figure 3.
- Soil GRO concentrations suggest that petroleum constituents may be impacting perched groundwater at the site.
- Natural attenuation will not likely be an effective remediation strategy due to the highly elevated levels of GRO in soil.

5.2 Recommendations

Based on the available information and site-specific data collected, TerraGraphics recommends the following:

- Complete an additional soil and groundwater investigation to delineate soil impacts that potentially extend off site beneath the highway and to characterize site groundwater.
- Implement a remediation strategy following further site characterization and completion of a remedial alternatives evaluation. The likely alternative based on the results of this assessment is source soil excavation, however, if impacts are found to extend beneath the highway, *in situ* remediation options may need to be evaluated.

Section 6.0 References and Resources Used

Washington State Department of Ecology (Ecology), 1997. Analytical Methods for Petroleum Hydrocarbons. ECY 97-602, June 1997.

Fulcrum Environmental Consulting (Fulcrum), 2001. Underground Storage Tank Site Assessment; April 26.

TerraGraphics Environmental Engineering, Inc. (TerraGraphics), 2013. Sampling Analysis Plan (SAP) / Quality Assurance Project Plan (QAPP) for Site Assessment and Post Remediation Monitoring at the Bonjorni Site, Ellensburg, Washington. Prepared for State of Washington Department of Ecology. November 22, 2013.

U.S. Environmental Protection Agency (USEPA), 1992. Method 8011: 1,2-dibromoethane and 1,2-dibromo-3-chloropropane by microextraction and gas chromatography.

USEPA, 1994. Method 200.8: Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry, Revision 5.4.

USEPA, 1996. Method 8260B: Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 2.

Washington Administrative Code (WAC) 173-340. Title 173, Chapter 173-340: Model Toxics Control Act – cleanup. Last update: 10/12/07, accessed October 18, 2011, http://apps.leg.wa.gov/wac/default.aspx?cite=173-340.

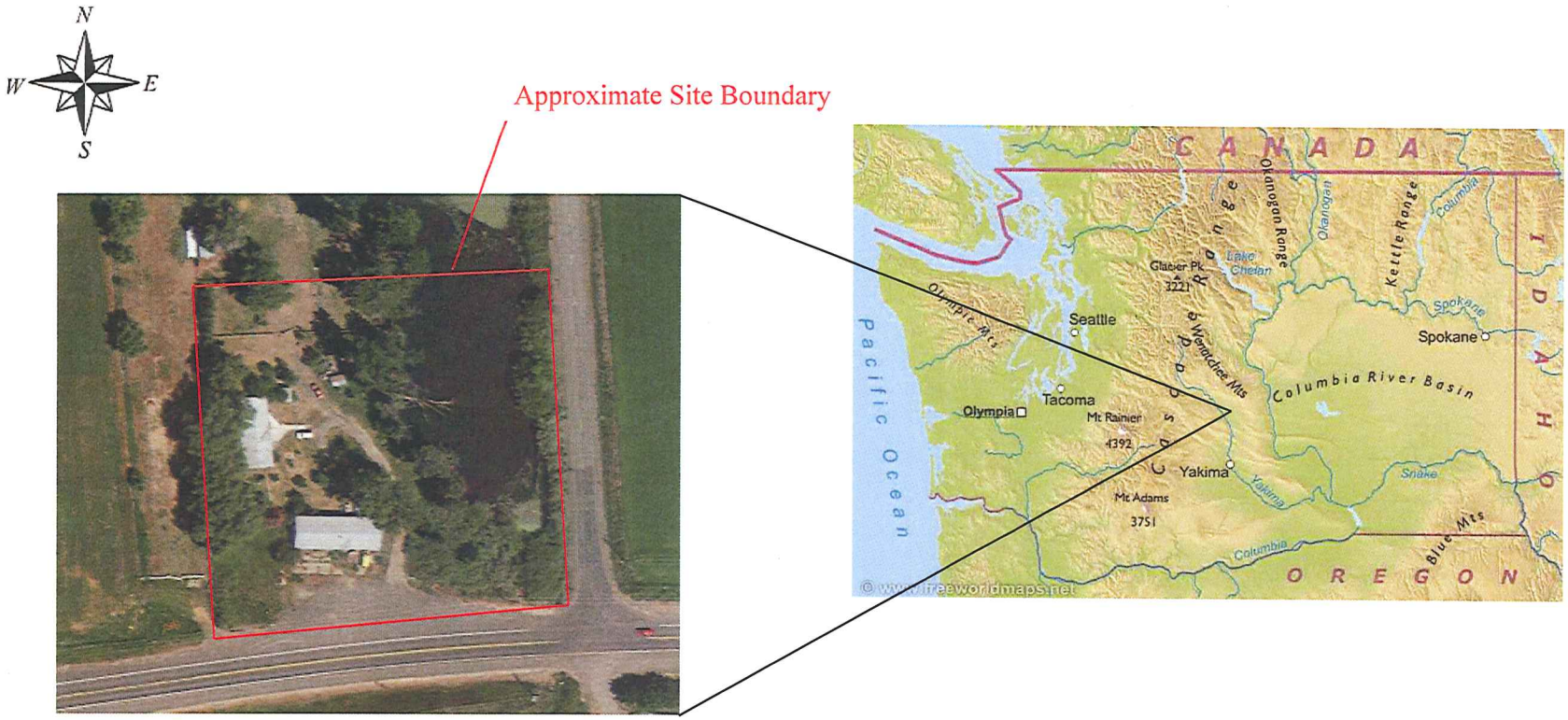
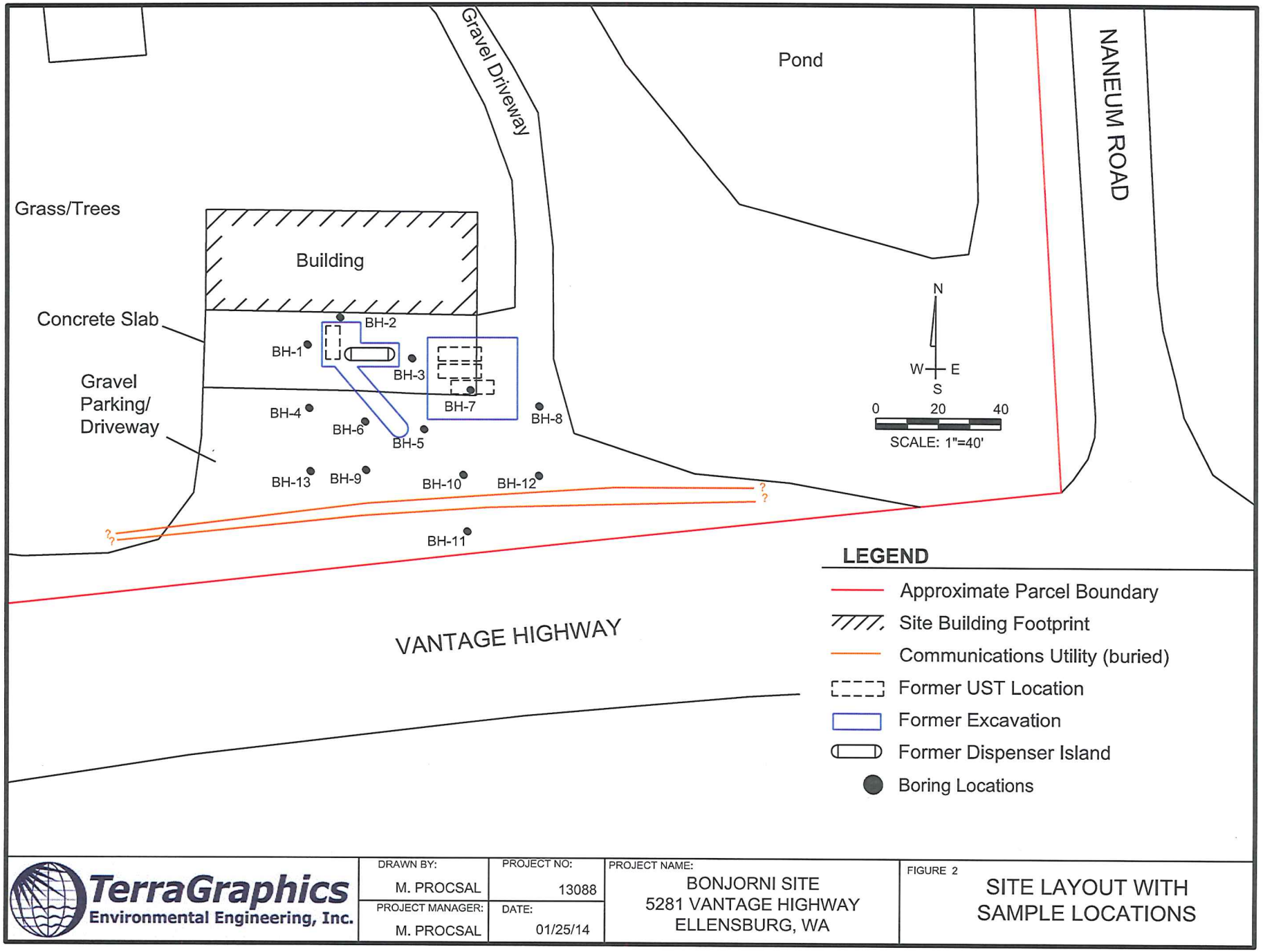


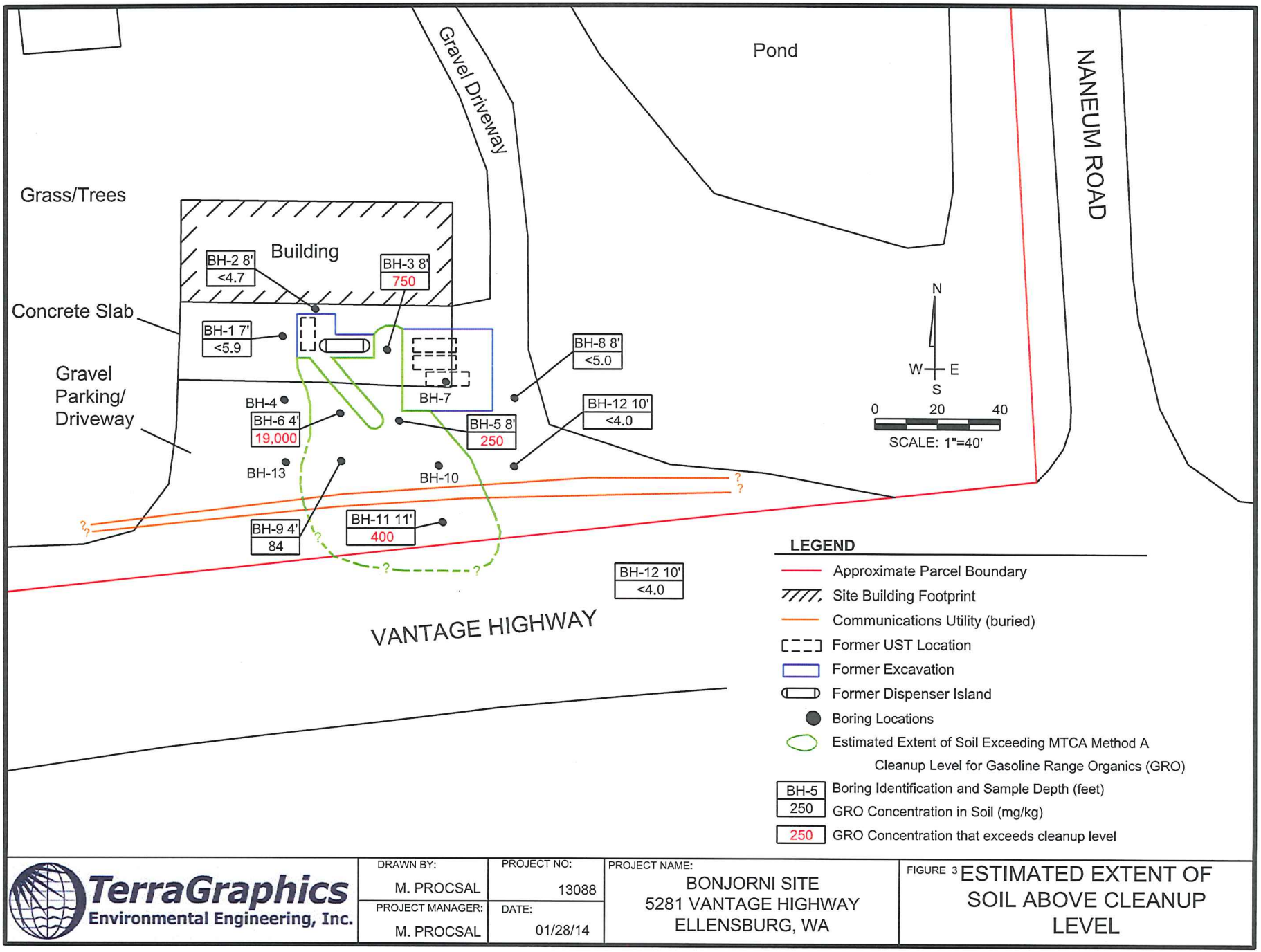
Image courtesy of Google Maps

Project No. 13088	TerraGraphics Environmental Engineering, Inc.	**Bonjorni Site** **5281 Vantage Highway** **Ellensburg, Washington**	Date: 10/11/13
Scale: not to scale			
Requestor: M. Procsal		**Figure 1. Site Location**	
Drafter: M. Studer			



TerraGraphics Environmental Engineering, Inc.

DRAWN BY:	PROJECT NO:	PROJECT NAME:	FIGURE 2
M. PROCSAL	13088	BONJORNI SITE 5281 VANTAGE HIGHWAY ELLENSBURG, WA	SITE LAYOUT WITH SAMPLE LOCATIONS
PROJECT MANAGER: M. PROCSAL	DATE: 01/25/14		



TerraGraphics Environmental Engineering, Inc.	DRAWN BY: M. PROCSAL PROJECT MANAGER: M. PROCSAL	PROJECT NO: 13088 DATE: 01/28/14	PROJECT NAME: BONJORNI SITE 5281 VANTAGE HIGHWAY ELLENSBURG, WA	FIGURE 3 ESTIMATED EXTENT OF SOIL ABOVE CLEANUP LEVEL

Table 1
Soil Analytical Results (mg/kg)
Bonjorni
Ellensburg, Washington

Sample ID	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)	EDC (mg/kg)	EDB (mg/kg)	ETBE (mg/kg)	MTBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	Motor Oil (mg/kg)	Heavy Oil # (mg/kg)
BH-1 7'	11/25/2013	<0.0011 J	<0.0022 J	<0.0011 J	<0.0033 J	<0.0056 J	4.0	<0.0011 J	<0.0011 J	<0.011 J	<0.0011 J	<0.011 J	<0.011 J	<5.9	<32	<63	47.5
BH-2 8'	11/25/2013	<0.0011 J	<0.0022 J	<0.0011 J	<0.0034 J	<0.0056 J	4.3	<0.0011 J	<0.0011 J	<0.011 J	<0.0011 J	<0.011 J	<0.011 J	<4.7	<29	<59	44
BH-3 8'	11/25/2013	***<0.14	<0.36	<0.36	<0.36 J	<0.36	3.8	***<0.14	<0.36	<0.36 J	<0.36	<0.36 J	<3.6	**750**	180 Y	<49	204.5
BH-5 8'	11/25/2013	***<0.041	<0.1	<0.1	<0.2	<0.1	4.7	***<0.041	<0.1	<0.1 J	<0.1	<0.1 J	<1.0	**250**	73 Y	<55	100.5
BH-6 4'	11/25/2013	***<0.25 J	<0.63	**14 J**	**28.9 J**	**72 J**	17	***<0.25	<0.63	<0.63 J	***<0.63	<0.63 J	<6.3	**19,000**	**4,300 Y**	<62	**4,331**
BH-6D 4'	11/25/2013	***<0.23 J	<0.57	**25 J**	**48 J**	**130 J**	20	***<0.23	<0.57	<0.57 J	***<0.57	<0.57 J	<5.7	**17,000**	**4,800 Y**	<59	**4,829.5**
BH-8 8'	11/26/2013	<0.00097 J	<0.0019 J	<0.00097 J	<0.00287 J	<0.0048 J	3.5	<0.00097 J	<0.00097 J	<0.0097 J	<0.00097 J	<0.0097 J	<0.0097 J	<5.0	<28	<57	42.5
BH-9 4'	11/26/2013	<0.0011 J	<0.0022 J	0.012 J	0.0144 J	0.10 J	5.3	<0.0011 J	<0.0011 J	<0.011 J	<0.0011 J	<0.011 J	<0.011 J	84	<29	<59	44
BH-11 11'	11/26/2013	***<0.074 J	<0.190	<0.190 J	<0.380 J	<0.190 J	11	***<0.074	<0.190	<0.190 J	***<0.190	<0.190 J	<1.9	**400**	54 Y	98	152
BH-12 10'	11/26/2013	<0.0012 J	<0.0024 J	<0.0012 J	<0.0036 J	<0.0061 J	4.1	<0.0012 J	<0.0012 J	<0.012 J	<0.0012 J	<0.012 J	<0.012 J	<4.0	<27	<55	41
MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses (mg/kg)		0.03	7	6	9	5	250	Method B 0.024	0.005	-	0.1	-	-	100 or 30*	2,000	2,000 or 4,000**	2,000

Notes:
all concentrations reported in mg/kg = milligrams per kilogram
GRO = Gasoline Range Organics analyzed by Method NWTPH-Gx
DRO = Diesel Range Organics analyzed by Method NWTPH-Dx
MTBE = methyl tert-butyl ether
EDC = 1,2-dichloroethane
ETBE = Ehtyl tert-Butyl Ether
EDB = Ethylene Dibromide
TAME = Tert-amyl methyl ether
TBA = Tert-butyl alcohol
< = less than the reporting limit
m+p-Xylene and o-Xylene results were added to represent Total Xylene concentration and compared to Total Xylene Cleanup Level.
J = reported result was flagged "J" because it is an estimated value.
Y = reported result was flagged "Y" because the result is due primarily to a gasoline range product.
* = when gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture then the cleanup level is 100 mg/kg, all other gasoline mixtures have a cleanup level of 30 mg/kg.
** = heavy oil cleanup level is 2,000 mg/kg, mineral oil cleanup level is 4,000 mg/kg.
# = summation of DRO and Motor Oil values. 1/2 detection limit used where necessary in summation of heavy oil concentrations.
*** = Reporting limit exceeds the cleanup level.
- = no value established; not sampled.
For EDC a MTCA Method A Cleanup Level has not been established therefore the MTCA Method B Cleanup Level is listed which was established based on the leaching pathway (protective of groundwater).

Appendix A

Photographs

Photo 1: Front of the building, Photo taken facing north.

Photo 2: Front and East sides of building. Gravel driveway and pond shown in the background.

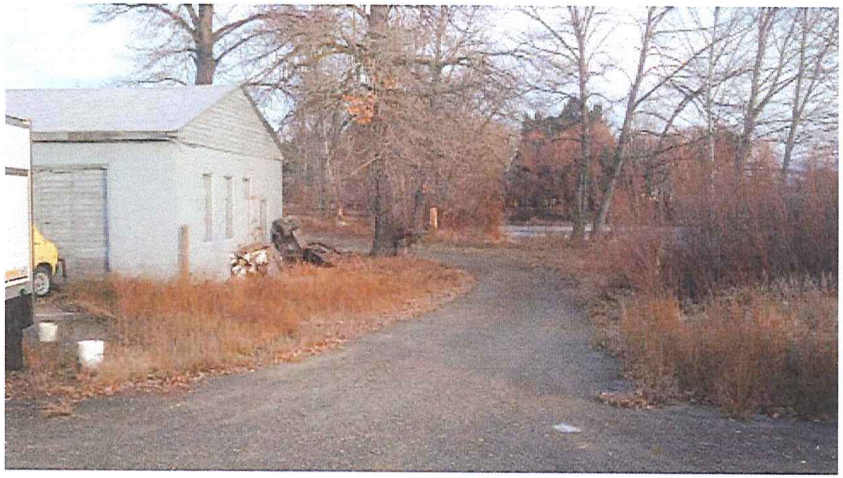
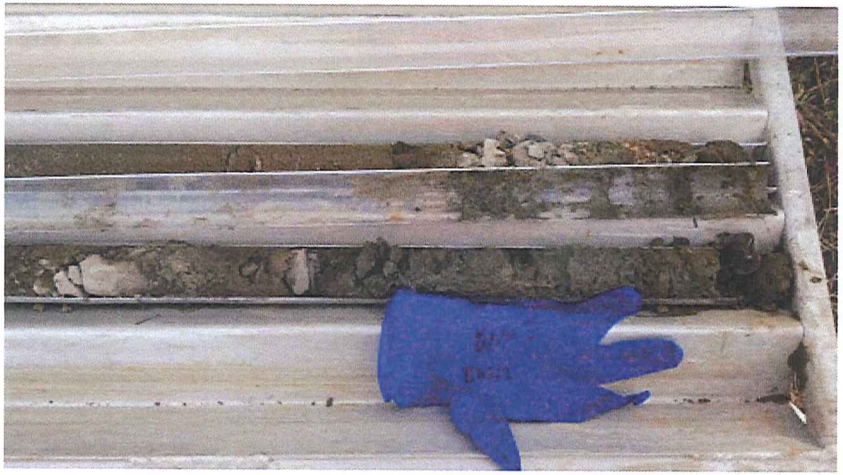


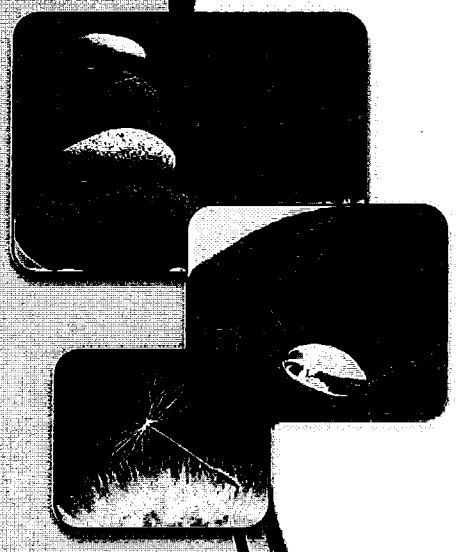
Photo 3: Vantage Highway facing east.

Photo 4: Soil core from BH-3.



Appendix B

Analytical Reports with Chain-of-Custody Documentation



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-41476-1
Client Project/Site: BONJORNI, ELLENSBERG, WA

For:
TerraGraphics Inc
dba TerraGraphics Environmental Eng Inc
121 South Jackson
Moscow, Idaho 83843

Attn: Mike Procsal

Pamela R. Johnson

Authorized for release by:
12/18/2013 3:08:40 PM

Pam Johnson, Project Manager I
(253)922-2310 x112
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Case Narrative

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Job ID: 580-41476-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
The samples were received on 11/29/2013 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

Except:
Method(s) 5035, 8260B: The following samples were received with insufficient time remaining to freeze within 48 hours, as required for samples collected in water preserved TerraCores: BH-1 7' (580-41476-1), BH-2 8' (580-41476-2), BH-3 8' (580-41476-3), BH-5 8' (580-41476-4), BH-6 4' (580-41476-5), BH-6D 4' (580-41476-6), BH-8 8' (580-41476-7), BH-9 4' (580-41476-8), BH-11 11' (580-41476-9), BH-12 10' (580-41476-10), Trip Blank (580-41476-11). The samples were collected on 11/25/2013 and 11/26/2013 at various times. The samples were received on 11/29/2013 at 1030 AM. Samples placed in freezer upon receipt at 11:15 AM.

The container label on the bulk jar for the following sample did not match the information listed on the Chain-of-Custody (COC): BH-11 11' (580-41476-9). The container label lists the ID BH-11 13'. The Chain-of-Custody (COC) lists BH-11 11'. The ID on the labels of the vials had been corrected by the sampler. All other information matches.

GC/MS VOA - Method 8260B
Samples BH-3 8' (580-41476-3), BH-5 8' (580-41476-4), BH-6 4' (580-41476-5), BH-6D 4' (580-41476-6) and BH-11 11' (580-41476-9), were diluted due to the nature of the sample matrix: Elevated reporting limits (RLs) are provided.

Reanalysis of the following samples BH-5 8' (580-41476-4), BH-6 4' (580-41476-5), BH-6D 4' (580-41476-6) was performed outside of the analytical holding time. The data have been qualified "H" and reported.

Sample BH-6 4' (580-41476-5) has an "E" value for Naphthalene, the sample was re-analyzed out of hold at a greater dilution for this compound both sets of data have been reported. In hold data has been reported as primary, and the out of hold data as secondary.

Sample BH-6D 4' (580-41476-6) has an "E" value for Naphthalene, the sample was re-analyzed out of hold at a greater dilution for this compound both sets of data have been reported. In hold data has been reported as primary, and the out of hold data as secondary.

Sample BH-3 8' (580-41476-3) was re-analyzed out of hold due to QC failure in the original analysis, both sets of data have been reported. The in hold data has been reported as primary, the out of hold data has been reported as secondary.

The laboratory control sample duplicate (LCSD) for batch 150525 recovered outside control limits. The associated samples has been re analyzed out of holding time to validate the result for the original analysis; therefore, the data in hold data have been reported as primary, the out of hold data as secondary. Samples BH-3 8' (580-41476-3) and BH-5 8' (580-41476-4) are ND, so they have not been re-analyzed since the falling LCSD was out high. The data has been qualified "*" and reported.

The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 150525 recovered outside control limits for 1,2-Dichloroethane, Benzene, Ethylbenzene, Ethylene Dibromade, M/P Xylene, o-Xylene, Tert-amyl-methyl-ether, Tert-butyl ethyl-ether, and Tuluene. The data has been qualified "*" and reported.

The continuing calibration verification (CCV) associated with batch 150544 recovered above the upper control limit for 2-methyl-2-Propanol. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 580-150544/3), BH-11 11' (580-41476-9), BH-3 8' (580-41476-3), BH-5 8' (580-41476-4), BH-6 4' (580-41476-5), BH-6D 4' (580-41476-6).

No other analytical or quality issues were noted.

GC/MS VOA - Method NWTPH-Gx
Due to the matrix, the initial volume(s) used for the following samples BH-6 4' (580-41476-5), BH-6D 4' (580-41476-6) and BH-11 11' (580-41476-9) deviated from the standard procedure. The reporting limits (RLs) have been adjusted proportionately.

No other analytical or quality issues were noted.

GC Semi VOA - Method NWTPH-Dx
For samples BH-3 8' (580-41476-3), BH-5 8' (580-41476-4), BH-6 4' (580-41476-5), BH-6D 4' (580-41476-6) and BH-11 11'

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Job ID: 580-41476-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

(580-41476-9), the results in the #2 Diesel Fuel (C10-C24) range are due primarily to a gasoline/jet fuel range product.

The affected analyte range has been qualified "Y" and reported.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
*	LCS or LCSD exceeds the control limits
*	RPD of the LCS and LCSD exceeds the control limits
E	Result exceeded calibration range.

GC Semi VOA

Qualifier	Qualifier Description
Y	The chromatographic response resembles a typical fuel pattern.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-1 7'
Date Collected: 11/25/13 13:40
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-1
Matrix: Solid
Percent Solids: 76.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
EDB	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
EDC	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
Ethyl tert-Butyl Ether (ETBE)	ND	H	11		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
Ethylbenzene	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
MTBE	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
m-Xylene & p-Xylene	ND	H	2.2		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
Naphthalene	ND	H	5.6		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
o-Xylene	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
TAME	ND	H	11		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
TBA	ND	H	11		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1
Toluene	ND	H	2.2		ug/Kg	☼	11/29/13 11:15	12/07/13 22:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*103*		*75 - 125*	*11/29/13 11:15*	*12/07/13 22:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*71 - 136*	*11/29/13 11:15*	*12/07/13 22:32*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 120*	*11/29/13 11:15*	*12/07/13 22:32*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*	*11/29/13 11:15*	*12/07/13 22:32*	*1*
Trifluorotoluene (Surr)	*127*		*65 - 140*	*11/29/13 11:15*	*12/07/13 22:32*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5.9		mg/Kg	☼	12/05/13 13:52	12/05/13 18:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*50 - 150*	*12/05/13 13:52*	*12/05/13 18:06*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		32		mg/Kg	☼	12/03/13 07:11	12/04/13 13:51	1
Motor Oil (>C24-C36)	ND		63		mg/Kg	☼	12/03/13 07:11	12/04/13 13:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*12/03/13 07:11*	*12/04/13 13:51*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**4.0**		0.21		mg/Kg	☼	12/05/13 15:26	12/06/13 12:06	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**77**		0.10		%			12/05/13 06:57	1
Percent Moisture	**23**		0.10		%			12/05/13 06:57	1

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-2 8'
Date Collected: 11/25/13 14:05
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-2
Matrix: Solid
Percent Solids: 84.3

5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
EDB	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
EDC	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
Ethyl tert-Butyl Ether (ETBE)	ND	H	11		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
Ethylbenzene	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
MTBE	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
m-Xylene & p-Xylene	ND	H	2.3		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
Naphthalene	ND	H	5.6		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
o-Xylene	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
TAME	ND	H	11		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
TBA	ND	H	11		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1
Toluene	ND	H	2.3		ug/Kg	☼	11/29/13 11:15	12/07/13 23:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*75 - 125*	*11/29/13 11:15*	*12/07/13 23:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*11/29/13 11:15*	*12/07/13 23:01*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 120*	*11/29/13 11:15*	*12/07/13 23:01*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*	*11/29/13 11:15*	*12/07/13 23:01*	*1*
Trifluorotoluene (Surr)	*112*		*65 - 140*	*11/29/13 11:15*	*12/07/13 23:01*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.7		mg/Kg	☼	12/05/13 13:52	12/05/13 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*50 - 150*	*12/05/13 13:52*	*12/05/13 18:28*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		29		mg/Kg	☼	12/03/13 07:11	12/04/13 14:22	1
Motor Oil (>C24-C36)	ND		59		mg/Kg	☼	12/03/13 07:11	12/04/13 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*12/03/13 07:11*	*12/04/13 14:22*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**4.3**		0.22		mg/Kg	☼	12/05/13 15:26	12/06/13 12:10	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**84**		0.10		%			12/05/13 06:57	1
Percent Moisture	**16**		0.10		%			12/05/13 06:57	1

Client Sample ID: BH-3 8'
Date Collected: 11/25/13 14:20
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-3
Matrix: Solid
Percent Solids: 96.6

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Method: 8260B/5035 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TBA	ND		3600		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
MTBE	ND		360		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
Ethyl tert-Butyl Ether (ETBE)	ND	*	360		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
TAME	ND	*	360		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
Benzene	ND	*	140		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
EDC	ND	*	140		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
Toluene	ND	*	360		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
EDB	ND	*	360		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
Ethylbenzene	ND	*	360		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
m-Xylene & p-Xylene	ND	*	360		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
o-Xylene	ND	*	360		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1
Naphthalene	ND		360		ug/Kg	☼	12/07/13 19:40	12/09/13 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*	*12/07/13 19:40*	*12/09/13 19:21*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 120*	*12/07/13 19:40*	*12/09/13 19:21*	*1*

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TBA	ND	H	720		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
MTBE	ND	H	72		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
Ethyl tert-Butyl Ether (ETBE)	ND	H	72		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
TAME	ND	H	72		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
Benzene	ND	H	29		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
EDC	ND	H	29		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
Toluene	ND	H	72		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
EDB	ND	H	72		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
Ethylbenzene	ND	H	72		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
m-Xylene & p-Xylene	ND	H	72		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
o-Xylene	ND	H	72		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1
Naphthalene	ND	H	72		ug/Kg	☼	12/10/13 10:14	12/11/13 09:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*80 - 120*	*12/10/13 10:14*	*12/11/13 09:10*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*	*12/10/13 10:14*	*12/11/13 09:10*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**750**		7.2		mg/Kg	☼	12/05/13 13:52	12/05/13 18:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*50 - 150*	*12/05/13 13:52*	*12/05/13 18:50*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**180**	Y	25		mg/Kg	☼	12/03/13 07:11	12/04/13 14:38	1
Motor Oil (>C24-C36)	ND		49		mg/Kg	☼	12/03/13 07:11	12/04/13 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*12/03/13 07:11*	*12/04/13 14:38*	*1*

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-3 8'
Date Collected: 11/25/13 14:20
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-3
Matrix: Solid
Percent Solids: 96.6

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	3.8		0.20		mg/Kg	☼	12/05/13 15:26	12/06/13 12:15	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	97		0.10		%			12/05/13 06:57	1
Percent Moisture	3.4		0.10		%			12/05/13 06:57	1

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-5 8'
Date Collected: 11/25/13 15:06
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-4
Matrix: Solid
Percent Solids: 89.9

5

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TBA	ND		1000		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
MTBE	ND		100		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
Ethyl tert-Butyl Ether (ETBE)	ND	*	100		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
TAME	ND	*	100		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
Benzene	ND	*	41		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
EDC	ND	*	41		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
Toluene	ND	*	100		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
EDB	ND	*	100		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
Ethylbenzene	ND	*	100		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
m-Xylene & p-Xylene	ND	*	100		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
o-Xylene	ND	*	100		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1
Naphthalene	ND		100		ug/Kg	☼	12/07/13 19:40	12/09/13 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*80 - 120*	*12/07/13 19:40*	*12/09/13 19:42*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 120*	*12/07/13 19:40*	*12/09/13 19:42*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**250**		4.8		mg/Kg	☼	12/05/13 13:52	12/05/13 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*12/05/13 13:52*	*12/05/13 19:13*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**73**	Y	28		mg/Kg	☼	12/03/13 07:11	12/04/13 14:53	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	12/03/13 07:11	12/04/13 14:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*12/03/13 07:11*	*12/04/13 14:53*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**4.7**		0.20		mg/Kg	☼	12/05/13 15:26	12/06/13 12:20	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**90**		0.10		%			12/05/13 06:57	1
Percent Moisture	**10**		0.10		%			12/05/13 06:57	1

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-6 4'
Date Collected: 11/25/13 16:00
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-5
Matrix: Solid
Percent Solids: 77.4

5

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TBA	ND		6300		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
MTBE	ND		630		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
Ethyl tert-Butyl Ether (ETBE)	ND	*	630		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
TAME	ND	*	630		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
Benzene	ND	*	250		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
EDC	ND	*	250		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
Toluene	ND	*	630		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
EDB	ND	*	630		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
Ethylbenzene	**14000**	*	630		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
m-Xylene & p-Xylene	**23000**	*	630		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
o-Xylene	**5900**	*	630		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1
Naphthalene	**72000**		630		ug/Kg	☼	12/07/13 19:40	12/09/13 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*80 - 120*	*12/07/13 19:40*	*12/09/13 20:03*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 120*	*12/07/13 19:40*	*12/09/13 20:03*	*1*

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TBA	ND	H	4500		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
MTBE	ND	H	450		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
Ethyl tert-Butyl Ether (ETBE)	ND	H	450		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
TAME	ND	H	450		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
Benzene	ND	H	180		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
EDC	ND	H	180		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
Toluene	ND	H	450		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
EDB	ND	H	450		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
Ethylbenzene	**31000**	**H**	450		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
m-Xylene & p-Xylene	**47000**	**H**	450		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
o-Xylene	**13000**	**H**	450		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1
Naphthalene	**180000**	**H E**	450		ug/Kg	☼	12/10/13 10:14	12/10/13 19:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*	*12/10/13 10:14*	*12/10/13 19:35*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 120*	*12/10/13 10:14*	*12/10/13 19:35*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**19000**		630		mg/Kg	☼	12/05/13 13:52	12/06/13 13:05	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*50 - 150*	*12/05/13 13:52*	*12/06/13 13:05*	*100*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**4300**	**Y**	31		mg/Kg	☼	12/03/13 07:11	12/04/13 15:09	1
Motor Oil (>C24-C36)	ND		62		mg/Kg	☼	12/03/13 07:11	12/04/13 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*12/03/13 07:11*	*12/04/13 15:09*	*1*

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-6 4'
Date Collected: 11/25/13 16:00
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-5
Matrix: Solid
Percent Solids: 77.4

5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	17		0.25		mg/Kg	☼	12/05/13 15:26	12/06/13 12:25	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	77		0.10		%			12/05/13 06:57	1
Percent Moisture	23		0.10		%			12/05/13 06:57	1

Client Sample ID: BH-6D 4'
Date Collected: 11/25/13 16:05
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-6
Matrix: Solid
Percent Solids: 80.7

5

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TBA	ND		5700		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
MTBE	ND		570		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
Ethyl tert-Butyl Ether (ETBE)	ND	*	570		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
TAME	ND	*	570		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
Benzene	ND	*	230		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
EDC	ND	*	230		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
Toluene	ND	*	570		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
EDB	ND	*	570		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
Ethylbenzene	**25000**	*	570		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
m-Xylene & p-Xylene	**38000**	*	570		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
o-Xylene	**10000**	*	570		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1
Naphthalene	**130000**	E	570		ug/Kg	☼	12/07/13 19:40	12/09/13 20:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*	*12/07/13 19:40*	*12/09/13 20:28*	*1*
4-Bromofluorobenzene (Surr)	*107*		*70 - 120*	*12/07/13 19:40*	*12/09/13 20:28*	*1*

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TBA	ND	H	4100		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
MTBE	ND	H	410		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
Ethyl tert-Butyl Ether (ETBE)	ND	H	410		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
TAME	ND	H	410		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
Benzene	ND	H	160		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
EDC	ND	H	160		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
Toluene	ND	H	410		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
EDB	ND	H	410		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
Ethylbenzene	**29000**	H	410		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
m-Xylene & p-Xylene	**45000**	H	410		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
o-Xylene	**12000**	H	410		ug/Kg	☼	12/10/13 10:14	12/10/13 19:56	1
Naphthalene	**87000**	H	4100		ug/Kg	☼	12/10/13 10:14	12/10/13 13:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*	*12/10/13 10:14*	*12/10/13 13:22*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*	*12/10/13 10:14*	*12/10/13 19:56*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 120*	*12/10/13 10:14*	*12/10/13 13:22*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 120*	*12/10/13 10:14*	*12/10/13 19:56*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**17000**		570		mg/Kg	☼	12/05/13 13:52	12/06/13 13:27	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*50 - 150*	*12/05/13 13:52*	*12/06/13 13:27*	*100*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**4800**	Y	29		mg/Kg	☼	12/03/13 07:11	12/04/13 15:25	1
Motor Oil (>C24-C36)	ND		59		mg/Kg	☼	12/03/13 07:11	12/04/13 15:25	1

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-6D 4'
Date Collected: 11/25/13 16:05
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-6
Matrix: Solid
Percent Solids: 80.7

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*12/03/13 07:11*	*12/04/13 15:25*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**20**		0.23		mg/Kg	☼	12/05/13 15:26	12/06/13 12:29	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**81**		0.10		%			12/05/13 06:57	1
Percent Moisture	**19**		0.10		%			12/05/13 06:57	1

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-8 8'
Date Collected: 11/26/13 08:37
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-7
Matrix: Solid
Percent Solids: 86.6

5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	0.97		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
EDB	ND	H	0.97		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
EDC	ND	H	0.97		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
Ethyl tert-Butyl Ether (ETBE)	ND	H	9.7		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
Ethylbenzene	ND	H	0.97		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
MTBE	ND	H	0.97		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
m-Xylene & p-Xylene	ND	H	1.9		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
Naphthalene	ND	H	4.8		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
o-Xylene	ND	H	0.97		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
TAME	ND	H	9.7		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
TBA	ND	H	9.7		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1
Toluene	ND	H	1.9		ug/Kg	☼	11/29/13 11:15	12/07/13 23:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*107*		*75 - 125*	*11/29/13 11:15*	*12/07/13 23:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*	*11/29/13 11:15*	*12/07/13 23:29*	*1*
4-Bromofluorobenzene (Surr)	*107*		*70 - 120*	*11/29/13 11:15*	*12/07/13 23:29*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*	*11/29/13 11:15*	*12/07/13 23:29*	*1*
Trifluorotoluene (Surr)	*101*		*65 - 140*	*11/29/13 11:15*	*12/07/13 23:29*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5.0		mg/Kg	☼	12/05/13 13:52	12/06/13 11:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*12/05/13 13:52*	*12/06/13 11:59*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		28		mg/Kg	☼	12/03/13 07:11	12/04/13 15:40	1
Motor Oil (>C24-C36)	ND		57		mg/Kg	☼	12/03/13 07:11	12/04/13 15:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*77*		*50 - 150*	*12/03/13 07:11*	*12/04/13 15:40*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3.5**		0.17		mg/Kg	☼	12/05/13 15:26	12/06/13 12:34	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**87**		0.10		%			12/05/13 06:57	1
Percent Moisture	**13**		0.10		%			12/05/13 06:57	1

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-9 4'
Date Collected: 11/26/13 09:11
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-8
Matrix: Solid
Percent Solids: 80.6

5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
EDB	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
EDC	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
Ethyl tert-Butyl Ether (ETBE)	ND	H	11		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
Ethylbenzene	**12**	**H**	1.1		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
MTBE	ND	H	1.1		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
m-Xylene & p-Xylene	**6.5**	**H**	2.2		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
Naphthalene	**100**	**H**	5.4		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
o-Xylene	**7.9**	**H**	1.1		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
TAME	ND	H	11		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
TBA	ND	H	11		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1
Toluene	ND	H	2.2		ug/Kg	☼	11/29/13 11:15	12/08/13 00:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*75 - 125*	*11/29/13 11:15*	*12/08/13 00:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 136*	*11/29/13 11:15*	*12/08/13 00:26*	*1*
4-Bromofluorobenzene (Surr)	*109*		*70 - 120*	*11/29/13 11:15*	*12/08/13 00:26*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*	*11/29/13 11:15*	*12/08/13 00:26*	*1*
Trifluorotoluene (Surr)	*125*		*65 - 140*	*11/29/13 11:15*	*12/08/13 00:26*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**84**		5.7		mg/Kg	☼	12/05/13 13:52	12/05/13 19:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*50 - 150*	*12/05/13 13:52*	*12/05/13 19:57*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		29		mg/Kg	☼	12/03/13 07:11	12/04/13 15:56	1
Motor Oil (>C24-C36)	ND		59		mg/Kg	☼	12/03/13 07:11	12/04/13 15:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*77*		*50 - 150*	*12/03/13 07:11*	*12/04/13 15:56*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**5.3**		0.23		mg/Kg	☼	12/05/13 15:26	12/06/13 12:39	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**81**		0.10		%			12/05/13 06:57	1
Percent Moisture	**19**		0.10		%			12/05/13 06:57	1

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-11 11'
Date Collected: 11/26/13 10:09
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-9
Matrix: Solid
Percent Solids: 90.5

5

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TBA	ND		1900		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
MTBE	ND		190		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
Ethyl tert-Butyl Ether (ETBE)	ND		190		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
TAME	ND		190		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
Benzene	ND		74		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
EDC	ND		74		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
Toluene	ND		190		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
EDB	ND		190		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
Ethylbenzene	ND		190		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
m-Xylene & p-Xylene	ND		190		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
o-Xylene	ND		190		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1
Naphthalene	ND		190		ug/Kg	☼	12/10/13 10:14	12/10/13 18:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*96*		*80 - 120*	*12/10/13 10:14*	*12/10/13 18:52*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 120*	*12/10/13 10:14*	*12/10/13 18:52*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**400**		43		mg/Kg	☼	12/05/13 13:52	12/06/13 12:43	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*50 - 150*	*12/05/13 13:52*	*12/06/13 12:43*	*10*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**54**	Y	26		mg/Kg	☼	12/03/13 07:11	12/04/13 16:12	1
Motor Oil (>C24-C36)	**98**		52		mg/Kg	☼	12/03/13 07:11	12/04/13 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*50 - 150*	*12/03/13 07:11*	*12/04/13 16:12*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**11**		0.21		mg/Kg	☼	12/05/13 15:26	12/06/13 12:43	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**91**		0.10		%			12/05/13 06:57	1
Percent Moisture	**9.5**		0.10		%			12/05/13 06:57	1

Client Sample ID: BH-12 10'
Date Collected: 11/26/13 10:27
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-10
Matrix: Solid
Percent Solids: 89.7

5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	1.2		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
EDB	ND	H	1.2		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
EDC	ND	H	1.2		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
Ethyl tert-Butyl Ether (ETBE)	ND	H	12		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
Ethylbenzene	ND	H	1.2		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
MTBE	ND	H	1.2		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
m-Xylene & p-Xylene	ND	H	2.4		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
Naphthalene	ND	H	6.1		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
o-Xylene	ND	H	1.2		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
TAME	ND	H	12		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
TBA	ND	H	12		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1
Toluene	ND	H	2.4		ug/Kg	☼	11/29/13 11:15	12/07/13 23:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*75 - 125*	*11/29/13 11:15*	*12/07/13 23:57*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 136*	*11/29/13 11:15*	*12/07/13 23:57*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 120*	*11/29/13 11:15*	*12/07/13 23:57*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*	*11/29/13 11:15*	*12/07/13 23:57*	*1*
Trifluorotoluene (Surr)	*103*		*65 - 140*	*11/29/13 11:15*	*12/07/13 23:57*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.0		mg/Kg	☼	12/05/13 13:52	12/06/13 12:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*12/05/13 13:52*	*12/06/13 12:21*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		27		mg/Kg	☼	12/03/13 07:11	12/04/13 16:58	1
Motor Oil (>C24-C36)	ND		55		mg/Kg	☼	12/03/13 07:11	12/04/13 16:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*50 - 150*	*12/03/13 07:11*	*12/04/13 16:58*	*1*

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**4.1**		0.19		mg/Kg	☼	12/05/13 15:26	12/06/13 12:48	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**90**		0.10		%			12/05/13 06:57	1
Percent Moisture	**10**		0.10		%			12/05/13 06:57	1

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: Trip Blank
Date Collected: 11/27/13 10:14
Date Received: 11/29/13 10:30

Lab Sample ID: 580-41476-11
Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	1.0		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
EDB	ND	H	1.0		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
EDC	ND	H	1.0		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
Ethyl tert-Butyl Ether (ETBE)	ND	H	10		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
Ethylbenzene	ND	H	1.0		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
MTBE	ND	H	1.0		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
m-Xylene & p-Xylene	ND	H	2.0		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
Naphthalene	ND	H	5.0		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
o-Xylene	ND	H	1.0		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
TAME	ND	H	10		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
TBA	ND	H	10		ug/Kg		11/29/13 11:15	12/07/13 22:04	1
Toluene	ND	H	2.0		ug/Kg		11/29/13 11:15	12/07/13 22:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*105*		*75 - 125*	*11/29/13 11:15*	*12/07/13 22:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*11/29/13 11:15*	*12/07/13 22:04*	*1*
4-Bromofluorobenzene (Surr)	*105*		*70 - 120*	*11/29/13 11:15*	*12/07/13 22:04*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*	*11/29/13 11:15*	*12/07/13 22:04*	*1*
Trifluorotoluene (Surr)	*115*		*65 - 140*	*11/29/13 11:15*	*12/07/13 22:04*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.0		mg/Kg		12/05/13 13:52	12/05/13 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*50 - 150*	*12/05/13 13:52*	*12/05/13 17:44*	*1*

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

Lab Sample ID: MB 580-150461/1-A
Matrix: Solid
Analysis Batch: 150520

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150461

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
EDB	ND		1.0		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
EDC	ND		1.0		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
Ethyl tert-Butyl Ether (ETBE)	ND		10		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
Ethylbenzene	ND		1.0		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
MTBE	ND		1.0		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
m-Xylene & p-Xylene	ND		2.0		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
Naphthalene	ND		5.0		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
o-Xylene	ND		1.0		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
TAME	ND		10		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
TBA	ND		10		ug/Kg		12/07/13 17:52	12/07/13 19:40	1
Toluene	ND		2.0		ug/Kg		12/07/13 17:52	12/07/13 19:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*104*		*75 - 125*	*12/07/13 17:52*	*12/07/13 19:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*	*12/07/13 17:52*	*12/07/13 19:40*	*1*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*12/07/13 17:52*	*12/07/13 19:40*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*	*12/07/13 17:52*	*12/07/13 19:40*	*1*
Trifluorotoluene (Surr)	*122*		*65 - 140*	*12/07/13 17:52*	*12/07/13 19:40*	*1*

Lab Sample ID: LCS 580-150461/2-A
Matrix: Solid
Analysis Batch: 150520

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150461

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	30.0	30.5		ug/Kg		102	70 - 128
EDB	30.0	28.9		ug/Kg		96	69 - 126
EDC	30.0	28.8		ug/Kg		96	71 - 128
Ethyl tert-Butyl Ether (ETBE)	30.0	31.4		ug/Kg		105	75 - 122
Ethylbenzene	30.0	31.7		ug/Kg		106	78 - 126
MTBE	30.0	28.9		ug/Kg		96	65 - 125
m-Xylene & p-Xylene	30.0	29.8		ug/Kg		99	78 - 126
Naphthalene	30.0	26.8		ug/Kg		89	14 - 170
o-Xylene	30.0	33.0		ug/Kg		110	77 - 127
TAME	30.0	30.5		ug/Kg		102	65 - 118
TBA	300	204		ug/Kg		68	40 - 160
Toluene	30.0	31.0		ug/Kg		103	75 - 126

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*75 - 125*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*
4-Bromofluorobenzene (Surr)	*101*		*70 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Trifluorotoluene (Surr)	*114*		*65 - 140*

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

Lab Sample ID: LCSD 580-150461/3-A
Matrix: Solid
Analysis Batch: 150520

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150461

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	30.0	30.2		ug/Kg		101	70 - 128	1	19
EDB	30.0	28.0		ug/Kg		93	69 - 126	3	21
EDC	30.0	28.6		ug/Kg		95	71 - 128	1	18
Ethyl tert-Butyl Ether (ETBE)	30.0	34.2		ug/Kg		114	75 - 122	8	30
Ethylbenzene	30.0	31.1		ug/Kg		104	78 - 126	2	23
MTBE	30.0	32.6		ug/Kg		109	65 - 125	12	30
m-Xylene & p-Xylene	30.0	29.3		ug/Kg		98	78 - 126	2	23
Naphthalene	30.0	30.8		ug/Kg		103	14 - 170	14	50
o-Xylene	30.0	32.9		ug/Kg		110	77 - 127	0	22
TAME	30.0	33.9		ug/Kg		113	65 - 118	11	30
TBA	300	272		ug/Kg		91	40 - 160	29	30
Toluene	30.0	29.6		ug/Kg		99	75 - 126	4	19

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*107*		*75 - 125*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*
4-Bromofluorobenzene (Surr)	*103*		*70 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*
Trifluorotoluene (Surr)	*112*		*65 - 140*

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-150463/1-A
Matrix: Solid
Analysis Batch: 150525

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150463

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		16		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
EDB	ND		40		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
EDC	ND		16		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
Ethyl tert-Butyl Ether (ETBE)	ND		40		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
Ethylbenzene	ND		40		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
MTBE	ND		40		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
m-Xylene & p-Xylene	ND		40		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
Naphthalene	ND		40		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
o-Xylene	ND		40		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
TAME	ND		40		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
TBA	ND		400		ug/Kg		12/07/13 19:40	12/09/13 18:54	1
Toluene	ND		40		ug/Kg		12/07/13 19:40	12/09/13 18:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*12/07/13 19:40*	*12/09/13 18:54*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*	*12/07/13 19:40*	*12/09/13 18:54*	*1*
Trifluorotoluene (Surr)	*86*		*65 - 140*	*12/07/13 19:40*	*12/09/13 18:54*	*1*

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-150463/2-A
Matrix: Solid
Analysis Batch: 150525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	800	781		ug/Kg		98	70 - 128
EDB	800	727		ug/Kg		91	69 - 126
EDC	800	733		ug/Kg		92	71 - 128
Ethyl tert-Butyl Ether (ETBE)	800	789		ug/Kg		99	75 - 122
Ethylbenzene	800	769		ug/Kg		96	78 - 126
MTBE	800	758		ug/Kg		95	65 - 125
m-Xylene & p-Xylene	800	748		ug/Kg		94	78 - 126
Naphthalene	800	913		ug/Kg		114	14 - 170
o-Xylene	800	745		ug/Kg		93	77 - 127
TAME	800	825		ug/Kg		103	65 - 118
TBA	8000	10000		ug/Kg		125	40 - 160
Toluene	800	728		ug/Kg		91	75 - 126

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*
Toluene-d8 (Surr)	*95*		*80 - 120*
Trifluorotoluene (Surr)	*81*		*65 - 140*

Lab Sample ID: LCSD 580-150463/3-A
Matrix: Solid
Analysis Batch: 150525

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150463

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	800	1040	*	ug/Kg		130	70 - 128	28	19
EDB	800	954	*	ug/Kg		119	69 - 126	27	21
EDC	800	957	*	ug/Kg		120	71 - 128	26	18
Ethyl tert-Butyl Ether (ETBE)	800	1040	*	ug/Kg		130	75 - 122	27	30
Ethylbenzene	800	1020	*	ug/Kg		128	78 - 126	28	23
MTBE	800	991		ug/Kg		124	65 - 125	27	30
m-Xylene & p-Xylene	800	1000	*	ug/Kg		125	78 - 126	29	23
Naphthalene	800	1240		ug/Kg		155	14 - 170	31	50
o-Xylene	800	1010	*	ug/Kg		126	77 - 127	30	22
TAME	800	1080	*	ug/Kg		136	65 - 118	27	30
TBA	8000	9000		ug/Kg		113	40 - 160	11	30
Toluene	800	976	*	ug/Kg		122	75 - 126	29	19

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*
Trifluorotoluene (Surr)	*112*		*65 - 140*

Lab Sample ID: MB 580-150551/1-A
Matrix: Solid
Analysis Batch: 150544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150551

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		16		ug/Kg		12/10/13 10:14	12/10/13 10:06	1

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-150551/1-A
Matrix: Solid
Analysis Batch: 150544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150551

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
EDB	ND		40		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
EDC	ND		16		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
Ethyl tert-Butyl Ether (ETBE)	ND		40		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
Ethylbenzene	ND		40		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
MTBE	ND		40		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
m-Xylene & p-Xylene	ND		40		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
Naphthalene	ND		40		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
o-Xylene	ND		40		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
TAME	ND		40		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
TBA	ND		400		ug/Kg		12/10/13 10:14	12/10/13 10:06	1
Toluene	ND		40		ug/Kg		12/10/13 10:14	12/10/13 10:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*	*12/10/13 10:14*	*12/10/13 10:06*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*	*12/10/13 10:14*	*12/10/13 10:06*	*1*
Trifluorotoluene (Surr)	*92*		*65 - 140*	*12/10/13 10:14*	*12/10/13 10:06*	*1*

Lab Sample ID: LCS 580-150551/2-A
Matrix: Solid
Analysis Batch: 150544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150551

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	800	800		ug/Kg		100	70 - 128
EDB	800	793		ug/Kg		99	69 - 126
EDC	800	774		ug/Kg		97	71 - 128
Ethyl tert-Butyl Ether (ETBE)	800	833		ug/Kg		104	75 - 122
Ethylbenzene	800	793		ug/Kg		99	78 - 126
MTBE	800	841		ug/Kg		105	65 - 125
m-Xylene & p-Xylene	800	764		ug/Kg		95	78 - 126
Naphthalene	800	864		ug/Kg		108	14 - 170
o-Xylene	800	774		ug/Kg		97	77 - 127
TAME	800	869		ug/Kg		109	65 - 118
TBA	8000	9870		ug/Kg		123	40 - 160
Toluene	800	761		ug/Kg		95	75 - 126

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*
Toluene-d8 (Surr)	*98*		*80 - 120*
Trifluorotoluene (Surr)	*94*		*65 - 140*

Lab Sample ID: LCSD 580-150551/3-A
Matrix: Solid
Analysis Batch: 150544

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150551

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	800	797		ug/Kg		100	70 - 128	0	19
EDB	800	767		ug/Kg		96	69 - 126	3	21
EDC	800	753		ug/Kg		94	71 - 128	3	18

Method: 8260B/5035 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-150551/3-A
Matrix: Solid
Analysis Batch: 150544

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150551

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethyl tert-Butyl Ether (ETBE)	800	820		ug/Kg		102	75 - 122	2	30
Ethylbenzene	800	771		ug/Kg		96	78 - 126	3	23
MTBE	800	819		ug/Kg		102	65 - 125	3	30
m-Xylene & p-Xylene	800	765		ug/Kg		96	78 - 126	0	23
Naphthalene	800	852		ug/Kg		107	14 - 170	1	50
o-Xylene	800	755		ug/Kg		94	77 - 127	3	22
TAME	800	852		ug/Kg		106	65 - 118	2	30
TBA	8000	8020		ug/Kg		100	40 - 160	21	30
Toluene	800	770		ug/Kg		96	75 - 126	1	19

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*
Toluene-d8 (Surr)	*98*		*80 - 120*
Trifluorotoluene (Surr)	*98*		*65 - 140*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-150360/1-A
Matrix: Solid
Analysis Batch: 150364

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150360

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.0		mg/Kg		12/05/13 13:52	12/05/13 16:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*50 - 150*	*12/05/13 13:52*	*12/05/13 16:37*	*1*
Trifluorotoluene (Surr)	*116*		*50 - 150*	*12/05/13 13:52*	*12/05/13 16:37*	*1*

Lab Sample ID: LCS 580-150360/2-A
Matrix: Solid
Analysis Batch: 150364

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	40.0	35.3		mg/Kg		88	68 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*50 - 150*
Trifluorotoluene (Surr)	*113*		*50 - 150*

Lab Sample ID: LCSD 580-150360/3-A
Matrix: Solid
Analysis Batch: 150364

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150360

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	40.0	36.7		mg/Kg		92	68 - 120	4	25

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-150360/3-A
Matrix: Solid
Analysis Batch: 150364

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150360

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*50 - 150*
Trifluorotoluene (Surr)	*112*		*50 - 150*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-150152/1-A
Matrix: Solid
Analysis Batch: 150243

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150152

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		25		mg/Kg		12/03/13 07:11	12/04/13 11:47	1
Motor Oil (>C24-C36)	ND		50		mg/Kg		12/03/13 07:11	12/04/13 11:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*50 - 150*	*12/03/13 07:11*	*12/04/13 11:47*	*1*

Lab Sample ID: LCS 580-150152/2-A
Matrix: Solid
Analysis Batch: 150243

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150152

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	364		mg/Kg		73	70 - 125
Motor Oil (>C24-C36)	500	433		mg/Kg		87	64 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*82*		*50 - 150*

Lab Sample ID: LCSD 580-150152/3-A
Matrix: Solid
Analysis Batch: 150243

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150152

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)	500	422		mg/Kg		84	70 - 125	15	16
Motor Oil (>C24-C36)	500	476		mg/Kg		95	64 - 127	9	17

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*87*		*50 - 150*

Lab Sample ID: 580-41476-1 DU
Matrix: Solid
Analysis Batch: 150243

Client Sample ID: BH-1 7'
Prep Type: Total/NA
Prep Batch: 150152

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
#2 Diesel (C10-C24)	ND		ND		mg/Kg	☼	NC	35
Motor Oil (>C24-C36)	ND		ND		mg/Kg	☼	0.9	35

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: 580-41476-1 DU
Matrix: Solid
Analysis Batch: 150243

Client Sample ID: BH-1 7'
Prep Type: Total/NA
Prep Batch: 150152

Surrogate	DU %Recovery	DU Qualifier	Limits
o-Terphenyl	81		50 - 150

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 580-150370/16-A
Matrix: Solid
Analysis Batch: 150424

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 150370

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.20		mg/Kg		12/05/13 15:26	12/06/13 10:53	10

Lab Sample ID: LCS 580-150370/17-A
Matrix: Solid
Analysis Batch: 150424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150370

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	50.0	48.8		mg/Kg		98	80 - 120

Lab Sample ID: LCSD 580-150370/18-A
Matrix: Solid
Analysis Batch: 150424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 150370

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	50.0	48.9		mg/Kg		98	80 - 120	0	20

Lab Sample ID: LCSSRM 580-150370/19-A
Matrix: Solid
Analysis Batch: 150424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 150370

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	103	105		mg/Kg		102.4	70.9 - 128.2

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Client Sample ID: BH-1 7'

Lab Sample ID: 580-41476-1
Date Collected: 11/25/13 13:40
Matrix: Solid
Date Received: 11/29/13 10:30
Percent Solids: 76.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150461	11/29/13 11:15	JMB	TAL SEA
Total/NA	Analysis	8260B		1	150520	12/07/13 22:32	JMB	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	150364	12/05/13 18:06	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 13:51	EKK	TAL SEA
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:06	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: BH-2 8'

Lab Sample ID: 580-41476-2
Date Collected: 11/25/13 14:05
Matrix: Solid
Date Received: 11/29/13 10:30
Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150461	11/29/13 11:15	JMB	TAL SEA
Total/NA	Analysis	8260B		1	150520	12/07/13 23:01	JMB	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	150364	12/05/13 18:28	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 14:22	EKK	TAL SEA
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:10	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: BH-3 8'

Lab Sample ID: 580-41476-3
Date Collected: 11/25/13 14:20
Matrix: Solid
Date Received: 11/29/13 10:30
Percent Solids: 96.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150463	12/07/13 19:40	JMB	TAL SEA
Total/NA	Analysis	8260B/5035		1	150525	12/09/13 19:21	MMH	TAL SEA
Total/NA	Prep	5035	RA		150551	12/10/13 10:14	MMH	TAL SEA
Total/NA	Analysis	8260B/5035	RA	1	150621	12/11/13 09:10	MMH	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	150364	12/05/13 18:50	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 14:38	EKK	TAL SEA
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:15	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: BH-5 8' — **Lab Sample ID: 580-41476-4**
Date Collected: 11/25/13 15:06 — **Matrix: Solid**
Date Received: 11/29/13 10:30 — **Percent Solids: 89.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150463	12/07/13 19:40	JMB	TAL SEA
Total/NA	Analysis	8260B/5035		1	150525	12/09/13 19:42	MMH	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	150364	12/05/13 19:13	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 14:53	EKK	TAL SEA
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:20	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: BH-6 4' — **Lab Sample ID: 580-41476-5**
Date Collected: 11/25/13 16:00 — **Matrix: Solid**
Date Received: 11/29/13 10:30 — **Percent Solids: 77.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150463	12/07/13 19:40	JMB	TAL SEA
Total/NA	Analysis	8260B/5035		1	150525	12/09/13 20:03	MMH	TAL SEA
Total/NA	Prep	5035	RA		150551	12/10/13 10:14	MMH	TAL SEA
Total/NA	Analysis	8260B/5035	RA	1	150544	12/10/13 19:35	MMH	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		100	150404	12/06/13 13:05	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 15:09	EKK	TAL SEA
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:25	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: BH-6D 4' — **Lab Sample ID: 580-41476-6**
Date Collected: 11/25/13 16:05 — **Matrix: Solid**
Date Received: 11/29/13 10:30 — **Percent Solids: 80.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150463	12/07/13 19:40	JMB	TAL SEA
Total/NA	Analysis	8260B/5035		1	150525	12/09/13 20:28	MMH	TAL SEA
Total/NA	Prep	5035	RA		150551	12/10/13 10:14	MMH	TAL SEA
Total/NA	Analysis	8260B/5035	RA	1	150544	12/10/13 13:22	MMH	TAL SEA
Total/NA	Analysis	8260B/5035	RA	1	150544	12/10/13 19:56	MMH	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		100	150404	12/06/13 13:27	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 15:25	EKK	TAL SEA
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:29	FCW	TAL SEA

Client Sample ID: BH-6D 4' — **Lab Sample ID: 580-41476-6**
Date Collected: 11/25/13 16:05 — **Matrix: Solid**
Date Received: 11/29/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: BH-8 8' — **Lab Sample ID: 580-41476-7**
Date Collected: 11/26/13 08:37 — **Matrix: Solid**
Date Received: 11/29/13 10:30 — **Percent Solids: 86.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150461	11/29/13 11:15	JMB	TAL SEA
Total/NA	Analysis	8260B		1	150520	12/07/13 23:29	JMB	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	150404	12/06/13 11:59	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 15:40	EKK	TAL SEA
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:34	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: BH-9 4' — **Lab Sample ID: 580-41476-8**
Date Collected: 11/26/13 09:11 — **Matrix: Solid**
Date Received: 11/29/13 10:30 — **Percent Solids: 80.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150461	11/29/13 11:15	JMB	TAL SEA
Total/NA	Analysis	8260B		1	150520	12/08/13 00:26	JMB	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	150364	12/05/13 19:57	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 15:56	EKK	TAL SEA
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:39	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: BH-11 11' — **Lab Sample ID: 580-41476-9**
Date Collected: 11/26/13 10:09 — **Matrix: Solid**
Date Received: 11/29/13 10:30 — **Percent Solids: 90.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150551	12/10/13 10:14	MMH	TAL SEA
Total/NA	Analysis	8260B/5035		1	150544	12/10/13 18:52	MMH	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		10	150404	12/06/13 12:43	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 16:12	EKK	TAL SEA

Client Sample ID: BH-11 11' — **Lab Sample ID: 580-41476-9**

Date Collected: 11/26/13 10:09 — **Matrix: Solid**

Date Received: 11/29/13 10:30 — **Percent Solids: 90.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:43	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: BH-12 10' — **Lab Sample ID: 580-41476-10**

Date Collected: 11/26/13 10:27 — **Matrix: Solid**

Date Received: 11/29/13 10:30 — **Percent Solids: 89.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150461	11/29/13 11:15	JMB	TAL SEA
Total/NA	Analysis	8260B		1	150520	12/07/13 23:57	JMB	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	150404	12/06/13 12:21	ERZ	TAL SEA
Total/NA	Prep	3546			150152	12/03/13 07:11	RMB	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	150243	12/04/13 16:58	EKK	TAL SEA
Total/NA	Prep	3050B			150370	12/05/13 15:26	PAB	TAL SEA
Total/NA	Analysis	6020		10	150424	12/06/13 12:48	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	150319	12/05/13 06:57	SGH	TAL SEA

Client Sample ID: Trip Blank — **Lab Sample ID: 580-41476-11**

Date Collected: 11/27/13 10:14 — **Matrix: Solid**

Date Received: 11/29/13 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			150461	11/29/13 11:15	JMB	TAL SEA
Total/NA	Analysis	8260B		1	150520	12/07/13 22:04	JMB	TAL SEA
Total/NA	Prep	5035			150360	12/05/13 13:52	ERZ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	150364	12/05/13 17:44	ERZ	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Laboratory: TestAmerica Seattle

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-04-14
California	NELAP	9	01115CA	01-31-14
L-A-B	DoD ELAP		L2236	01-19-16
L-A-B	ISO/IEC 17025		L2236	01-19-16
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-14
USDA	Federal		P330-11-00222	05-20-14
Washington	State Program	10	C553	02-17-14

Sample Summary

Client: TerraGraphics Inc
Project/Site: BONJORNI, ELLENSBERG, WA

TestAmerica Job ID: 580-41476-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-41476-1	BH-1 7'	Solid	11/25/13 13:40	11/29/13 10:30
580-41476-2	BH-2 8'	Solid	11/25/13 14:05	11/29/13 10:30
580-41476-3	BH-3 8'	Solid	11/25/13 14:20	11/29/13 10:30
580-41476-4	BH-5 8'	Solid	11/25/13 15:06	11/29/13 10:30
580-41476-5	BH-6 4'	Solid	11/25/13 16:00	11/29/13 10:30
580-41476-6	BH-6D 4'	Solid	11/25/13 16:05	11/29/13 10:30
580-41476-7	BH-8 8'	Solid	11/26/13 08:37	11/29/13 10:30
580-41476-8	BH-9 4'	Solid	11/26/13 09:11	11/29/13 10:30
580-41476-9	BH-11 11'	Solid	11/26/13 10:09	11/29/13 10:30
580-41476-10	BH-12 10'	Solid	11/26/13 10:27	11/29/13 10:30
580-41476-11	Trip Blank	Solid	11/27/13 10:14	11/29/13 10:30

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10

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☐ Short Hold

Chain of Custody Record

12/18/2013

Client	Client Contact	Date	Chain of Custody Number
TERRAGRAPHICS	MIKE PROCSAL	11/27/13	20940
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
3501 W ELDER SUITE 301	(208)	41476	
City / **State** / **Zip Code**	**Sampler**	**Lab Contact**	
BOISE / ID / 83705	MIKE PROCSAL		
Project Name and Location (State)	**Billing Contact**		
BONJORNI, ELLENSBURG, WA	PAM JOHNSON		
Contract/Purchase Order/Quote No.			
PROJECT # 13088			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	MeOH	Analysis: VOCs	TPH-gx	TPH-dx	LEAD
1- BH-1 7'	11/25/13	1340				X	3						1	X	X	X	X
2- BH-2 8'	11/25/13	1405				X	3						1	X	X	X	X
3- BH-3 8'	11/25/13	1420				X	3						1	X	X	X	X
4- BH-5 8'	11/25/13	1506				X	3						1	X	X	X	X
5- BH-6 4'	11/25/13	1600				X	3						1	X	X	X	X
6- BH-6D 4'	11/25/13	1605				X	3						1	X	X	X	X
7- BH-8 8'	11/26/13	0837				X	3						1	X	X	X	X
8- BH-9 4'	11/26/13	0911				X	3						1	X	X	X	X
9- BH-11 11'	11/26/13	1009				X	3						1	X	X	X	X
10- BH-12 10'	11/26/13	1027				X	3						1	X	X	X	X
~~TRIP BLANK~~													1	X	X	X	
11- TRIP BLANK	11/27/13	1014					2						1	X	X		

Special Instructions/ Conditions of Receipt

580-41476 Chain of Custody

Cooler/TB Dig/IR cor 1.9 unc 2.1
Cooler Dsc La Quinta @ Lab
Wet/Packs Packing bubble
fedex

Cooler	Possible Hazard Identification	Sample Disposal	(A fee may be assessed if samples are retained longer than 1 month)
☒ Yes ☐ No Cooler Temp: ____	☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown	☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months	

Turn Around Time Required (business days)
☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other STANDARD TAT

QC Requirements (Specify)

1. Relinquished By Sign/Print	Date	Time	1. Received By Sign/Print	Date	Time
Mike Procsal / MIKE PROCSAL	11/27/13	1030	Rachael Bolles / Rachael Bolles	11/29/13	1030
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: TerraGraphics Inc

Job Number: 580-41476-1

Login Number: 41476
List Number: 1
Creator: Balles, Racheal M

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time.	False	Refer to Job Narrative for details.
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix C

Boring Logs

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-1

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NUMBER 13088
DATE STARTED 11/25/13 **COMPLETED** 11/25/13
DRILLING CONTRACTOR Pacific Soil and Water
DRILLING METHOD Macro - Core
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
NOTES

PROJECT NAME Bonjorni
PROJECT LOCATION Ellensburg, WA
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
GROUND WATER LEVELS:
AT TIME OF DRILLING 7.00 ft
AT END OF DRILLING ---
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0				FILL, silt, gravel, concrete chunks, dry	PID = 0
					PID = 0
				4.0	PID = 0
5		SM		SILTY SAND, (SM) brown, dry	
				5.5	PID = 0
		SP		POORLY GRADED SAND, (SP) dark brown, moist	
	BH-1 7' 1340	SM		▽ (SM) 4" lense of silty sand, gray, wet	PID = 0
		SP		8.0 (SP) Same as poorly graded sand above	PID = 0
		GM		SILTY GRAVEL, (GM) brown, angular, wet, some sand	
10				10.0	PID = 0
		GP		POORLY GRADED GRAVEL, (GP) wet, trace silt, trace coarse sand	PID = 0
					PID = 0
				13.0	
		GP		(GP) Same as above, dry	PID = 0
15				15.0	PID = 0

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-2

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NUMBER 13088
DATE STARTED 11/25/13 **COMPLETED** 11/25/13
DRILLING CONTRACTOR Pacific Soil and Water
DRILLING METHOD Macro - Core
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
NOTES

PROJECT NAME Bonjorni
PROJECT LOCATION Ellensburg, WA
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
GROUND WATER LEVELS:
AT TIME OF DRILLING 8.00 ft
AT END OF DRILLING ---
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0					
		ML		SILT, (ML) brown, dry, rapid dilatancy organics in top 3"	PID = 0
					PID = 0
				4.0	
5		CL-ML		(CL-ML) moist gravel at 5' More clay at 4', medium plasticity	PID = 0
				5.0	
		GM		SILTY GRAVEL, (GM) dry	PID = 0
				7.0	PID = 0
	BH-2 8' 1405			▽ POORLY GRADED GRAVEL, (GP) angular	
		GP		Wet at 8'	PID = 0
10				Fine gravel at 10'	PID = 0
				12.0	PID = 0
		SP		POORLY GRADED SAND, (SP) light brown, medium grained, wet, loose	
				13.0	PID = 0
		GM		SILTY GRAVEL, (GM) angular, moist	
15				15.0	PID = 0

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-3

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/25/13 **COMPLETED** 11/25/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 8.00 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0				0.5 Concrete	
		SM		SILTY SAND, (SM) brown, dry, rapid dilatancy	PID = 0
					PID = 0
				4.0	
		GP		POORLY GRADED GRAVEL, (GP) dry	PID = 0
5					PID = 0
		GM		SILTY GRAVEL, (GM) dry	PID = 0
					PID = 0
	BH-3 8' 1420			8.0 ▽	
		GP		9.0 POORLY GRADED GRAVEL, (GP) angular, wet, stained greenish gray	PID = 33
		GM		10.0 SILTY GRAVEL, (GM) brown, dry	PID = 0
10					
		GP		POORLY GRADED GRAVEL, (GP) angular, wet, stained greenish gray	PID = 0
					PID = 0.1
				13.0	
		GM		SILTY GRAVEL, (GM) dry, trace clay	PID = 0
15				15.0	PID = 0

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-4

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/25/13 **COMPLETED** 11/25/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 9.00 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0					
				1.0 FILL, gravel, dry	PID = 0
		ML		SILT, (ML) dark brown, dry, with fine sand (15%)	PID = 0
					PID = 0
5				5.0 More clay (20%) at 4'	PID = 0
		GM		SILTY GRAVEL, (GM) brown, angular, dry	PID = 0
					PID = 0
				Sand lense	PID = 0
				9.0 ▽	PID = 0
10		GP		10.0 POORLY GRADED GRAVEL, (GP) angular, wet	PID = 0
		GP		POORLY GRADED GRAVEL, (GP) subrounded, wet	PID = 0
				11.8	PID = 0
		GM		13.0 SILTY GRAVEL, (GM) brown, moist	PID = 0
		GC		CLAYEY GRAVEL, (GC) dry, with silt	
				14.3	PID = 0
15		GM		15.0 SILTY GRAVEL, (GM) dry	PID = 0

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-5

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/25/13 **COMPLETED** 11/25/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
AT TIME OF DRILLING ---
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0				FILL, gravel, silt, dry	PID = 0
					PID = 0
					PID = 0
5				5.0	PID = 0
	BH-5 8' 1506	GM		SILTY GRAVEL, (GM) stained greenish gray, dry to moist	PID = 0
				moist at 8'	PID = 30.3
10				10.0 Brown at 9.5'	
		GP		POORLY GRADED GRAVEL, (GP) subrounded, moist	PID = 6
				11.8	
		GM		SILTY GRAVEL, (GM) brown, dry	PID = 0.3
				13.0	
		GC		CLAYEY GRAVEL, (GC) dry, with silt	PID = 0
				14.3	
15		GM		15.0 SILTY GRAVEL, (GM) dry	PID = 0

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-6

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/25/13 **COMPLETED** 11/25/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 6.00 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0				0.8 FILL, gravel, dry	PID = 0
		GP		POORLY GRADED GRAVEL, (GP) dry	
				2.0 SILT/CLAY, (CL-ML) moist, stained black and gray	PID = 0.6
	BH-6 4' 1600	CL-ML			PID = 29.1
5	BH-6 D4' 1605			5.0	
		GP		6.0 ▽ POORLY GRADED GRAVEL, (GP) Wet at 6'	PID = 1700
		GM		SILTY GRAVEL, (GM) brown, wet	PID = 230
10				10.0	PID = 120
		GM		SILTY GRAVEL, (GM) brown, wet	PID = 530
					PID = 11
15				15.0 Silty gravel, dry	PID = 0.8

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-7

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/26/13 **COMPLETED** 11/26/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 8.00 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0					
				0.8 FILL, gravel and silt, dry	PID = 0
		ML		SILT, (ML) brown, dry	PID = 0
				<40% recovery	PID = 0
				4.0 SILTY GRAVEL, (GM) brown, moist, coarse sand (10%)	PID = 0
5					PID = 0
		GM			PID = 0
				▽ Wet at 8'	PID = 0
				9.0	PID = 0
10		GP		10.0 POORLY GRADED GRAVEL, (GP) brown, wet, hard, with silt (10%)	PID = 0
		SM		SILTY SAND, (SM) brown, medium grained, wet	PID = 0
				11.3	PID = 0
		GP		POORLY GRADED GRAVEL, (GP) clean, angular, wet	PID = 0
				12.5	PID = 0
		GM		SILTY GRAVEL, (GM) brown, moist	PID = 0
15				15.0	PID = 0

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-8

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/26/13 **COMPLETED** 11/26/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 8.00 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0					
				0.5 FILL, gravel, dry	
		SM		SILTY SAND, (SM) dry	PID = 0
				2.0	PID = 0
		CL-ML		(CL-ML) Silt into clay, dry	
				3.5	PID = 0
		GP		POORLY GRADED GRAVEL, (GP) dry, some cobbles	
5				5.2	PID = 0
		GM		SILTY GRAVEL, (GM) brown, fine grained, rounded, dry	
				6.5	PID = 0
		GP		POORLY GRADED GRAVEL, (GP) angular, moist, no fines	
	BH-8 8' 0837			8.0 ▽	PID = 0
		GM		SILTY GRAVEL, (GM) wet at 8'	
10				10.0	PID = 0
		GP		POORLY GRADED GRAVEL, (GP) wet	PID = 0
				11.0	
		GM		SILTY GRAVEL, (GM) wet	
				12.3	
		SC		CLAYEY SAND, (SC) gray, medium grained, wet	
				13.3	
		GM		SILTY GRAVEL, (GM) moist	
15				15.0	

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-9

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/26/13 **COMPLETED** 11/26/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 8.30 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0				0.5 FILL, gravel, dry	
		ML		SILT, (ML) brown, dry	PID = 0
				2.3 LEAN CLAY, (CL) petroleum odor, stained black and gray	PID = 6
		CL			PID = 0.7
	BH-9 4' 0911			4.3 SILTY GRAVEL, (GM) dry	PID = 192
5		GM			
				7.0 Cobble, dry	PID = 60
				8.3 ▽ SILTY GRAVEL, (GM) wet, coarse sand (10%), stained greenish gray	PID = 64
		GM			
10				10.0 POORLY GRADED GRAVEL, (GP) wet, stained greenish gray	PID = 92
		GP		12.0 SILTY GRAVEL, (GM) wet, stained greenish gray	PID = 33
		GM			PID = 40
15				15.0 Brown at 14.5'	PID = 2

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
3501 W Elder St Suite 301
Boise, ID 83705

BORING NUMBER BH-10

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/26/13 **COMPLETED** 11/26/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 8.30 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0				0.8 FILL, gravel, dry	
		ML		SILT, (ML) brown, dry, loose	PID = 0
				2.0	
		CL		LEAN CLAY, (CL) stained black and gray, dry	PID = 5.5
				3.8	
5		GM		SILTY GRAVEL, (GM) dry	PID = 1.4
					PID = 10
				7.0	
				Dry Cobble	PID = 75
				8.3 ▽ Wet at 8.3'	
10		GP		POORLY GRADED GRAVEL, (GP) stained greenish gray, wet	PID = 88
				12.0	
		GM		SILTY GRAVEL, (GM) stained greenish gray, wet	PID = 13
					PID = 8
15				15.0 Brown at 14.5'	PID = 3

Bottom of borehole at 15.0 feet.

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Boise, ID 83705

BORING NUMBER BH-11

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/26/13 **COMPLETED** 11/26/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 11.00 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0					
		ML		SILT, (ML) brown, dry	PID = 0
				1.3	
		CL		LEAN CLAY, (CL) dry	PID = 0
				3.0	
		GM		SILTY GRAVEL, (GM) dry	PID = 0
5					PID = 0
					PID = 0
					PID = 0
10				10.0	PID = 0
	BH-11 11' 1009	GM		▽ SILTY GRAVEL, (GM) dry to wet Wet at 11'	PID = 28 PID = 10
15				Dry at 14' 15.0	PID = 12

Bottom of borehole at 15.0 feet.

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BORING NUMBER BH-12

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/26/13 **COMPLETED** 11/26/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 9.00 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0					
				FILL, gravel, dry	PID = 0
				1.0 SILT, (ML) Brown silt into brown clay, no staining	PID = 0
		ML			PID = 0
5				5.0	PID = 0
				SILTY GRAVEL, (GM) dry, no staining	PID = 0
		GM			PID = 0
					PID = 0
				▽ Wet at 9'	
10	BH-12 10' 1027			10.0	PID = 0

Bottom of borehole at 10.0 feet.

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BORING NUMBER BH-13

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 11/26/13 **COMPLETED** 11/26/13
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 8.00 ft
LOGGED BY Mike Procsal **CHECKED BY** CB/Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0		GM		SILTY GRAVEL, (GM) dry	
5				Stained greenish gray from 4 to 8'	PID = 0.6
				▽ Wet at 8'	PID = 20.8 PID = 16 PID = 2
10			10.0		PID = 1.7

Bottom of borehole at 10.0 feet.