Final
2014 Supplemental 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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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: 3/24/15

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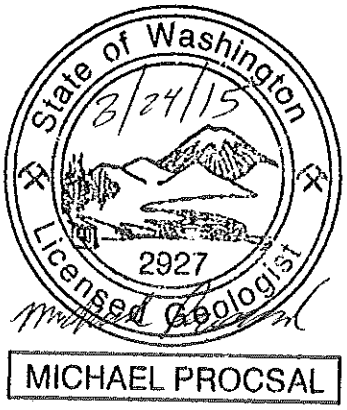
Geologist, TerraGraphics Environmental Engineering, Inc.



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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
ESA	Environmental Site Assessment
famsl	feet above mean sea level
GRO	gasoline range organics
HCID	Hydrocarbon Identification
LCS	laboratory control sample
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MTBE	methyl tert-butyl ether
MTCA	Model Toxics Control Act
NWTPH	Northwest Total Petroleum Hydrocarbon
PID	photo-ionization detector
QA/QC	quality assurance/quality control
RCW	Revised Code of Washington
RPD	relative percent difference
SAP/QAPP	Sampling and Analysis Plan/Quality Assurance Project Plan
SG	silica gel cleanup method
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
VPH	volatile petroleum hydrocarbons
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). Sample results were compared to Washington's Model Toxics Control Act (MTCA) (Washington Administrative Code [WAC] 173-340) Method A unrestricted cleanup levels (Tables 740-1 and 720-1, WAC 173-340-900). The objectives of this assessment are to delineate the full lateral extent of petroleum contamination at the subject property through soil and groundwater sampling, and quarterly groundwater monitoring events thereafter, as well as support selection and design interim remedial actions. This document summarizes field activities and analytical data collected, and provides recommendations.

Soil Quality

Direct Push Sampling: Soil borings were advanced at eight locations (BH-14 through BH-21, Figure 2) on August 5, 2014. A total of nine 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 collected from the zone with the highest PID reading. The analytical results indicate that three 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 the sample above the cleanup level is listed below:

- BH-14 (14 feet)
  - GRO = 250 mg/kg, Cleanup Level = 100 mg/kg
- BH-15 (9 feet)
  - GRO = 1,500 mg/kg, Cleanup Level = 100 mg/kg
- BH-17 (10 feet) (higher result between sample and duplicate shown)
  - Gasoline Range Organics (GRO) = 220 mg/kg, Cleanup Level = 100 mg/kg
- BH-18 (13 feet)
  - GRO = 940 mg/kg, Cleanup Level = 100 mg/kg

Although naphthalene was detected above the MTCA Method A Cleanup Level in sample BH-17, this data has been rejected since it does not meet the precision goals set forth in the QAPP.

Groundwater Sampling

Three groundwater monitoring wells (MW-1, MW-2, and MW-3) were installed as part of this assessment on August 5, 2014. Although no water samples were collected from the monitoring wells due to dry well conditions field staff measured the depth to groundwater and groundwater flow was calculated. Groundwater flows toward the southeast at approximately 0.046 ft/ft.

Summary and Recommendations

This investigation confirmed that petroleum-impacted soil is present beyond the extent of the 2013 investigation 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-14, BH-15, BH-17, and BH-18. The lateral extent of petroleum-impacted soil is loosely defined by an oval shape extending south under

Vantage Highway. The vertical extent of impacted soil is from approximately 9 feet bgs to 14 feet bgs with minor impacts observed as deep as 15 feet bgs and as shallow as 8 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.
- Based on available data the lateral extent of petroleum impacted soil appears to be bounded to the north, south, east and west.Without remedial action, 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 additional groundwater monitoring to further characterize site groundwater.
- Implement a remediation strategy involving source soil excavation.
- The estimated volume of petroleum-impacted soil (based on the estimated extent of soil exceeding the MTCA A Unrestricted Soil Cleanup Levels for GRO and a depth range from 8 to 15 feet bgs) is 1,600 cubic yards which will require landfarming. The estimated amount of unimpacted overburden is 1,400 cubic yards (from 0 to 8 feet bgs). The total estimated volume of soil requiring excavation onsite is about 3,000 cubic yards.
- Complete a Feasibility Study.

Section 1.0 Introduction

The Bonjorni Site (hereinafter, referred to as the Site) is located at 5281 Vantage Highway, Ellensburg, Washington (Figure 1).

TerraGraphics Environmental Engineering, Inc. (TerraGraphics) teamed with Hart Crowser, Inc. (under contract with the Washington State Department of Ecology [Ecology]) in June 2014 to identify potential soil and/or groundwater contamination at the Site.

1.1 Conceptual Site Model

The Site is currently a rural residential property, but a service station historically operated at the Site from approximately the 1940s until 1970. Soil samples collected at the site between 2000 and 2014 revealed gasoline-range hydrocarbons exceeding MTCA Method A cleanup levels. Petroleum-impacted soil appeared 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 in TerraGraphics' 2013 and 2014 data sets, however impacts do extend beneath Vantage Highway to the south. An estimated 1,600 cubic yards of impacted soil requiring landfarming, in addition to 1,400 of unimpacted overburden soil are at the Site. TerraGraphics' field crew noted a perched groundwater system at the site between approximately 6 and 9 feet below ground surface (bgs), however dry soil was encountered approximately 15 feet bgs. TerraGraphics installed monitoring wells at the site in 2014, although they have not been sampled due to minimal flow conditions.

1.2 Previous Assessment Activities

In the fall of 2000, four USTs were removed from the Site from two excavations (Figure 2). While the contents of the USTs were unknown, initial soil sampling indicated that the four USTs contained gasoline. During excavation activities soil samples were collected from the dispenser area which contained concentrations of gasoline-range hydrocarbons exceeding MTCA Method A cleanup levels. No petroleum hydrocarbons were detected from the excavation around the other three USTs.

Groundwater was not encountered during excavation, which was terminated at 8 feet bgs. The disposition of excavated material is unknown. The extent of the impacted soil and groundwater beyond the excavation is also unknown.

Recommendations from the 2000 excavation included additional assessment to delineate the full extent of petroleum contamination through further soil sampling and groundwater monitoring (Fulcrum 2001).In November 2013 Ecology requested additional site assessment and cleanup support. The investigation determined that petroleum-impacted soil was present at the site. Petroleum-impacted soil appeared 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. An oval shape extending south to the edge of and possibly under Vantage Highway loosely defined the lateral extent of petroleum-impacted soil. The vertical extent of impacted soil was approximated between 4 feet bgs to 11 feet bgs with minor impacts observed as deep as 15 feet bgs and as shallow as 2 feet bgs.

During the 2013 investigation, TerraGraphics noted a perched groundwater system at the site between approximately 6 and 9 feet bgs. Dry soil was encountered approximately 15 feet bgs. The groundwater system at the site appeared to be laterally continuous locally and likely influenced by seasonal effects. Visual and olfactory evidence indicated that the perched water was petroleum impacted locally near BH-6 and possibly near BH-11 based on visual evidence and PID readings (TerraGraphics 2014a).

Based on the available information and site-specific data collected in November 2013, TerraGraphics concluded 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 was estimated at 1,800 cubic yards. This calculation was 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).
- 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 in November 2013, TerraGraphics recommended 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.

1.3 2014 Site Assessment Activities

In May 2014, Ecology requested additional site assessment and cleanup support. Ecology contracted Hart Crowser, Inc. and TerraGraphics to perform site assessment and characterization activities. The objectives of this assessment are to delineate the full lateral extent of petroleum contamination at the subject property through soil and groundwater sampling, and quarterly groundwater monitoring events thereafter, as well as support selection and design interim remedial actions. The results from the August 2014 site assessment activities are presented in the Environmental Site Assessment (ESA) Report herein.

Section 2.0 Field Activities

In general, sampling procedures followed the Sampling and Analysis Plan (SAP) / Quality Assurance Project Plan (QAPP) Addendum for Site Assessment and Post Remediation Monitoring at the Bonjorni Site, Ellensburg, Washington (TerraGraphics 2014b) except for the following:

- No groundwater was sampled from the installed wells due to dry or poor recharge conditions.

2.1 Soil Sampling

On August 5, 2014, TerraGraphics field crew completed a total of eight borings (BH-14 through BH-21). See Figure 2 for the soil boring locations. Photographs were taken during the soil boring process, and are included as Appendix A. Borings were advanced using a track-mounted AMS PowerProbe ™ 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 samples were screened in the field using a portable MiniRae® 3000 PID to check for the presence of volatile organic compounds.

A total of nine soil samples (including one duplicate sample) were collected based on the highest PID reading and sent to Test America Labs in Seattle, Washington. The samples were analyzed for the following:

- Benzene, toluene, ethylbenzene, total xylenes, and naphthalene (BTEXN) by US Environmental Protection Agency (USEPA) Method 8260B (USEPA 1996);
- Methyl tert-butyl ether (MTBE) using USPEA Method 8260B (USEPA 1996);
- Ethylene dibromide (EDB) by USEPA Method 8260B (USEPA 1996);
- 1,2-dichloroethane (EDC) using USEPA Method 8260B (USEPA 1996);
- Total Petroleum Hydrocarbons-Gasoline Range Organics (TPH-Gx) using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997);
- Total Petroleum Hydrocarbons-Diesel Range Organics (TPH-Dx) 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.

2.2 Well Installation

Three groundwater monitoring wells were installed on August 5, 2014 (MW-1, MW-2, and MW-3) (see Figure 2, and boring logs in Appendix C). The top of casing of each groundwater monitoring well was surveyed by a Washington licensed surveyor, Gray Surveying and Engineering Inc., in NAVD88 datum in the State Plane Projection, converted and expressed as elevation in feet above mean level (famsl). MW-1 was constructed of 2-inch schedule 40 poly-vinyl chloride pre-pack assembly. MW-2 and MW-3 were constructed of ¾ inch schedule 40 poly-vinyl chloride pre-pack assemblies. The screened interval was placed to ensure that the

maximum water table fluctuations are fully captured by the screen while still maintaining a sufficient well seal. Screen intervals were placed from about 3 to 8 feet bgs (MW-1) and about 7 to 12 feet bgs (MW-2 and MW-3). Screen intervals are noted on the boring logs. TerraGraphics' field crew attempted to develop the wells on August 7, 2014 using over-purge methods until groundwater quality stabilized (ph, conductivity, temperature, dissolved oxygen, and oxidation/reduction potential), however all three wells purged dry almost immediately. No groundwater samples were taken.

Section 4.0 Results

The data quality objectives as set forth in the SAP/QAPP Addendum (TerraGraphics 2014b) have been achieved. As a result, no data were reduced and the final completeness of the study was assessed at 100%. The following sections summarize the soil analytical results.

4.1 Soil Sample Analysis

Petroleum hydrocarbon concentrations in four of the nine soil samples collected were above one of the Method A Unrestricted Cleanup Levels. Detected concentrations (expressed in mg/kg) are summarized in Table 1, and those above the cleanup levels are summarized below:

- BH-14 (14 feet)
  - GRO = 250 mg/kg, Cleanup Level = 100 mg/kg
- BH-15 (9 feet)
  - GRO = 1,500 mg/kg, Cleanup Level = 100 mg/kg
- BH-17 (10 feet) (higher result between sample and duplicate shown)
  - Gasoline Range Organics (GRO) = 220 mg/kg, Cleanup Level = 100 mg/kg
- BH-18 (13 feet)
  - GRO = 940 mg/kg, Cleanup Level = 100 mg/kg

Although naphthalene was detected above the MTCA Method A Cleanup Level in sample BH-17, this data has been rejected since it does not meet the precision goals set forth in the QAPP Addendum.

Other analytes were detected above the laboratory reporting limits, but not above MTCA Soil Cleanup Levels including total lead, DRO, motor oil, toluene, ethylbenzene, total xylenes, napthalene, and GRO (Table 1). Borings that exhibited petroleum impacts (primarily gasoline) are indicated by PID readings and staining noted in the boring logs (Appendix C). Test America Analytical Lab indicated in the report narrative that the chromatographic response resembling a gasoline signature.

4.1.1 Estimated Volume of Petroleum Impacted Soil

The lateral extent of petroleum impacted soil exceeding cleanup levels has been bounded to the north, south, east, and west based on analytical and field screening results. Figure 2 shows the estimated extent of petroleum impacted soil that exceeds MTCA Method A Unrestricted Soil Cleanup Level of 100 mg/kg for GRO. TerraGraphics previously estimated petroleum-impacted soil north of Vantage Highway to be at least 1,800 cubic yards (TerraGraphics 2014a). Beneath Vantage Highway, the vertical extent of petroleum-impacted soil appears to be greatest from 9 to 14 feet bgs with minor impacts as shallow as 8 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 8 to 15 feet bgs and a lateral extent as interpreted from the GRO isocontour of 100 mg/kg (Figure 2). The estimated volume of petroleum-impacted soil (above MTCA Method A Unrestricted Soil Cleanup Levels) is 1,600 cubic yards (from about 8 feet bgs to 15 bgs) which will require landfarming. The estimated amount of unimpacted overburden is 1,400 cubic yards. The total estimated volume of soil requiring excavation onsite is about 3,000 cubic yards.

4.2 Geology and Hydrogeology

In general, the site lithology consists of fill material from 0 feet to 1 feet bgs (or 0 feet to 3 feet bgs if boring was in the right-of-way) with silt and silty gravel from 2 feet to 15 feet bgs with occasional clayey silt layer layers from 4 to 6 feet bgs. Groundwater was encountered at the site at approximately 9 feet bgs, however moist soils were encountered around 7 feet bgs. Drilling met refusal in some locations as shallow as 12 feet bgs due to the presence of tightly packed gravel. 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 7 to 9 feet bgs. However, dry soil was encountered beneath the wet soils around 13 feet bgs to 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.

4.3 Data Evaluation

Holding times were met for all methods in all samples. The following samples were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results as the label adds in as sample weight: BH-14 14', BH-15 9', BH-16 8', BH-17 10', BH-17 D 10', BH-18 13', BH-19 11', BH-20 10', and BH-21 9'. However, no data are qualified because of this modification.

4.3.1 Precision

Data precision was assessed by evaluating RPDs for a field duplicate, laboratory LCS/LCSD pairs, and a laboratory duplicate. Most RPDs where the original sample and the duplicate sample had detections above the MDL were within the SAP/QAPP Addendum specified range (≤50% for field duplicate, ≤20% or ≤25% for LCSD depending on the analyte, and ≤20% for laboratory duplicate). In instances where the original field sample result was above the MDL and the duplicate field sample was below the MDL, then TerraGraphics used half of the MDL to calculate the RPD. The calculated RPDs for toluene and naphthalene in soil had calculated RPDs of 116% and 200%, respectively. Therefore, TerraGraphics rejected this data in samples BH-17 10' and BH-17 D 10'. All other data met precision goals.

4.3.2 Accuracy

Accuracy of laboratory data was assessed based on percent recovery of LCS samples. All LCS percent recoveries for soil were within the acceptable range specified by the SAP/QAPP Addendum (50-125%).

The percent recovery for bromofluorobenzene, a surrogate, from samples BH-14 14' (197%), BH-17 10' (154%), and BH-18 13' (335%) for NWTPH-Gx were above the acceptable range (50-125%). If the percent recovery is greater than the upper acceptance limit, qualify detects as estimated high (J+) and do not qualify non-detects. Therefore, qualifiers were assigned to GRO in BH-14 14', BH-17 10', and BH-18 13' based on surrogate recovery.

4.3.3 Completeness

Completeness is an estimate of the amount of valid data obtained from the analytical measurement system for a given set of data. Percent completeness is defined as:

$$\text{Percent Completeness} = \frac{(N_{nq})}{N_t} \times 100$$

where:

N_{nq} = number of samples analyzed that meet the data quality goals

N_t = total number of samples analyzed

Data are considered to meet data quality goals when data are not rejected. The SAP/QAPP Addendum specifies a target percent completeness of 95% for this project (TerraGraphics 2014b). Based on the QA/QC review described here, the final completeness for soil data analyzed by TestAmerica for the 2014 Bonjorni Site sampling event is 98.1%.

4.3.4 Comparability

Data comparability was assessed based on field collection and laboratory methods. All data were obtained using standard protocols for sample collection and laboratory analysis and are sufficient for comparison with other site data. The dataset for the site sampling at Bonjorni Site is determined to be of acceptable quality.

Section 5.0 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-14, BH-15, BH-17, and BH-18. The lateral extent of petroleum impacted soil is defined to be an oval shape extending south under Vantage Highway. The vertical extent of impacted soil beneath Vantage Highway is from approximately 9 feet bgs to 14 feet bgs with minor impacts observed as deep as 15 feet bgs and as shallow as 8 feet bgs.

A perched groundwater lens was encountered approximately between 7 and 9 feet bgs and appears to be influenced by seasonal effects (Fulcrum 2001). Dry soil was encountered around 13 feet bgs to 15 feet bgs. Groundwater impacts are likely present near BH-14 and BH-15 and may be present at other locations including BH-17 and BH-18 based upon elevated soil concentrations at the groundwater interface.

Section 6.0 Conclusions and Recommendations

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

6.1 Conclusions

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.
- Based on available data the lateral extent of petroleum impacted soil appears to be bounded to the north, south, east and west.Without remedial action, natural attenuation will not likely be an effective remediation strategy due to the elevated levels of GRO in soil.

6.2 Recommendations

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

- Complete additional groundwater monitoring to further characterize site groundwater.
- Implement a remediation strategy involving source soil excavation.
- The estimated volume of petroleum-impacted soil (based on the estimated extent of soil exceeding the MTCA A Unrestricted Soil Cleanup Levels for GRO and a depth range from 8 to 15 feet bgs) is 1,600 cubic yards which will require landfarming. The estimated amount of unimpacted overburden is 1,400 cubic yards (from 0 to 8 feet bgs). The total estimated volume of soil requiring excavation onsite is about 3,000 cubic yards.
- Complete a Feasibility Study.

Section 7.0 References and Resources Used

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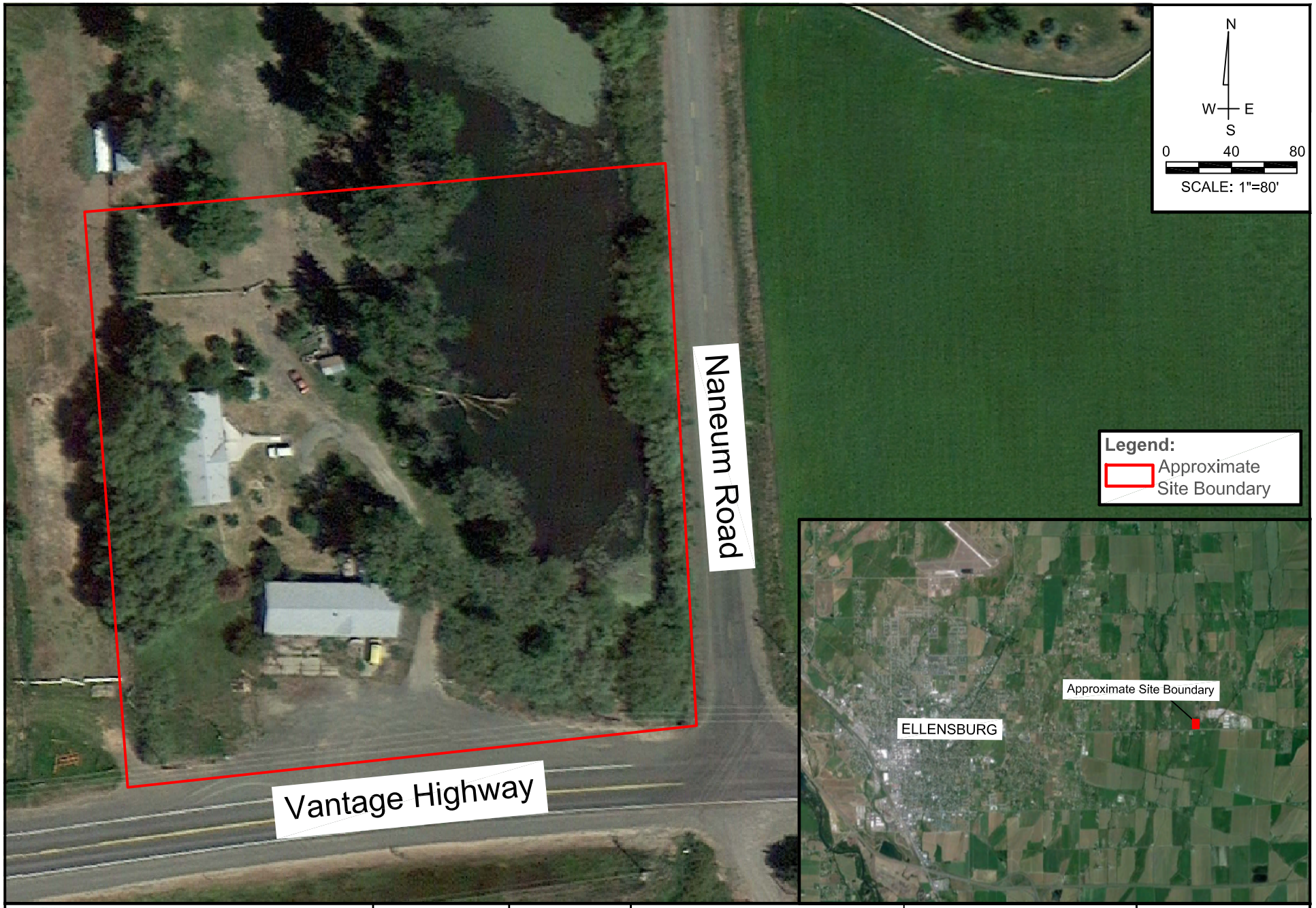
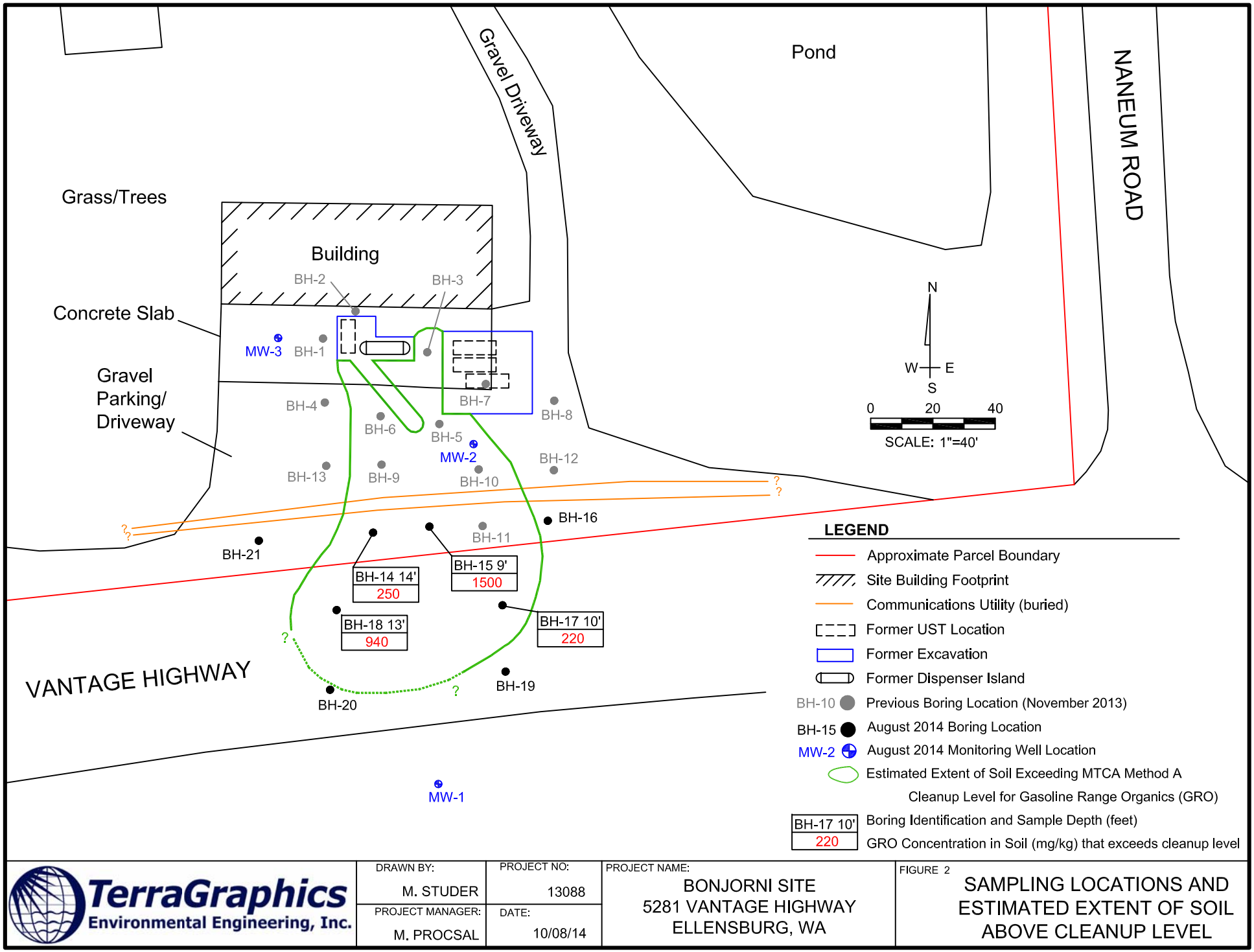


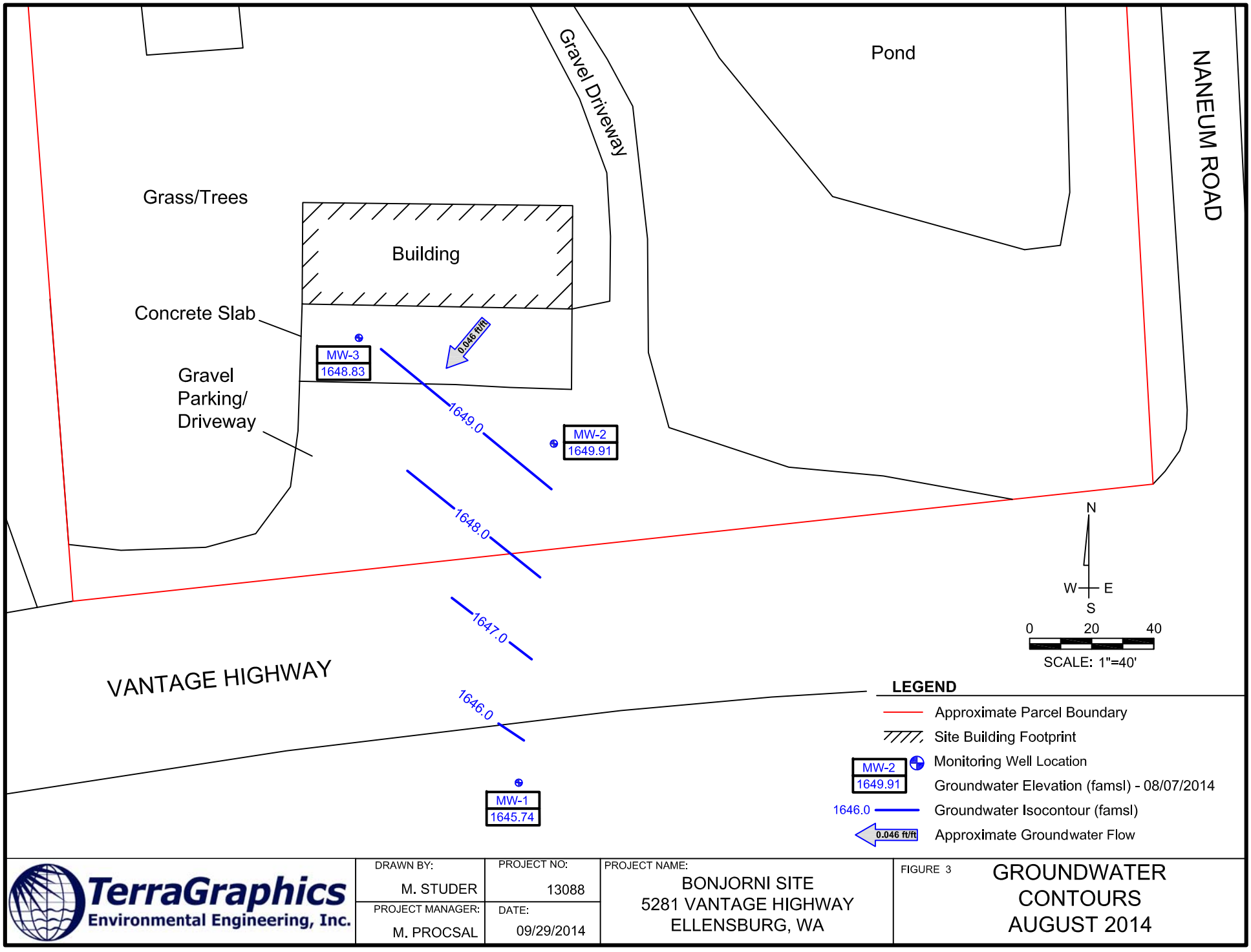
TerraGraphics Environmental Engineering, Inc.	DRAWN BY: M. STUDER PROJECT MANAGER: M. PROCSAL	PROJECT NO: 13088 DATE: 08/14/14	PROJECT NAME: BONJORNI SITE 5281 VANTAGE HIGHWAY ELLENSBURG, WA	FIGURE 1 SITE LAYOUT AND VICINITY MAP

This map was produced using information obtained from several different sources that have not been independently verified. These sources have also not provided information on the precision and accuracy of the data. Information on this map is not a substitute for survey data.



TerraGraphics Environmental Engineering, Inc.

DRAWN BY:	PROJECT NO:	PROJECT NAME:	FIGURE 2
M. STUDER	13088	BONJORNI SITE 5281 VANTAGE HIGHWAY ELLENSBURG, WA	SAMPLING LOCATIONS AND ESTIMATED EXTENT OF SOIL ABOVE CLEANUP LEVEL
PROJECT MANAGER: M. PROCSAL	DATE: 10/08/14		



TerraGraphics Environmental Engineering, Inc.

DRAWN BY:	PROJECT NO:	PROJECT NAME:	FIGURE 3
M. STUDER	13088	BONJORNI SITE 5281 VANTAGE HIGHWAY ELLENSBURG, WA	GROUNDWATER CONTOURS AUGUST 2014
PROJECT MANAGER: M. PROCSAL	DATE: 09/29/2014		

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

Sample ID/Sample Date		Sample Depth (feet bgs)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Lead	EDC	EDB	ETBE	MTBE	TAME	TBA	GRO	DRO	Motor Oil	Heavy Oil #
BH-14-14'	8/5/2014	14	<0.0038	0.0056 JB	0.011 JB	0.015 J	0.024 JB	4.0	<0.0036	<0.0037	-	<0.0066	-	-	**250 J+**	49 Y	<10	-
BH-15-9'	8/5/2014	9	<0.0044	0.0038 JB	<0.0025	<0.0074	<0.0075	3.9	<0.0041	<0.0042	-	<0.0075	-	-	**1,500**	400 Y	10 J	-
BH-16-8'	8/5/2014	8	<0.0040	<0.0030	<0.0023	<0.0068	<0.0069	4.2	<0.0038	<0.0039	-	<0.0069	-	-	31	6.4 J	<10	-
BH-17-10'	8/5/2014	10	<0.0036	<0.0027 R	<0.0021	<0.0062	**12.0 R**	3.2	<0.0034	<0.0035	-	<0.0062	-	-	**190 J+**	41 Y	<10	-
BH-17-10' DUP	8/5/2014	10	<0.0050	0.0051 R	<0.0029	<0.0086	<0.0086 R	3.2	<0.0047	<0.0049	-	<0.0086	-	-	**220**	36 Y	<10	-
BH-18-13'	8/5/2014	13	<0.0051	<0.0038	<0.0029	<0.0086	<0.0087	3.6	<0.0048	<0.0049	-	<0.0087	-	-	**940 J+**	160 Y	<9.7	-
BH-19-11'	8/5/2014	11	<0.0048	<0.0036	<0.0027	<0.0082	<0.0082	1.5	<0.0045	<0.0046	-	<0.0082	-	-	44	39 Y	<10	-
BH-20-10'	8/5/2014	10	<0.0063	<0.0047	<0.0036	<0.0108	<0.011	3.5	<0.0060	<0.0061	-	<0.0110	-	-	30	36 Y	<10	-
BH-21-9'	8/5/2014	9	<0.0045	<0.0033	<0.0026	<0.0078	<0.0077	4.9	<0.0042	<0.0044	-	<0.0077	-	-	4.2 JB	7.6 J	<10	-
BH-1 7'	11/25/2013	7	<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	8	<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	8	***<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	8	***<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	4	***<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-6 4' DUP	11/25/2013	4	***<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	8	<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	4	<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	11	***<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	10	<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
(Fulcrum 2001)																		
E1121-01 7'	11/20/2000	7	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	-	<100
E1121-02 5.5'	11/20/2000	5.5	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	-	<100
E1121-03 7.5'	11/20/2000	7.5	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	-	<100
E1121-04 7'	11/20/2000	7	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	-	<100
E1121-05	11/20/2000	unknown	-	-	-	-	-	-	-	-	-	-	-	-	<20	<50	-	<100
E1121-06 3'	11/20/2000	3	-	-	-	-	-	-	-	-	-	-	-	-	**11,500**	<50	-	<100
E1121-07 5'	11/20/2000	5	-	-	-	-	-	-	-	-	-	-	-	-	**5,000**	<50	-	<100
MTCA Method A Soil Cleanup Levels for Unrestricted Land (mg/kg)			0.03	7	6	9	5	250.0	Method B 0.024	0.005	-	0.1	-	-	100 or 30*	2,000	2,000 or 4,000**	2,000

Notes:
All concentrations are reported in mg/kg = milligrams per kilogram.
Concentrations in **BOLD** are above the Screening Levels as defined by Washington's Model Toxics Control Act (MTCA) (WAC 173-340) Method A Groundwwater Cleanup Levels (Table 720-1, WAC 173-340-900).
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
EDB = ethylene dibromide
ETBE = Ehtyl tert-Butyl Ether
TAME = Tert-amyl methyl ether
TBA = Tert-butyl alcohol
bgs = below ground surface
m+p-Xylene and o-Xylene results were added to represent Total Xylene concentration and compared to Total Xylene Cleanup Level.
< = less than the method detection limit
Y = The chromatographic response resembles a typical fuel pattern.
J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
J+ = Result is qualified based on a high surrogate percent recovery.
JB = Compound was found in the blank and sample less than 10 times the field result.
R = Sample was rejected based on internal QA/QC review.
* = 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.
*** = Reporting limit exceeds the cleanup level.
- = No established value, not sampled.
= summation of DRO and Motor Oil values. 1/2 detection limit used where necessary in summation of heavy oil concentrations.
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

Photo of site near Vantage Highway facing East.

Photo 2

Soil core from boring BH-18.

Photo 3

Advancing boring BH-17.

Photo 4

Drill rig positioned over MW-1. Photo taken at ground level facing South showing a significant crown over Vantage Highway

TerraGraphics Environmental Engineering, Inc. www.TerrraGraphics.com	PRINT DATE: August 18, 2014	PROJECT MANAGER: Mike Procsal	PROJECT NAME: Bonjorni Site 5281 Vantage Highway Ellensburg, WA	PHOTO LOG, APPENDIX A Bonjorni Site August 2014 Site Visit
	PROJECT NUMBER: 13088	CREATED BY: Melody Studer		

Photo 4

Advancing montoring well MW-1

Photo 5

Monitoring well MW-3.

TerraGraphics Environmental Engineering, Inc. www.TerrraGraphics.com	PRINT DATE: August 18, 2014	PROJECT MANAGER: Mike Procsal	PROJECT NAME: Bonjorni Site 5281 Vantage Highway Ellensburg, WA	PHOTO LOG, APPENDIX A Bonjorni Site August 2014 Site Visit
	PROJECT NUMBER: 13088	CREATED BY: Melody Studer		

Appendix B

Analytical Reports with Chain-of-Custody

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: 580-44882-1
Client Project/Site: Bonjorni, Wa

For:
TerraGraphics Inc
TerraGraphics Environmental Engineering
3501 W. Elder, Suite 301
Boise, Idaho 83705

Attn: Mike Procsal

David D Burk

Authorized for release by:
8/20/2014 11:45:06 AM

David Burk, Project Manager I
(253)248-4972
david.burk@testamericainc.com

Table of Contents

Job ID: 580-44882-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-44882-1

Receipt
The samples were received on 8/8/2014 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.4º C.

Except:

The following samples were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results as the label adds in as sampel weight. BH-14 14' (580-44882-1), BH-15 9' (580-44882-2), BH-16 8' (580-44882-3), BH-17 10' (580-44882-4), BH-17 D 10' (580-44882-5), BH-18 13' (580-44882-6), BH-19 11' (580-44882-7), BH-20 10' (580-44882-8), BH-21 9' (580-44882-9).

GC/MS VOA
Method(s) 5035: Sample matrix absorbed the initial methanol present in the vial. Not enough remaining to extract for testing. As per PM response 10 mL of methanol was added to sample. Soil weight is an over estimation of actual weight because remaining methanol that did not leak is included.

Method(s) 8260B: The method blank for batch 166686 contained Toluene, Naphthalene and Ethylbenzene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 8260B: The method blank for batch 167240 contained Naphthalene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 8260B: The continuing calibration verification (CCV) recovered above the upper control limit for Vinyl chloride and since this compound is a CCC compound all target compounds were then evaluated. All target compounds passed criteria therefore data have been reported. (CCV 580-167240/2)

Method(s) NWTPH-Gx: The Gasoline Range Organics (GRO) concentration reported for the following sample(s) is due to the presence of discrete peaks: Trip Blank (580-44882-10). Gasoline

Method(s) NWTPH-Gx: The method blank for batch 167044 contained Gasoline above the method detection limit. This target analyte concentration was less than half the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) NWTPH-Gx: Surrogate BFB recovery for the following sample(s) was outside control limits: BH-14 14' (580-44882-1), BH-17 10' (580-44882-4), BH-18 13' (580-44882-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) NWTPH-Gx: The following sample(s) was diluted to bring the concentration of target analytes within the calibration range: BH-15 9' (580-44882-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method(s) NWTPH-Dx: In analytical batch 166938, for the following sample(s) from preparation batch 166822: BH-14 14' (580-44882-1), BH-15 9' (580-44882-2), BH-17 10' (580-44882-4), BH-17 D 10' (580-44882-5), BH-18 13' (580-44882-6), BH-19 11' (580-44882-7), BH-20 10' (580-44882-8), the results in the #2 Diesel Fuel (C10-C24) range(s) are due primarily to a weathered gasoline product. The affected analyte range(s) have been Y qualified and reported.

Method(s) NWTPH-Dx: In analytical batch 166938, for the following sample from preparation batch 166822: BNSF-Spoils-1 (580-44892-1), the results in the #2 Diesel Fuel (C10-C24) and Motor Oil (>C24-C36) range(s) are due to what most closely resembles a complex mixture of weathered/degraded diesel fuel. The affected analyte range(s) have been Y qualified and reported.

Job ID: 580-44882-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method(s) 3546: In preparation batch 166822, the following samples are very rocky and contains standing water: BH-17 10' (580-44882-4), BH-17 D 10' (580-44882-5)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
Y	The chromatographic response resembles a typical fuel pattern.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-14 14'
Date Collected: 08/05/14 08:39
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-1
Matrix: Solid
Percent Solids: 84.9

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		18	3.8	ug/Kg	☼	08/12/14 10:02	08/12/14 12:38	1
Toluene	**5.6**	**J B**	44	2.9	ug/Kg	☼	08/12/14 10:02	08/12/14 12:38	1
Ethylbenzene	**11**	**J B**	44	2.2	ug/Kg	☼	08/12/14 10:02	08/12/14 12:38	1
m-Xylene & p-Xylene	**9.4**	**J**	44	3.3	ug/Kg	☼	08/12/14 10:02	08/12/14 12:38	1
o-Xylene	**5.6**	**J**	44	3.3	ug/Kg	☼	08/12/14 10:02	08/12/14 12:38	1
Naphthalene	**24**	**J B**	44	6.6	ug/Kg	☼	08/12/14 10:02	08/12/14 12:38	1
Methyl tert-butyl ether	ND		44	6.6	ug/Kg	☼	08/12/14 10:02	08/12/14 12:38	1
EDC	ND		18	3.6	ug/Kg	☼	08/12/14 10:02	08/12/14 12:38	1
EDB	ND		18	3.7	ug/Kg	☼	08/12/14 10:02	08/12/14 12:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*71 - 136*	*08/12/14 10:02*	*08/12/14 12:38*	*1*
4-Bromofluorobenzene (Surr)	*108*		*70 - 120*	*08/12/14 10:02*	*08/12/14 12:38*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*	*08/12/14 10:02*	*08/12/14 12:38*	*1*
Trifluorotoluene (Surr)	*107*		*65 - 140*	*08/12/14 10:02*	*08/12/14 12:38*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*08/12/14 10:02*	*08/12/14 12:38*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**250**	**B**	4.4	0.55	mg/Kg	☼	08/14/14 18:31	08/15/14 07:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*197*	*X*	*50 - 150*	*08/14/14 18:31*	*08/15/14 07:52*	*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)	**49**	**Y**	28	6.5	mg/Kg	☼	08/13/14 10:13	08/14/14 13:56	1
Motor Oil (>C24-C36)	ND		57	10	mg/Kg	☼	08/13/14 10:13	08/14/14 13:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*08/13/14 10:13*	*08/14/14 13:56*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**4.0**		1.3	0.13	mg/Kg	☼	08/15/14 09:31	08/15/14 18:36	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**85**		0.10	0.10	%			08/12/14 14:32	1
Percent Moisture	**15**		0.10	0.10	%			08/12/14 14:32	1

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-15 9'
Date Collected: 08/05/14 09:05
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-2
Matrix: Solid
Percent Solids: 88.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		20	4.4	ug/Kg	☼	08/12/14 10:02	08/12/14 13:08	1
Toluene	**3.8**	**J B**	50	3.2	ug/Kg	☼	08/12/14 10:02	08/12/14 13:08	1
Ethylbenzene	ND		50	2.5	ug/Kg	☼	08/12/14 10:02	08/12/14 13:08	1
m-Xylene & p-Xylene	ND		50	3.7	ug/Kg	☼	08/12/14 10:02	08/12/14 13:08	1
o-Xylene	ND		50	3.7	ug/Kg	☼	08/12/14 10:02	08/12/14 13:08	1
Naphthalene	ND		50	7.5	ug/Kg	☼	08/12/14 10:02	08/12/14 13:08	1
Methyl tert-butyl ether	ND		50	7.5	ug/Kg	☼	08/12/14 10:02	08/12/14 13:08	1
EDC	ND		20	4.1	ug/Kg	☼	08/12/14 10:02	08/12/14 13:08	1
EDB	ND		20	4.2	ug/Kg	☼	08/12/14 10:02	08/12/14 13:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*	*08/12/14 10:02*	*08/12/14 13:08*	*1*
4-Bromofluorobenzene (Surr)	*117*		*70 - 120*	*08/12/14 10:02*	*08/12/14 13:08*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*	*08/12/14 10:02*	*08/12/14 13:08*	*1*
Trifluorotoluene (Surr)	*106*		*65 - 140*	*08/12/14 10:02*	*08/12/14 13:08*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 132*	*08/12/14 10:02*	*08/12/14 13:08*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1500**		250	31	mg/Kg	☼	08/15/14 13:05	08/16/14 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*119*		*50 - 150*	*08/15/14 13:05*	*08/16/14 18:05*	*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)	**400**	**Y**	27	6.3	mg/Kg	☼	08/13/14 10:13	08/14/14 14:14	1
Motor Oil (>C24-C36)	**10**	**J**	55	10	mg/Kg	☼	08/13/14 10:13	08/14/14 14:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*50 - 150*	*08/13/14 10:13*	*08/14/14 14:14*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3.9**		1.4	0.14	mg/Kg	☼	08/15/14 09:31	08/15/14 18:40	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**89**		0.10	0.10	%			08/12/14 14:32	1
Percent Moisture	**11**		0.10	0.10	%			08/12/14 14:32	1

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-16 8'
Date Collected: 08/05/14 09:35
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-3
Matrix: Solid
Percent Solids: 88.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		18	4.0	ug/Kg	☼	08/12/14 10:02	08/12/14 13:38	1
Toluene	ND		46	3.0	ug/Kg	☼	08/12/14 10:02	08/12/14 13:38	1
Ethylbenzene	ND		46	2.3	ug/Kg	☼	08/12/14 10:02	08/12/14 13:38	1
m-Xylene & p-Xylene	ND		46	3.4	ug/Kg	☼	08/12/14 10:02	08/12/14 13:38	1
o-Xylene	ND		46	3.4	ug/Kg	☼	08/12/14 10:02	08/12/14 13:38	1
Naphthalene	ND		46	6.9	ug/Kg	☼	08/12/14 10:02	08/12/14 13:38	1
Methyl tert-butyl ether	ND		46	6.9	ug/Kg	☼	08/12/14 10:02	08/12/14 13:38	1
EDC	ND		18	3.8	ug/Kg	☼	08/12/14 10:02	08/12/14 13:38	1
EDB	ND		18	3.9	ug/Kg	☼	08/12/14 10:02	08/12/14 13:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*	*08/12/14 10:02*	*08/12/14 13:38*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*	*08/12/14 10:02*	*08/12/14 13:38*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*08/12/14 10:02*	*08/12/14 13:38*	*1*
Trifluorotoluene (Surr)	*105*		*65 - 140*	*08/12/14 10:02*	*08/12/14 13:38*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*08/12/14 10:02*	*08/12/14 13:38*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**31**	**B**	4.6	0.57	mg/Kg	☼	08/14/14 18:31	08/15/14 08:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*50 - 150*	*08/14/14 18:31*	*08/15/14 08:53*	*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)	**6.4**	**J**	28	6.4	mg/Kg	☼	08/13/14 10:13	08/14/14 14:32	1
Motor Oil (>C24-C36)	ND		56	10	mg/Kg	☼	08/13/14 10:13	08/14/14 14:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*71*		*50 - 150*	*08/13/14 10:13*	*08/14/14 14:32*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**4.2**		1.3	0.13	mg/Kg	☼	08/15/14 09:31	08/15/14 18:43	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**89**		0.10	0.10	%			08/12/14 14:32	1
Percent Moisture	**11**		0.10	0.10	%			08/12/14 14:32	1

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-17 10'
Date Collected: 08/05/14 10:02
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-4
Matrix: Solid
Percent Solids: 86.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		16	3.6	ug/Kg	☼	08/12/14 10:02	08/18/14 15:27	1
Toluene	ND		41	2.7	ug/Kg	☼	08/12/14 10:02	08/18/14 15:27	1
Ethylbenzene	ND		41	2.1	ug/Kg	☼	08/12/14 10:02	08/18/14 15:27	1
m-Xylene & p-Xylene	ND		41	3.1	ug/Kg	☼	08/12/14 10:02	08/18/14 15:27	1
o-Xylene	ND		41	3.1	ug/Kg	☼	08/12/14 10:02	08/18/14 15:27	1
Naphthalene	**12**	**J B**	41	6.2	ug/Kg	☼	08/12/14 10:02	08/18/14 15:27	1
Methyl tert-butyl ether	ND		41	6.2	ug/Kg	☼	08/12/14 10:02	08/18/14 15:27	1
EDC	ND		16	3.4	ug/Kg	☼	08/12/14 10:02	08/18/14 15:27	1
EDB	ND		16	3.5	ug/Kg	☼	08/12/14 10:02	08/18/14 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*	*08/12/14 10:02*	*08/18/14 15:27*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 120*	*08/12/14 10:02*	*08/18/14 15:27*	*1*
Toluene-d8 (Surr)	*108*		*80 - 120*	*08/12/14 10:02*	*08/18/14 15:27*	*1*
Trifluorotoluene (Surr)	*101*		*65 - 140*	*08/12/14 10:02*	*08/18/14 15:27*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 132*	*08/12/14 10:02*	*08/18/14 15:27*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**190**	**B**	4.1	0.51	mg/Kg	☼	08/14/14 18:31	08/15/14 09:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*154*	*X*	*50 - 150*	*08/14/14 18:31*	*08/15/14 09:24*	*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)	**41**	**Y**	28	6.5	mg/Kg	☼	08/13/14 10:13	08/14/14 14:50	1
Motor Oil (>C24-C36)	ND		57	10	mg/Kg	☼	08/13/14 10:13	08/14/14 14:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*08/13/14 10:13*	*08/14/14 14:50*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3.2**		1.3	0.13	mg/Kg	☼	08/15/14 09:31	08/15/14 18:47	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**87**		0.10	0.10	%			08/12/14 14:32	1
Percent Moisture	**13**		0.10	0.10	%			08/12/14 14:32	1

Client Sample ID: BH-17 D 10'
Date Collected: 08/05/14 10:05
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-5
Matrix: Solid
Percent Solids: 84.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		23	5.0	ug/Kg	☼	08/12/14 10:02	08/12/14 14:39	1
Toluene	**5.1**	**J B**	58	3.7	ug/Kg	☼	08/12/14 10:02	08/12/14 14:39	1
Ethylbenzene	ND		58	2.9	ug/Kg	☼	08/12/14 10:02	08/12/14 14:39	1
m-Xylene & p-Xylene	ND		58	4.3	ug/Kg	☼	08/12/14 10:02	08/12/14 14:39	1
o-Xylene	ND		58	4.3	ug/Kg	☼	08/12/14 10:02	08/12/14 14:39	1
Naphthalene	ND		58	8.6	ug/Kg	☼	08/12/14 10:02	08/12/14 14:39	1
Methyl tert-butyl ether	ND		58	8.6	ug/Kg	☼	08/12/14 10:02	08/12/14 14:39	1
EDC	ND		23	4.7	ug/Kg	☼	08/12/14 10:02	08/12/14 14:39	1
EDB	ND		23	4.9	ug/Kg	☼	08/12/14 10:02	08/12/14 14:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*	*08/12/14 10:02*	*08/12/14 14:39*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 120*	*08/12/14 10:02*	*08/12/14 14:39*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*	*08/12/14 10:02*	*08/12/14 14:39*	*1*
Trifluorotoluene (Surr)	*104*		*65 - 140*	*08/12/14 10:02*	*08/12/14 14:39*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 132*	*08/12/14 10:02*	*08/12/14 14:39*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**220**	**B**	5.8	0.72	mg/Kg	☼	08/14/14 18:31	08/15/14 09:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*143*		*50 - 150*	*08/14/14 18:31*	*08/15/14 09:55*	*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)	**36**	**Y**	29	6.5	mg/Kg	☼	08/13/14 10:13	08/14/14 15:08	1
Motor Oil (>C24-C36)	ND		57	10	mg/Kg	☼	08/13/14 10:13	08/14/14 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*08/13/14 10:13*	*08/14/14 15:08*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3.2**		1.0	0.10	mg/Kg	☼	08/15/14 09:31	08/15/14 18:50	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**85**		0.10	0.10	%			08/12/14 14:32	1
Percent Moisture	**15**		0.10	0.10	%			08/12/14 14:32	1

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-18 13'
Date Collected: 08/05/14 10:31
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-6
Matrix: Solid
Percent Solids: 90.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		23	5.1	ug/Kg	☼	08/12/14 10:02	08/12/14 15:09	1
Toluene	ND		58	3.8	ug/Kg	☼	08/12/14 10:02	08/12/14 15:09	1
Ethylbenzene	ND		58	2.9	ug/Kg	☼	08/12/14 10:02	08/12/14 15:09	1
m-Xylene & p-Xylene	ND		58	4.3	ug/Kg	☼	08/12/14 10:02	08/12/14 15:09	1
o-Xylene	ND		58	4.3	ug/Kg	☼	08/12/14 10:02	08/12/14 15:09	1
Naphthalene	ND		58	8.7	ug/Kg	☼	08/12/14 10:02	08/12/14 15:09	1
Methyl tert-butyl ether	ND		58	8.7	ug/Kg	☼	08/12/14 10:02	08/12/14 15:09	1
EDC	ND		23	4.8	ug/Kg	☼	08/12/14 10:02	08/12/14 15:09	1
EDB	ND		23	4.9	ug/Kg	☼	08/12/14 10:02	08/12/14 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*	*08/12/14 10:02*	*08/12/14 15:09*	*1*
4-Bromofluorobenzene (Surr)	*119*		*70 - 120*	*08/12/14 10:02*	*08/12/14 15:09*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*	*08/12/14 10:02*	*08/12/14 15:09*	*1*
Trifluorotoluene (Surr)	*104*		*65 - 140*	*08/12/14 10:02*	*08/12/14 15:09*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 132*	*08/12/14 10:02*	*08/12/14 15:09*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**940**	**B**	5.8	0.72	mg/Kg	☼	08/14/14 18:31	08/15/14 10:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*335*	*X*	*50 - 150*	*08/14/14 18:31*	*08/15/14 10:26*	*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)	**160**	**Y**	27	6.1	mg/Kg	☼	08/13/14 10:13	08/14/14 15:26	1
Motor Oil (>C24-C36)	ND		53	9.7	mg/Kg	☼	08/13/14 10:13	08/14/14 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*50 - 150*	*08/13/14 10:13*	*08/14/14 15:26*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3.6**		1.5	0.15	mg/Kg	☼	08/15/14 09:31	08/15/14 18:54	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**90**		0.10	0.10	%			08/12/14 14:32	1
Percent Moisture	**9.8**		0.10	0.10	%			08/12/14 14:32	1

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-19 11'
Date Collected: 08/05/14 11:13
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-7
Matrix: Solid
Percent Solids: 87.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		22	4.8	ug/Kg	☼	08/12/14 10:02	08/12/14 16:40	1
Toluene	ND		55	3.6	ug/Kg	☼	08/12/14 10:02	08/12/14 16:40	1
Ethylbenzene	ND		55	2.7	ug/Kg	☼	08/12/14 10:02	08/12/14 16:40	1
m-Xylene & p-Xylene	ND		55	4.1	ug/Kg	☼	08/12/14 10:02	08/12/14 16:40	1
o-Xylene	ND		55	4.1	ug/Kg	☼	08/12/14 10:02	08/12/14 16:40	1
Naphthalene	ND		55	8.2	ug/Kg	☼	08/12/14 10:02	08/12/14 16:40	1
Methyl tert-butyl ether	ND		55	8.2	ug/Kg	☼	08/12/14 10:02	08/12/14 16:40	1
EDC	ND		22	4.5	ug/Kg	☼	08/12/14 10:02	08/12/14 16:40	1
EDB	ND		22	4.6	ug/Kg	☼	08/12/14 10:02	08/12/14 16:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*	*08/12/14 10:02*	*08/12/14 16:40*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 120*	*08/12/14 10:02*	*08/12/14 16:40*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*	*08/12/14 10:02*	*08/12/14 16:40*	*1*
Trifluorotoluene (Surr)	*104*		*65 - 140*	*08/12/14 10:02*	*08/12/14 16:40*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 132*	*08/12/14 10:02*	*08/12/14 16:40*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**44**		5.5	0.68	mg/Kg	☼	08/15/14 13:05	08/16/14 17:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*50 - 150*	*08/15/14 13:05*	*08/16/14 17:34*	*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)	**39**	**Y**	28	6.4	mg/Kg	☼	08/13/14 10:13	08/14/14 16:02	1
Motor Oil (>C24-C36)	ND		56	10	mg/Kg	☼	08/13/14 10:13	08/14/14 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*77*		*50 - 150*	*08/13/14 10:13*	*08/14/14 16:02*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**1.5**		1.4	0.14	mg/Kg	☼	08/15/14 09:31	08/15/14 19:03	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**87**		0.10	0.10	%			08/12/14 14:32	1
Percent Moisture	**13**		0.10	0.10	%			08/12/14 14:32	1

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-20 10'
Date Collected: 08/05/14 11:50
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-8
Matrix: Solid
Percent Solids: 85.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		29	6.3	ug/Kg	☼	08/12/14 10:02	08/12/14 15:40	1
Toluene	ND		72	4.7	ug/Kg	☼	08/12/14 10:02	08/12/14 15:40	1
Ethylbenzene	ND		72	3.6	ug/Kg	☼	08/12/14 10:02	08/12/14 15:40	1
m-Xylene & p-Xylene	ND		72	5.4	ug/Kg	☼	08/12/14 10:02	08/12/14 15:40	1
o-Xylene	ND		72	5.4	ug/Kg	☼	08/12/14 10:02	08/12/14 15:40	1
Naphthalene	ND		72	11	ug/Kg	☼	08/12/14 10:02	08/12/14 15:40	1
Methyl tert-butyl ether	ND		72	11	ug/Kg	☼	08/12/14 10:02	08/12/14 15:40	1
EDC	ND		29	6.0	ug/Kg	☼	08/12/14 10:02	08/12/14 15:40	1
EDB	ND		29	6.1	ug/Kg	☼	08/12/14 10:02	08/12/14 15:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*	*08/12/14 10:02*	*08/12/14 15:40*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 120*	*08/12/14 10:02*	*08/12/14 15:40*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*	*08/12/14 10:02*	*08/12/14 15:40*	*1*
Trifluorotoluene (Surr)	*103*		*65 - 140*	*08/12/14 10:02*	*08/12/14 15:40*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*08/12/14 10:02*	*08/12/14 15:40*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**30**	**B**	7.2	0.90	mg/Kg	☼	08/14/14 18:31	08/15/14 11:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*50 - 150*	*08/14/14 18:31*	*08/15/14 11:58*	*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)	**36**	**Y**	28	6.5	mg/Kg	☼	08/13/14 10:13	08/14/14 16:20	1
Motor Oil (>C24-C36)	ND		57	10	mg/Kg	☼	08/13/14 10:13	08/14/14 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*74*		*50 - 150*	*08/13/14 10:13*	*08/14/14 16:20*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3.5**		1.4	0.14	mg/Kg	☼	08/15/14 09:31	08/15/14 19:06	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**85**		0.10	0.10	%			08/12/14 14:32	1
Percent Moisture	**15**		0.10	0.10	%			08/12/14 14:32	1

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-21 9'
Date Collected: 08/05/14 14:28
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-9
Matrix: Solid
Percent Solids: 87.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		21	4.5	ug/Kg	☼	08/12/14 10:02	08/12/14 16:10	1
Toluene	ND		51	3.3	ug/Kg	☼	08/12/14 10:02	08/12/14 16:10	1
Ethylbenzene	ND		51	2.6	ug/Kg	☼	08/12/14 10:02	08/12/14 16:10	1
m-Xylene & p-Xylene	ND		51	3.9	ug/Kg	☼	08/12/14 10:02	08/12/14 16:10	1
o-Xylene	ND		51	3.9	ug/Kg	☼	08/12/14 10:02	08/12/14 16:10	1
Naphthalene	ND		51	7.7	ug/Kg	☼	08/12/14 10:02	08/12/14 16:10	1
Methyl tert-butyl ether	ND		51	7.7	ug/Kg	☼	08/12/14 10:02	08/12/14 16:10	1
EDC	ND		21	4.2	ug/Kg	☼	08/12/14 10:02	08/12/14 16:10	1
EDB	ND		21	4.4	ug/Kg	☼	08/12/14 10:02	08/12/14 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*	*08/12/14 10:02*	*08/12/14 16:10*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*	*08/12/14 10:02*	*08/12/14 16:10*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*	*08/12/14 10:02*	*08/12/14 16:10*	*1*
Trifluorotoluene (Surr)	*103*		*65 - 140*	*08/12/14 10:02*	*08/12/14 16:10*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 132*	*08/12/14 10:02*	*08/12/14 16:10*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**4.2**	**J B**	5.1	0.64	mg/Kg	☼	08/14/14 18:31	08/15/14 12:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*50 - 150*	*08/14/14 18:31*	*08/15/14 12:29*	*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)	**7.6**	**J**	27	6.2	mg/Kg	☼	08/13/14 10:13	08/14/14 16:38	1
Motor Oil (>C24-C36)	ND		55	10	mg/Kg	☼	08/13/14 10:13	08/14/14 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*50 - 150*	*08/13/14 10:13*	*08/14/14 16:38*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**4.9**		1.5	0.15	mg/Kg	☼	08/15/14 09:31	08/15/14 19:10	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**88**		0.10	0.10	%			08/12/14 14:32	1
Percent Moisture	**12**		0.10	0.10	%			08/12/14 14:32	1

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: Trip Blank
Date Collected: 07/29/14 00:00
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-10
Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	16	B	4.0	0.50	mg/Kg		08/12/14 15:29	08/12/14 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*50 - 150*	*08/12/14 15:29*	*08/12/14 20:32*	*1*

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

Lab Sample ID: MB 580-166699/1-A
Matrix: Solid
Analysis Batch: 166686

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 166699

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		16	3.5	ug/Kg		08/12/14 10:01	08/12/14 10:28	1
Toluene	2.80	J	40	2.6	ug/Kg		08/12/14 10:01	08/12/14 10:28	1
Ethylbenzene	2.12	J	40	2.0	ug/Kg		08/12/14 10:01	08/12/14 10:28	1
m-Xylene & p-Xylene	ND		40	3.0	ug/Kg		08/12/14 10:01	08/12/14 10:28	1
o-Xylene	ND		40	3.0	ug/Kg		08/12/14 10:01	08/12/14 10:28	1
Naphthalene	9.14	J	40	6.0	ug/Kg		08/12/14 10:01	08/12/14 10:28	1
Methyl tert-butyl ether	ND		40	6.0	ug/Kg		08/12/14 10:01	08/12/14 10:28	1
EDC	ND		16	3.3	ug/Kg		08/12/14 10:01	08/12/14 10:28	1
EDB	ND		16	3.4	ug/Kg		08/12/14 10:01	08/12/14 10:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*	*08/12/14 10:01*	*08/12/14 10:28*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 120*	*08/12/14 10:01*	*08/12/14 10:28*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*	*08/12/14 10:01*	*08/12/14 10:28*	*1*
Trifluorotoluene (Surr)	*120*		*65 - 140*	*08/12/14 10:01*	*08/12/14 10:28*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 132*	*08/12/14 10:01*	*08/12/14 10:28*	*1*

Lab Sample ID: LCS 580-166699/2-A
Matrix: Solid
Analysis Batch: 166686

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 166699

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	800	856		ug/Kg		107	70 - 128
Toluene	800	869		ug/Kg		109	75 - 126
Ethylbenzene	800	887		ug/Kg		111	78 - 126
m-Xylene & p-Xylene	800	882		ug/Kg		110	78 - 126
o-Xylene	800	874		ug/Kg		109	77 - 127
Naphthalene	800	922		ug/Kg		115	14 - 170
Methyl tert-butyl ether	800	859		ug/Kg		107	65 - 125
EDC	800	911		ug/Kg		114	71 - 128
EDB	800	947		ug/Kg		118	69 - 126

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*108*		*71 - 136*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Trifluorotoluene (Surr)	*114*		*65 - 140*
Dibromofluoromethane (Surr)	*100*		*75 - 132*

Lab Sample ID: LCSD 580-166699/3-A
Matrix: Solid
Analysis Batch: 166686

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 166699

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	800	848		ug/Kg		106	70 - 128	1	19
Toluene	800	871		ug/Kg		109	75 - 126	0	19
Ethylbenzene	800	882		ug/Kg		110	78 - 126	1	23

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

Lab Sample ID: LCSD 580-166699/3-A
Matrix: Solid
Analysis Batch: 166686

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 166699

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
m-Xylene & p-Xylene			800	872		ug/Kg		109	78 - 126	1	23
o-Xylene			800	865		ug/Kg		108	77 - 127	1	22
Naphthalene			800	939		ug/Kg		117	14 - 170	2	50
Methyl tert-butyl ether			800	830		ug/Kg		104	65 - 125	3	30
EDC			800	887		ug/Kg		111	71 - 128	3	18
EDB			800	928		ug/Kg		116	69 - 126	2	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*
4-Bromofluorobenzene (Surr)	*101*		*70 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*
Trifluorotoluene (Surr)	*112*		*65 - 140*
Dibromofluoromethane (Surr)	*100*		*75 - 132*

Lab Sample ID: MB 580-167252/1-A
Matrix: Solid
Analysis Batch: 167240

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 167252

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		16	3.5	ug/Kg		08/18/14 08:24	08/18/14 08:52	1
Toluene	ND		40	2.6	ug/Kg		08/18/14 08:24	08/18/14 08:52	1
Ethylbenzene	ND		40	2.0	ug/Kg		08/18/14 08:24	08/18/14 08:52	1
m-Xylene & p-Xylene	ND		40	3.0	ug/Kg		08/18/14 08:24	08/18/14 08:52	1
o-Xylene	ND		40	3.0	ug/Kg		08/18/14 08:24	08/18/14 08:52	1
Naphthalene	6.35	J	40	6.0	ug/Kg		08/18/14 08:24	08/18/14 08:52	1
Methyl tert-butyl ether	ND		40	6.0	ug/Kg		08/18/14 08:24	08/18/14 08:52	1
EDC	ND		16	3.3	ug/Kg		08/18/14 08:24	08/18/14 08:52	1
EDB	ND		16	3.4	ug/Kg		08/18/14 08:24	08/18/14 08:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*71 - 136*	*08/18/14 08:24*	*08/18/14 08:52*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 120*	*08/18/14 08:24*	*08/18/14 08:52*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*	*08/18/14 08:24*	*08/18/14 08:52*	*1*
Trifluorotoluene (Surr)	*95*		*65 - 140*	*08/18/14 08:24*	*08/18/14 08:52*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*08/18/14 08:24*	*08/18/14 08:52*	*1*

Lab Sample ID: LCS 580-167252/2-A
Matrix: Solid
Analysis Batch: 167240

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 167252

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			800	719		ug/Kg		90	70 - 128		
Toluene			800	754		ug/Kg		94	75 - 126		
Ethylbenzene			800	775		ug/Kg		97	78 - 126		
m-Xylene & p-Xylene			800	755		ug/Kg		94	78 - 126		
o-Xylene			800	752		ug/Kg		94	77 - 127		
Naphthalene			800	724		ug/Kg		91	14 - 170		
Methyl tert-butyl ether			800	658		ug/Kg		82	65 - 125		

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

Lab Sample ID: LCS 580-167252/2-A
Matrix: Solid
Analysis Batch: 167240

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 167252

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
EDC			800	621		ug/Kg		78	71 - 128		
EDB			800	697		ug/Kg		87	69 - 126		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*71 - 136*
4-Bromofluorobenzene (Surr)	*96*		*70 - 120*
Toluene-d8 (Surr)	*104*		*80 - 120*
Trifluorotoluene (Surr)	*90*		*65 - 140*
Dibromofluoromethane (Surr)	*96*		*75 - 132*

Lab Sample ID: LCSD 580-167252/3-A
Matrix: Solid
Analysis Batch: 167240

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 167252

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			800	735		ug/Kg		92	70 - 128	2	19
Toluene			800	760		ug/Kg		95	75 - 126	1	19
Ethylbenzene			800	779		ug/Kg		97	78 - 126	1	23
m-Xylene & p-Xylene			800	764		ug/Kg		95	78 - 126	1	23
o-Xylene			800	753		ug/Kg		94	77 - 127	0	22
Naphthalene			800	753		ug/Kg		94	14 - 170	4	50
Methyl tert-butyl ether			800	649		ug/Kg		81	65 - 125	1	30
EDC			800	637		ug/Kg		80	71 - 128	3	18
EDB			800	714		ug/Kg		89	69 - 126	2	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*89*		*71 - 136*
4-Bromofluorobenzene (Surr)	*94*		*70 - 120*
Toluene-d8 (Surr)	*105*		*80 - 120*
Trifluorotoluene (Surr)	*90*		*65 - 140*
Dibromofluoromethane (Surr)	*97*		*75 - 132*

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

Lab Sample ID: MB 580-166738/1-A
Matrix: Solid
Analysis Batch: 166768

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 166738

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	1.19	J	4.0	0.50	mg/Kg		08/12/14 12:47	08/12/14 19:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*50 - 150*	*08/12/14 12:47*	*08/12/14 19:00*	*1*
Trifluorotoluene (Surr)	*70*		*50 - 150*	*08/12/14 12:47*	*08/12/14 19:00*	*1*

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

Lab Sample ID: LCS 580-166738/2-A
Matrix: Solid
Analysis Batch: 166768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 166738

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline			40.0	36.1		mg/Kg		90	68 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*50 - 150*
Trifluorotoluene (Surr)	*106*		*50 - 150*

Lab Sample ID: LCSD 580-166738/3-A
Matrix: Solid
Analysis Batch: 166768

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 166738

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			40.0	46.3		mg/Kg		116	68 - 120	25	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*50 - 150*
Trifluorotoluene (Surr)	*118*		*50 - 150*

Lab Sample ID: MB 580-167041/1-A
Matrix: Solid
Analysis Batch: 167044

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 167041

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.769	J	4.0	0.50	mg/Kg		08/14/14 18:31	08/15/14 06:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*50 - 150*	*08/14/14 18:31*	*08/15/14 06:19*	*1*

Lab Sample ID: LCS 580-167041/2-A
Matrix: Solid
Analysis Batch: 167044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 167041

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline			40.0	42.9		mg/Kg		107	68 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*50 - 150*

Lab Sample ID: LCSD 580-167041/3-A
Matrix: Solid
Analysis Batch: 167044

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 167041

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			40.0	44.1		mg/Kg		110	68 - 120	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*50 - 150*

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

Lab Sample ID: MB 580-167114/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 167148 — **Prep Batch: 167114**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.0	0.50	mg/Kg		08/15/14 13:05	08/16/14 10:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*50 - 150*	*08/15/14 13:05*	*08/16/14 10:09*	*1*

Lab Sample ID: LCS 580-167114/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 167148 — **Prep Batch: 167114**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	40.0	38.2		mg/Kg		96	68 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*50 - 150*

Lab Sample ID: LCSD 580-167114/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 167148 — **Prep Batch: 167114**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	40.0	38.1		mg/Kg		95	68 - 120	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*50 - 150*

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

Lab Sample ID: MB 580-166822/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166938 — **Prep Batch: 166822**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		25	5.7	mg/Kg		08/13/14 10:13	08/14/14 12:44	1
Motor Oil (>C24-C36)	ND		50	9.1	mg/Kg		08/13/14 10:13	08/14/14 12:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*08/13/14 10:13*	*08/14/14 12:44*	*1*

Lab Sample ID: LCS 580-166822/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 166938 — **Prep Batch: 166822**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	500	437		mg/Kg		87	70 - 125
Motor Oil (>C24-C36)	502	481		mg/Kg		96	64 - 127

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

Lab Sample ID: LCS 580-166822/2-A
Matrix: Solid
Analysis Batch: 166938

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 166822

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*94*		*50 - 150*

Lab Sample ID: LCSD 580-166822/3-A
Matrix: Solid
Analysis Batch: 166938

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 166822

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			500	434		mg/Kg		87	70 - 125	1	16
Motor Oil (>C24-C36)			502	479		mg/Kg		96	64 - 127	0	17

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*90*		*50 - 150*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 580-167073/21-A
Matrix: Solid
Analysis Batch: 167271

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 167073

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5	0.15	mg/Kg		08/15/14 09:31	08/15/14 17:54	1

Lab Sample ID: LCS 580-167073/22-A
Matrix: Solid
Analysis Batch: 167271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 167073

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead			50.0	50.0		mg/Kg		100	80 - 120

Lab Sample ID: LCSD 580-167073/23-A
Matrix: Solid
Analysis Batch: 167271

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 167073

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead			50.0	50.7		mg/Kg		101	80 - 120	1	20

Lab Sample ID: LCSSRM 580-167073/24-A
Matrix: Solid
Analysis Batch: 167271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 167073

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Lead			133	144		mg/Kg		108.1	72.9 - 127.8

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-44882-6 DU
Matrix: Solid
Analysis Batch: 166757

Client Sample ID: BH-18 13'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	90			89		%				1	20
Percent Moisture	9.8			11		%				11	20

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-14 14'

Lab Sample ID: 580-44882-1

Date Collected: 08/05/14 08:39
Matrix: Solid
Date Received: 08/08/14 09:15
Percent Solids: 84.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166699	08/12/14 10:02	CRH	TAL SEA
Total/NA	Analysis	8260B		1	166686	08/12/14 12:38	PS1	TAL SEA
Total/NA	Prep	5035			167041	08/14/14 18:31	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	167044	08/15/14 07:52	IWH	TAL SEA
Total/NA	Prep	3546			166822	08/13/14 10:13	CTC	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	166938	08/14/14 13:56	JJP	TAL SEA
Total/NA	Prep	3050B			167073	08/15/14 09:31	KJV	TAL SEA
Total/NA	Analysis	6010B		1	167271	08/15/14 18:36	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	166757	08/12/14 14:32	DA	TAL SEA

Client Sample ID: BH-15 9'

Lab Sample ID: 580-44882-2

Date Collected: 08/05/14 09:05
Matrix: Solid
Date Received: 08/08/14 09:15
Percent Solids: 88.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166699	08/12/14 10:02	CRH	TAL SEA
Total/NA	Analysis	8260B		1	166686	08/12/14 13:08	PS1	TAL SEA
Total/NA	Prep	5035			167114	08/15/14 13:05	UEP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	167148	08/16/14 18:05	CJ	TAL SEA
Total/NA	Prep	3546			166822	08/13/14 10:13	CTC	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	166938	08/14/14 14:14	JJP	TAL SEA
Total/NA	Prep	3050B			167073	08/15/14 09:31	KJV	TAL SEA
Total/NA	Analysis	6010B		1	167271	08/15/14 18:40	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	166757	08/12/14 14:32	DA	TAL SEA

Client Sample ID: BH-16 8'

Lab Sample ID: 580-44882-3

Date Collected: 08/05/14 09:35
Matrix: Solid
Date Received: 08/08/14 09:15
Percent Solids: 88.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166699	08/12/14 10:02	CRH	TAL SEA
Total/NA	Analysis	8260B		1	166686	08/12/14 13:38	PS1	TAL SEA
Total/NA	Prep	5035			167041	08/14/14 18:31	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	167044	08/15/14 08:53	IWH	TAL SEA
Total/NA	Prep	3546			166822	08/13/14 10:13	CTC	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	166938	08/14/14 14:32	JJP	TAL SEA
Total/NA	Prep	3050B			167073	08/15/14 09:31	KJV	TAL SEA
Total/NA	Analysis	6010B		1	167271	08/15/14 18:43	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	166757	08/12/14 14:32	DA	TAL SEA

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-17 10'

Lab Sample ID: 580-44882-4

Date Collected: 08/05/14 10:02
Matrix: Solid
Date Received: 08/08/14 09:15
Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166699	08/12/14 10:02	CRH	TAL SEA
Total/NA	Analysis	8260B		1	167240	08/18/14 15:27	AS	TAL SEA
Total/NA	Prep	5035			167041	08/14/14 18:31	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	167044	08/15/14 09:24	IWH	TAL SEA
Total/NA	Prep	3546			166822	08/13/14 10:13	CTC	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	166938	08/14/14 14:50	JJP	TAL SEA
Total/NA	Prep	3050B			167073	08/15/14 09:31	KJV	TAL SEA
Total/NA	Analysis	6010B		1	167271	08/15/14 18:47	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	166757	08/12/14 14:32	DA	TAL SEA

Client Sample ID: BH-17 D 10'

Lab Sample ID: 580-44882-5

Date Collected: 08/05/14 10:05
Matrix: Solid
Date Received: 08/08/14 09:15
Percent Solids: 84.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166699	08/12/14 10:02	CRH	TAL SEA
Total/NA	Analysis	8260B		1	166686	08/12/14 14:39	PS1	TAL SEA
Total/NA	Prep	5035			167041	08/14/14 18:31	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	167044	08/15/14 09:55	IWH	TAL SEA
Total/NA	Prep	3546			166822	08/13/14 10:13	CTC	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	166938	08/14/14 15:08	JJP	TAL SEA
Total/NA	Prep	3050B			167073	08/15/14 09:31	KJV	TAL SEA
Total/NA	Analysis	6010B		1	167271	08/15/14 18:50	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	166757	08/12/14 14:32	DA	TAL SEA

Client Sample ID: BH-18 13'

Lab Sample ID: 580-44882-6

Date Collected: 08/05/14 10:31
Matrix: Solid
Date Received: 08/08/14 09:15
Percent Solids: 90.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166699	08/12/14 10:02	CRH	TAL SEA
Total/NA	Analysis	8260B		1	166686	08/12/14 15:09	PS1	TAL SEA
Total/NA	Prep	5035			167041	08/14/14 18:31	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	167044	08/15/14 10:26	IWH	TAL SEA
Total/NA	Prep	3546			166822	08/13/14 10:13	CTC	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	166938	08/14/14 15:26	JJP	TAL SEA
Total/NA	Prep	3050B			167073	08/15/14 09:31	KJV	TAL SEA
Total/NA	Analysis	6010B		1	167271	08/15/14 18:54	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	166757	08/12/14 14:32	DA	TAL SEA

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: BH-19 11'

Lab Sample ID: 580-44882-7

Date Collected: 08/05/14 11:13
Matrix: Solid
Date Received: 08/08/14 09:15
Percent Solids: 87.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166699	08/12/14 10:02	CRH	TAL SEA
Total/NA	Analysis	8260B		1	166686	08/12/14 16:40	PS1	TAL SEA
Total/NA	Prep	5035			167114	08/15/14 13:05	UEP	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	167148	08/16/14 17:34	CJ	TAL SEA
Total/NA	Prep	3546			166822	08/13/14 10:13	CTC	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	166938	08/14/14 16:02	JJP	TAL SEA
Total/NA	Prep	3050B			167073	08/15/14 09:31	KJV	TAL SEA
Total/NA	Analysis	6010B		1	167271	08/15/14 19:03	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	166757	08/12/14 14:32	DA	TAL SEA

Client Sample ID: BH-20 10'

Lab Sample ID: 580-44882-8

Date Collected: 08/05/14 11:50
Matrix: Solid
Date Received: 08/08/14 09:15
Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166699	08/12/14 10:02	CRH	TAL SEA
Total/NA	Analysis	8260B		1	166686	08/12/14 15:40	PS1	TAL SEA
Total/NA	Prep	5035			167041	08/14/14 18:31	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	167044	08/15/14 11:58	IWH	TAL SEA
Total/NA	Prep	3546			166822	08/13/14 10:13	CTC	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	166938	08/14/14 16:20	JJP	TAL SEA
Total/NA	Prep	3050B			167073	08/15/14 09:31	KJV	TAL SEA
Total/NA	Analysis	6010B		1	167271	08/15/14 19:06	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	166757	08/12/14 14:32	DA	TAL SEA

Client Sample ID: BH-21 9'

Lab Sample ID: 580-44882-9

Date Collected: 08/05/14 14:28
Matrix: Solid
Date Received: 08/08/14 09:15
Percent Solids: 87.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166699	08/12/14 10:02	CRH	TAL SEA
Total/NA	Analysis	8260B		1	166686	08/12/14 16:10	PS1	TAL SEA
Total/NA	Prep	5035			167041	08/14/14 18:31	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	167044	08/15/14 12:29	IWH	TAL SEA
Total/NA	Prep	3546			166822	08/13/14 10:13	CTC	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	166938	08/14/14 16:38	JJP	TAL SEA
Total/NA	Prep	3050B			167073	08/15/14 09:31	KJV	TAL SEA
Total/NA	Analysis	6010B		1	167271	08/15/14 19:10	SPP	TAL SEA
Total/NA	Analysis	D 2216		1	166757	08/12/14 14:32	DA	TAL SEA

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Client Sample ID: Trip Blank
Date Collected: 07/29/14 00:00
Date Received: 08/08/14 09:15

Lab Sample ID: 580-44882-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			166738	08/12/14 15:29	KMH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	166768	08/12/14 20:32	IWH	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, Wa

TestAmerica Job ID: 580-44882-1

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-113	07-25-15
California	NELAP	9	01115CA	01-31-14 *
California	State Program	9	2901	01-31-15
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	04-08-17
Washington	State Program	10	C553	02-17-15

* Certification renewal pending - certification considered valid.

Sample Summary

Client: TerraGraphics Inc
Project/Site: Bonjorni, Wa

TestAmerica Job ID: 580-44882-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-44882-1	BH-14 14'	Solid	08/05/14 08:39	08/08/14 09:15
580-44882-2	BH-15 9'	Solid	08/05/14 09:05	08/08/14 09:15
580-44882-3	BH-16 8'	Solid	08/05/14 09:35	08/08/14 09:15
580-44882-4	BH-17 10'	Solid	08/05/14 10:02	08/08/14 09:15
580-44882-5	BH-17 D 10'	Solid	08/05/14 10:05	08/08/14 09:15
580-44882-6	BH-18 13'	Solid	08/05/14 10:31	08/08/14 09:15
580-44882-7	BH-19 11'	Solid	08/05/14 11:13	08/08/14 09:15
580-44882-8	BH-20 10'	Solid	08/05/14 11:50	08/08/14 09:15
580-44882-9	BH-21 9'	Solid	08/05/14 14:28	08/08/14 09:15
580-44882-10	Trip Blank	Solid	07/29/14 00:00	08/08/14 09:15

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

☐ Rush
☐ Short Hold

Chain of Custody Record

8/20/2014

Client	Client Contact	Date	Chain of Custody Number
Terra Graphics	Mike Procsal	8/5/14	25363
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
3501 W. Elder St.	208-336-7080		
City / **State** / **Zip Code**	**Sampler**	**Lab Contact**	
Boise / ID / 83705	Procsal		
Project Name and Location (State)	**Billing Contact**		
Benjamin WA			
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	NWTPH-Gx	NWTPH-Dx	Lead
BH-14 14'	8/5/14	0839				X	3						1	X	X	X	X
BH-15 9'	8/5/14	0905				X	3						1	X	X	X	X
BH-16 8'	8/5/14	0935				X	3						1	X	X	X	X
BH-17 10'	8/5/14	1002				X	3						1	X	X	X	X
BH-17 D 10'	8/5/14	1005				X	3						1	X	X	X	X
BH-18 13'	8/5/14	1031				X	3						1	X	X	X	X
BH-19 11'	8/5/14	1113				X	3						1	X	X	X	X
BH-20 10'	8/5/14	1150				X	3						1	X	X	X	X
BH-21 9'	8/5/14	1428				X	3						1	X	X	X	X
TRIP BLANK													1		X		

Special Instructions/ Conditions of Receipt

580-44882 Chain of Custody

Cooler/TB Dig/IR cor 5.5 une 5.4
Cooler Dsc Match @ Lab
Wet/Packs Packing Bubble
WICS PO

Page 29 of 30

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

QC Requirements (Specify)

1. Relinquished By Sign/Print	Date	Time	1. Received By Sign/Print	Date	Time
MP / MIKE PROCSAL	8/7/14	1300	Melissa Ames	8/8/2014	915
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

Login Sample Receipt Checklist

Client: TerraGraphics Inc

Job Number: 580-44882-1

Login Number: 44882

List Source: TestAmerica Seattle

List Number: 1

Creator: Ames, Melissa R

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.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
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.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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
988 S. Longmont Ave. Suite 200
Boise, ID 83706

BORING NUMBER BH-14

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
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** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0					FILL, Gravel, Dry	
			PID = 0		1.0 GRAVELLY SILT, SILT, (ML) dark blackish brown, dry, <50% clay	
2.5			PID = 0			
			PID = 0			
			PID = 0		4.0 GRAVEL WITH SILT, CLAY, (GM)	
5.0					5.0 GRAVEL WITH SAND, (GP) dry, some >2" rock	
			PID = 0			
7.5			PID = 0			
			PID = 4.6		▽ Wet at 9'	
10.0					10.0 GRAVEL WITH SAND, (SP) brown, wet	
			PID = 0		rounded gravel lense with alternating grading	
12.5			PID = 4.6		12.5 GRAVEL WITH SILT, SAND, (GP-GM) angular gravel, staining from 11' to 13', hard drilling	
	BH-14 14' 08:39 AM		PID = 60			
			PID = 93.6			
15.0			PID = 3.5		15.0	

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
988 S. Longmont Ave. Suite 200
Boise, ID 83706

BORING NUMBER BH-15

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
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** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0					FILL, Gravel, Dry	
			PID = 0			
1.0					SILTY SAND WITH GRAVEL, (SM) dry, medium stiffness	
			PID = 0			
2.5						
			PID = 0			
4.0					clayey gravel at 4'	
					CLAYEY GRAVEL, (GC) dry	
			PID = 0			
5.0					GRAVEL WITH SILT, (GM) light brown, dry, 70% recovery	
			PID = 0			
7.5					moist at 7'	
			PID = 0.6		POORLY GRADED GRAVEL WITH SAND, (GP)	
9.0	BH-15 9' 09:05 AM				▽	
			PID = 210		GRAVEL WITH SAND, (GM) coarse grained, wet	
10.0						
			PID = 22		POORLY GRADED SAND, (SP) wet	
11.5					GRAVEL WITH SILT, CLAY, (GM) wet	
			PID = 10			
12.5						
					less clay	
			PID = 3			
15.0						

Bottom of borehole at 15.0 feet.

TerraGraphics Environmental Engineering, Inc.
TerraGraphics Env. Engineering
988 S. Longmont Ave. Suite 200
Boise, ID 83706

BORING NUMBER BH-16

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
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** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0					FILL, Gravel, Dry	
			PID = 0		1.0 GRAVEL WITH SAND, (GP)	
2.5			PID = 0		2.5 GRAVELLY SILT, SILT, (ML) dark blackish brown, dry, <50% clay	
			PID = 0		3.5 GRAVEL WITH SILT, CLAY, (GM)	
5.0			PID = 0		5.0 GRAVEL WITH SAND, (GP) dry, some >2" rock	
			PID = 0			
7.5	BH-16 8' 09:35 AM		PID = 0		▽ Wet at 9'	
10.0			PID = 0		10.0 GRAVEL WITH SAND, (SP) brown, wet	
			PID = 0		rounded gravel lense with alternating grading	
12.5			PID = 0		12.5 GRAVEL WITH SILT, SAND, (GP-GM) angular gravel, staining from 11' to 13', hard drilling	
			PID = 0		14.5	

Bottom of borehole at 14.5 feet.

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BORING NUMBER BH-17

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
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** Melody Studer
AT END OF DRILLING ---
NOTES Duplicate Sample Collected
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0			PID = 0		FILL, Gravel, Road Bed, Dry	
			PID = 0			
2.5			PID = 0			
				3.0	CLAY/SILT, (CL-ML) stiff, high plasticity, slow dilatancy	
5.0			PID = 0			
			PID = 0			
				7.0		
7.5			PID = 0		GRAVEL WITH SAND, (GP) some >2" rock	
			PID = 0.4		moist at 9'	
	BH-17 10' 10:02 AM			9.0 ▽	SILTY SAND, (SM) sand poorly graded, wet	
10.0	BH-17D 10' 10:05 AM		PID = 35		wet at 10'	
			PID = 5			
12.5				12.5		

Refusal at 12.5 feet.
Bottom of borehole at 12.5 feet.

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BORING NUMBER BH-18

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 10.00 ft
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0			PID = 0		FILL, Gravel, Road Base, Dry	
			PID = 0			
2.5						
			PID = 0	3.0	GRAVELLY SILT, (ML) brown, moist, medium plasticity	
			PID = 0			
5.0					Clay @ 5'	
			PID = 0	6.0	CLAY/SILT, (CL-ML)	
7.5					Alternating Gravel >2" and Silt/Clay with sand	
			PID = 0			
					Coarse @ 9'	
10.0			PID = 0	10.0 ▽		
					POORLY GRADED SAND WITH GRAVEL, (SP) brown, wet	
			PID = 0			
12.5	bh-18 13' 10:31 AM		PID = 15		Stained @ 13'	
					Dry from 13.5' to 15'	
15.0			PID = 0	15.0		

Bottom of borehole at 15.0 feet.

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BORING NUMBER BH-19

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 10.00 ft
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0					FILL, Gravel, Dry	
			PID = 0			
			PID = 0			
2.5						
				3.0	CLAY/SILT, (ML) moist, stiff, high plasticity, slow dilatancy	
			PID = 0			
			PID = 0			
5.0				5.0	GRAVEL WITH SILT, (GM) moist, 60% recovery	
			PID = 0			
7.5						
			PID = 0			
			PID = 0		Orange sand	
			PID = 0		Wet @ 10'	
10.0				10.0 ▽	SILTY SAND, (SM) wet, loose	
	BH-19 11' 11:13 AM					
				11.5		
			PID = 1.4		GRAVEL WITH SAND, (GP) rounded, wet	
12.5						
			PID = 0.4	13.0		

Bottom of borehole at 13.0 feet.

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BORING NUMBER BH-20

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
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** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0			PID = 0		FILL, Gravel, Dry	
2.5			PID = 0			
			PID = 0			
3.0					GRAVEL WITH SAND, (GP) dry, some >2" rock	
5.0			PID = 0			
					GRAVEL WITH SILT, (GM) light brown, dry	
			PID = 0			
7.5						
			PID = 91		▽ Wet @ 9'	
10.0	BH-20 10' 11:50 AM		PID = 125		Dry @ 10.5'	
			PID = 3			
12.0					Refusal at 12.0 feet. Bottom of borehole at 12.0 feet.	

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BORING NUMBER BH-21

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
GROUND ELEVATION TBD **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
▽ **AT TIME OF DRILLING** 7.00 ft
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0			PID = 0		FILL, Gravel, Sand, Dry	
				1.5		
			PID = 0		GRAVELLY SILT, (ML) dark brown, dry	
2.5			PID = 0			
				3.4		
					GRAVELLY LEAN CLAY, (CL) dry, stiff, high plasticity, slow dilatancy	
				4.4		
5.0			PID = 0	5.0	GRAVEL WITH SAND, (GP) angular, dry	
					GRAVEL WITH SILT, (GM)	
			PID = 0			
7.5			PID = 0		▽ Dry above 7'; Wet @7'	
	BH-21 9' 2:28 PM		PID = 0			
10.0			PID = 0	10.0		
					GRAVEL WITH SAND, (GP) wet	
			PID = 0			
				12.0		
12.5			PID = 0		GRAVEL WITH SILT, (GM) wet	
			PID = 0			
15.0			PID = 0	15.0		

Bottom of borehole at 15.0 feet.

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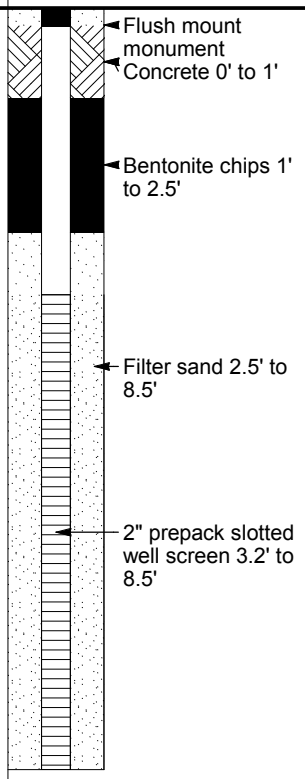
BORING NUMBER MW-1

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
GROUND ELEVATION 1650.84 ft **HOLE SIZE** 2 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
AT TIME OF DRILLING --- Dry; Wet from 5' to 12'
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0						



2.5
5.0
7.5

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BORING NUMBER MW-2

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
GROUND ELEVATION 1653.1 ft **HOLE SIZE** 3/4 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
AT TIME OF DRILLING ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0						Flush mount monument Concrete 0' to 1'
2.5						Bentonite chips 1' to 6.5'
5.0						
7.5						Filter sand 6.5' to 12.5'
10.0						3/4" prepack slotted well screen 7.5' to 12.5'
12.5						

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BORING NUMBER MW-3

CLIENT Hart Crowser / Dept. of Ecology
PROJECT NAME Bonjorni
PROJECT NUMBER 13088
PROJECT LOCATION Ellensburg, WA
DATE STARTED 8/5/14 **COMPLETED** 8/5/14
GROUND ELEVATION 1653.34 ft **HOLE SIZE** 3/4 inches
DRILLING CONTRACTOR Pacific Soil and Water
GROUND WATER LEVELS:
DRILLING METHOD Macro - Core
AT TIME OF DRILLING ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0						Flush mount monument Concrete 0' to 1'
2.5						Bentonite chips 1' to 6.0'
5.0						
7.5						Filter sand 6.0' to 12.0'
10.0						3/4" prepack slotted well screen 7.0' to 12.0'