Cleanup Action Plan for Cleanup Action at 400 East Mountain View Avenue Ellensburg, Washington

Prepared for:

State of Washington Department of Ecology

Toxics Cleanup Program

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On behalf of

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Contents

Figures

Tables

Appendices

Acronyms and Abbreviations

ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
bgs	below ground surface
BTEXN	benzene, toluene, ethylbenzene, total xylenes, and naphthalene
CAP	Cleanup Action Plan
COC	contaminant of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CUL	Cleanup Level
DO	dissolved oxygen
DQO	Data Quality Objective
DRO	diesel range organics
Ecology	Washington State Department of Ecology
EDB	ethylene dibromide
EDC	1,2-dichloroethane
EPH	extractable aliphatic and aromatic petroleum hydrocarbons
Fulcrum	Fulcrum Environmental Consulting, Inc.
GRO	gasoline range organics
hVOC	halogenated volatile organic compounds
IRIS	Integrated Risk Information System
KVFR	Kittitas Valley Fire & Rescue
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MTBE	methyl tertiary-butyl ether
MTCA	Model Toxics Control Act
NGA	Nelson Geotechnical Associates, Inc.
ORP	oxidation/reduction potential
PAH	polycyclic aromatic hydrocarbon
PID	photo-ionization detector
PLSA	PLSA Engineering & Surveying
PPE	personal protective equipment
PVC	poly-vinyl chloride
QA	Quality Assurance
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan

QC	Quality Control
RCW	Revised Code of Washington
RI/FS	Remedial Investigation/Feasibility Study
RPD	relative percent difference
SAP	Sampling Analysis Plan
SEC	specific electrical conductance
SEPA	State Environmental Policy Act
SIM	Selective Ion Monitoring
TerraGraphics	TerraGraphics Environmental Engineering, Inc.
TestAmerica	TestAmerica Laboratories, Inc.
TOC	top of casing
TPH-Dx	Total Petroleum Hydrocarbons-Diesel and Oil Range Organics
TPH-Gx	Total Petroleum Hydrocarbons-Gasoline Range Organics
TSS	total suspended solids
USEPA	US Environmental Protection Agency
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WAC	Washington Administrative Code

Measurements

µg/L	microgram per liter
ft^2	square feet
ft^3	cubic feet
mg/kg	milligram per liter
ppm	parts per million

1 Introduction

This Cleanup Action Plan (CAP) summarizes the existing site contaminant conditions and preferred environmental remedy for the new location of the Kittitas Valley Fire and Rescue Station 2-9 located at 400 East Mountain View Avenue in Ellensburg, Washington, herein referred as the "Site". Fire Chief John Sinclair of the Kittitas Valley Fire District #2 requested this document. The CAP includes the findings of the predevelopment subsurface investigations conducted by Fulcrum Environmental Consulting, Inc. (Fulcrum) in 2012 and TerraGraphics Environmental Engineering, Inc. (TerraGraphics) in 2015. This CAP discusses the previous site investigations, preferred remedial action, the rationale for the selected remedial approach, and the project schedule. TerraGraphics understands that the CAP implementation needs to precede the May 2015 building construction and Kittitas Valley Fire District #2 desires the most expedient and permanent remedy.

2 Summary of Site Conditions

The following sections summarize the site conditions and previous assessment work that was conducted prior to February 2015.

2.1 Locations and Site Description

The Site is located at 400 East Mountain View Avenue in Ellensburg, Washington. Formerly referred to as Mackner's Transport, the Site is undergoing redevelopment plans to become the Kittitas Valley Fire District #2, commonly referred to as the Kittitas Valley Fire & Rescue (KVFR) Station 2-9.

In preparation for redevelopment, the site is currently vacant with no buildings on site and has approved construction plans for KVFR Station 2-9. All former concrete and asphalt have been removed.

2.2 Site History

The Site is located south of the downtown area and borders the east branch of Wilson Creek. Neighboring properties are mostly highway commercial with banks, retail stores, medical offices, and senior housing. The Site consists of five tax parcels and was developed in the 1950s as an agricultural business associated with local hay production. During the first site development, an adjacent off site metal barn was the center of operations. In the late 1950s and early 1960s, the business operations expanded east and north to encompass the Mountain View Brownfield site. This expansion included three pole buildings that were used primarily for covered hay storage. With the construction of a scale house and residential structure, Site business operations expanded to include an independent scale house, truck repair, fueling station, and covered hay storage. The scale house and site operations were reported to be regionally important to hay farmers and other agricultural producers (Fulcrum 2012a). Business operations continued until 2013.

2.3 Summary of Previous Work

The following sections summarize the previous assessment work prior to February 2015.

2.3.1 Predevelopment Site Investigations

In 1991, the State of Washington Department of Ecology (Ecology) completed a site visit. Review of the Ecology site file indicated that three underground storage tanks (USTs), including one gasoline, two diesel fuel tanks and associated dispensers, were present at the Site near the Scale House/Residence (Ecology 1991). In the late 1990s or early 2000s, the tanks were reportedly excavated and removed by a local contractor.

In 2005, a local investor considered acquisition of the site and PLSA Engineering & Surveying (PLSA) completed a limited investigation (PLSA 2005). The limited investigation identified one previously unknown UST associated with the diesel repair shop and reported the presence of petroleum impacted Site soils and groundwater. Investigation methods were not sufficient to conclude if contamination exceeded applicable Model Toxics Control Act (MTCA) (Washington Administration Code [WAC] 173-340) Unrestricted Land Use regulatory thresholds.

In 2012, Fulcrum completed an investigation of Site soil and groundwater. The investigation confirmed the presence of petroleum contaminated soil on site. Additionally, in March 2012, during the first of three groundwater monitoring events, gasoline-range organics (GRO) were identified at one well location (MW-02, see Figure 3) at concentrations above MTCA Method A Groundwater Cleanup Levels (CULs; Table 720-1, WAC 173-340-900). Subsequent groundwater monitoring in April and June 2012--noted in a later Remedial Investigation/Feasibility Study (RI/FS)--identified GRO at concentrations below the cleanup levels (see Section 2.3.3 of this report). Fulcrum's RI/FS documented petroleum impacts to soil and groundwater and stained surface soils. During this investigation, Fulcrum discovered a fourth UST directly north of the former mechanic's shop and the owners had it removed (Fulcrum 2012b).

In 2014, Nelson Geotechnical Associates, Inc. (NGA) completed a geotechnical engineering study. NGA summarized explorations of the surface and subsurface conditions within the Site, and provided geotechnical recommendations for the proposed site development (NGA 2014).

In 2015, TerraGraphics conducted additional soil and groundwater sampling to further characterize the vertical and horizontal extent of contamination in preparation of this CAP and to evaluate the range of remedy alternatives as described in Section 3.0.

2.3.2 Site Soil Conditions

The boring logs from the Fulcrum RI/FS report describe soils consisting of sandy clay and sandy loam to approximately 7 feet below ground surface (bgs). Clayey sandy gravel and sandy gravel extend at deeper depths with groundwater being shallow (less than 5 feet bgs). Wilson Creek is classified as a losing reach stream that influences the groundwater flow toward the west-southwest (Fulcrum 2012b).

NGA explored the onsite subsurface conditions on July 1, 2014, by excavating 13 test pits using a trackhoe to depths ranging from 7.0 to 14.0 feet bgs. The boring logs from these reports describe lithologies consistent with TerraGraphics' soil classifications in this region from nearby

areas. Although there is blue clay in this area that visually resembles petroleum-impacted soils, previous studies conducted by TerraGraphics have shown that it is a laterally continuous, naturally occurring deposit and is not necessarily petroleum-impacted

Groundwater appears to flow toward the southwest with steeper gradient influences along Wilson Creek located on the eastern portion of the property.

2.3.3 Analytical Test Results

The 2012 Fulcrum RI/FS report identified site soil contaminants of concern (COCs) that included petroleum analytes (GRO, diesel-range organics [DRO], and heavy oil-range hydrocarbons). North of the mechanic shop confirmational soil samples, collected by Fulcrum following the UST removal, indicated that the highest remaining levels of GRO (5.05 milligrams per kilogram [mg/kg]), kerosene (35.7 mg/kg), and heavy oil-range hydrocarbons (164 mg/kg) were all well below MTCA Method A Unrestricted CULs: 30mg/kg, 4,000 mg/kg, 2,000 mg/kg, respectively (Table 740-1, WAC 173-340-900). The highest heavy oil detections east of the mechanic shop were 3,370 mg/kg at ground surface. Of the nearby samples, collected between 1 and 6 feet bgs, only heavy oil was detected with a concentration of 118 mg/kg and there were no observations of staining.

Fulcrum's March, April, and June 2012 sampling events showed that only MW-02 (shown in Figure 1) had detectable concentrations of petroleum constituents. DRO had concentrations ranging between 189 and 697 micrograms per liter (µg/L); the groundwater MTCA Method A CUL for DRO is 500 µg/L. The seven other groundwater monitoring wells did not have detections of GRO, benzene, lead, or volatile organic compound (VOC) constituents.

Although Fulcrum's RI/FS report states that they observed stained surficial soils, they did not fully delineate the full horizontal and vertical extent of site COCs with confirmational soil sampling. Therefore, TerraGraphics conducted additional site characterization activities as summarized in Section 3.

3 2015 Supplemental Site Characterization

TerraGraphics conducted soil and groundwater assessment activities on February 11 and 12, 2015, in accordance with the Sampling Analysis Plan (SAP)/Quality Assurance Project Plan (QAPP) for Site characterization at 400 East Mountain View Avenue (TerraGraphics 2015). The purpose of these assessment activities was to further delineate the extent of petroleum impacted soil and groundwater. TerraGraphics used the results to develop this CAP and to evaluate the range of remedy alternatives. The following sections summarize the soil and groundwater assessment activities and results, and Appendix A includes photographs of these field activities.

3.1 Test Pits

3.1.1 Test Pit Methodology

Under TerraGraphics' supervision, TJ's Bulldozing completed 17 test pits at the site (Figure 1) to delineate the areal extent of petroleum impacted soils as a result of a potential release from the gasoline and diesel USTs near the Scale House/Residence. Using a tracked John Deere 590D excavator equipped with a 3-foot wide bucket, TJ's Bulldozing dug the test pits to approximately

8 feet bgs or until they encountered groundwater. Test pitting began in the vicinity of the former USTs and advanced successively outward in a rough grid until the field crew observed un-impacted soils. To determine the presence of petroleum impacts to the subsurface, the TerraGraphics field crew screened the excavated soils using a field portable photo-ionization detector (PID). In addition, the field crew conducted a visual and olfactory assessment as secondary evidence of petroleum impacts. The test pit logs show the PID readings along with visual and olfactory observations (Appendix B).

In accordance with the SAP/QAPP (TerraGraphics 2015), the TerraGraphics field crew collected a total of 13 soil samples (including one duplicate sample) on February 10, 2015, from the test pits based on either the highest PID reading or from near the saturated zone and sent the samples to TestAmerica Laboratories, Inc. (TestAmerica) in Seattle, Washington. TestAmerica analyzed the soil samples (TP-1 7', TP-2 8', TP-3 8', TP-4 7', TP-5 6', TP-6 6', TP-6 6'D, TP-8 5', TP-9 5', TP-10 6', TP-12 8', TP-13 7', and TP-16 7') for the following constituents:

- Benzene, toluene, ethylbenzene, total xylenes, and naphthalene (BTEXN) using US Environmental Protection Agency (USEPA) Method 8260 (USEPA 1996);
- Methyl tert-butyl ether (MTBE) using USPEA Method 8260 (USEPA 1996);
- Ethylene dibromide (EDB) using USEPA Method 8260 (USEPA 1996);
- 1,2-dichloroethane (EDC) using USEPA Method 8260 (USEPA 1996);
- Total Petroleum Hydrocarbons-Gasoline Range Organics (TPH-Gx, a.k.a., GRO) using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997);
- Total Petroleum Hydrocarbons-Diesel and Oil Range Organics (TPH-Dx, a.k.a., DRO), using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997);
- Total recoverable lead using USEPA Method 200.8/6020 (USEPA 1994); and
- Carcinogenic (cPAHs) using USEPA Method 8270 Selective Ion Monitoring (SIM; USEPA 1996).

In addition, TestAmerica also analyzed soil samples TP-4 7' and TP-6 6' for:

- total organic carbon using USEPA Method 9060 (USEPA 2004).

3.1.2 Test Pit Soil Results

Petroleum hydrocarbon concentrations in 4 of the 13 soil samples collected were above one or more of the MTCA Method A Unrestricted CULs. Tables 1 and 2 summarize the detected concentrations (expressed in mg/kg), and the following lists those COCs that are above the CULs:

- TP-5 (6 feet)
  - DRO = 4,100 mg/kg, CUL = 2,000 mg/kg
  - Heavy Oil = 4,182 mg/kg, CUL = 2,000 mg/kg
- TP-6 (6 feet) (below lists the higher of the original and duplicate sample)
  - DRO = 6,500 mg/kg, CUL = 2,000 mg/kg
  - Heavy Oil = 6,620 mg/kg, CUL = 2,000 mg/kg
  - GRO = 700 mg/kg, CUL = 100 mg/kg
- TP-10 (6 feet)
  - GRO = 150 mg/kg, CUL = 100 mg/kg
- TP-16 (7 feet)

- DRO = 3,500 mg/kg, CUL = 2,000 mg/kg
- Heavy Oil = 3,574 mg/kg, CUL = 2,000 mg/kg
- GRO = 440 mg/kg, CUL = 100 mg/kg

Analytical results showed detections of other analytes above the laboratory reporting limits, but not above MTCA Method A Unrestricted Soil CULs (Tables 1 and 2). As noted in the test pit logs (Appendix B), PID readings and staining indicated test pits that exhibited petroleum impacts (primarily DRO). Appendix C includes the complete analytical results

3.2 Trenching

3.2.1 Trenching Methodology

Under TerraGraphics' supervision, TJ's Bulldozing excavated five trenches (A, B, C, D, and E) near the former mechanic shop to delineate the vertical and lateral extent of stained surface soils (Figure 1). The subcontractor excavated the trenches to approximately 3 feet bgs and up to approximately 30 feet in length. In accordance with the SAP/QAPP (TerraGraphics 2015), TerraGraphics' field crew collected two soil samples on February 11, 2015, from the trenches based on the visual and olfactory evidence of heavy oil impacts. PID readings were 0.0 parts per million (ppm) in all trenches. The field crew sent the samples collected from C-C', and E-E' to TestAmerica in Seattle, Washington, who analyzed them for the following:

- BTEXN using USEPA Method 8260 (USEPA 1996);
- MTBE using USPEA Method 8260 (USEPA 1996);
- EDB using USEPA Method 8260 (USEPA 1996);
- EDC using USEPA Method 8260 (USEPA 1996);
- TPH-Gx or GRO using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997);
- TPH-Dx or DRO using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997);
- Total recoverable lead using USEPA Method 200.8/6020 (USEPA 1994);
- Fractionated extractable aliphatic and aromatic petroleum hydrocarbons (EPH) for DRO and heavy fuel oils using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997);
- cPAHs using USEPA Method 8270 SIM (USEPA 1996);
- Total metals (lead, cadmium, chromium, nickel, and zinc) using USEPA Method 200.8/6020 (USEPA 1994); and
- Halogenated volatile organic compounds (hVOCs) using USEPA Method 8260B (USEPA 1996).

3.2.2 Trenching Soil Results

Field screening showed no petroleum impacts in trenches A, B, and E. Soils appeared to be comprised of fill material at the surface with native material as shallow as 6 inches bgs. Trench D showed no petroleum impacts; however, the field crew uncovered several buried items including bottles, metal pipe, cans, and cloth rags. This apparent dump area is approximately 15 square feet (ft^2). Trench C had a heavy oil odor and black staining that extended from the surface to approximately 1.5 feet bgs. The subcontractor excavated this trench further to

delineate the vertical extent of the staining. Based on field observations, the upper 1.5 feet of material bound the contamination, which did not extend into the underlying silts. The apparent heavy oil impacted area is approximately 30 feet wide by 30 feet long and 1.5 feet deep (50 cubic yards). Nevertheless, analytical results showed all detected petroleum constituents were below their respective MTCA Method A Unrestricted as summarized in Tables 1 and 2. Therefore, TerraGraphics recommends no cleanup action in this area.

TestAmerica also analyzed samples for EPH for DRO to establish MTCA Method B CULs. However, since all concentrations were below their respective MTCA Method A Unrestricted CULs, TerraGraphic did not establish MTCA Method B CULs. Table 3 summarizes these results for reference only and Appendix C includes the complete analytical results.

3.3 Baseline Groundwater Monitoring

TerraGraphics collected groundwater samples from the existing groundwater monitoring wells to establish baseline (pre-remediation) groundwater quality as described in the following sections.

3.3.1 Groundwater Sampling Methodology

The TerraGraphics field crew collected groundwater samples from the existing groundwater monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7) to establish baseline (pre-remediation) groundwater quality. Prior to collecting groundwater samples, the field crew purged the wells using a peristaltic pump until water quality parameters stabilized. The field crew measured the following water quality parameters in the field using a flow through cell: temperature, pH, dissolved oxygen (DO), oxidation/reduction potential (ORP), and specific electrical conductance (SEC). The field crew inserted disposable single use ⅜-inch Teflon® lined tubing into the screened interval of the monitoring well. Then, TerraGraphics' field crew collected water samples employing a low-flow peristaltic pump following low-flow/minimal drawdown groundwater sample collection (USEPA 1998). The field crew used new peristaltic tubing to collect water from each monitoring well's screened deployment.

The field crew collected eight groundwater samples (including one duplicate) on February 11 and 12, 2015, in accordance with the SAP/QAPP (TerraGraphics 2015). TerraGraphics sent the samples to TestAmerica in Seattle, Washington, who analyzed them for the following:

- BTEXN using USEPA Method 8260B (USEPA 1996);
- MTBE using USPEA Method 8260B (USEPA 1996);
- EDC using USEPA Method 8260B (USEPA 1996);
- EDB using USEPA Method 8011 (USEPA 1992);
- TPH-Gx or GRO using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997);
- TPH-Dx or DRO using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology 1997);
- Total recoverable lead using USEPA Method 200.8/6020 (USEPA 1994);
- Natural attenuation parameters: manganese using USEPA Method 300.0/9056 (USEPA 2007), sulfate using USEPA Method 200.7/6010 (USEPA 1994a), and alkalinity using USEPA Method 310.1/2320B (USEPA 1978);
- Total suspended solids (TSS) using Standard Method 2540D (SM 1997); and

- Ferrous iron and nitrates using Hach field test procedures, according to the following:
    - Following water quality parameter stabilization, the field crew conducted the ferrous iron test by collecting a small volume of purge water and mixing it with a phenanthroline indicator. The field crew recorded the ferrous iron concentration on the groundwater sampling sheet.
    - The TerraGraphics field crew measured nitrates in the field using a Hach field test: Model NI-12. Following water quality parameter stabilization, the field crew collected a small volume of purge water and mixed it with a NitraVer® 5 Nitrate Reagent Powder. The field crew recorded the nitrate concentration on the groundwater sampling sheet.

3.3.2 Groundwater Sampling Analytical Results

The analytical results showed petroleum constituents in groundwater at very low concentrations and all below their respective MTCA Method A Unrestricted Groundwater CULs. Tables 4 and 5 summarize groundwater results and Appendix C includes the complete analytical results.

3.3.3 Hydrogeology

This area is consistent with the documented local surficial terrace deposits composed of silt, sand, and gravel of diverse composition. In general, site lithology consists of silty sand from 0-2 feet bgs, silts and brown clays from 2-5 feet bgs, and sandy gravels from about 5-8 feet bgs (see Appendix B for trench and test pit logs).

TerraGraphics' field crew measured depth to groundwater within the test pits on February 10 and 11, 2015, between 7 to 8 feet bgs. Field crews encountered moist soil in all the test pits beginning in the silt/clay layer beginning around 2 feet bgs which transitioned to wet soil for the remainder of the test pits' exposed depth.

Field crews measured depth to water in seven existing wells onsite, which ranged from 0.90 feet below TOC in MW-7 to 7.85 feet below TOC in MW-1. TerraGraphics utilized previous reports for TOC elevations (Fulcrum 2012a) to calculate an approximate groundwater gradient. The field crew measured the depth to water in MW-2 at 8.26 feet below the TOC; however, MW-2 is not a flush mount well. TerraGraphics adjusted groundwater elevation at this location by subtracting 3 feet from the depth to water measurement to account for the riser. Wilson Creek, located along the east portion of the property, raises the groundwater elevation around MW-7 due to the ground saturation from the losing stream. Overall, groundwater appears to flow toward the southwest at an average gradient of 0.008 ft/ft. See Figure 2 for a groundwater contour map. Appendix B provides test pit logs with more detailed information on the subsurface conditions. Additionally, Figure 4 provides a sub-surface cross section of the site with noted lithology and groundwater information.

3.4 Data Evaluation

A Stage 2A Data Validation review was conducted on the soil and groundwater data collected at the site. 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 is determined to be of acceptable quality.

4 Nature and Extent of Contamination

4.1.1 Soil

Petroleum hydrocarbon concentrations (DRO, GRO, and heavy oil hydrocarbons) are present at depths ranging from 6 to 7 feet bgs south of the former UST area and 4 of the 13 soil samples collected were above one or more of the MTCA Method A Unrestricted CULs. Analytical results showed other analytes detected above the laboratory reporting limits, but not above MTCA Method A Unrestricted Soil CULs. It appears that groundwater likely further distributed contamination from the former UST area to the south since the saturated zone primarily binds the impacts and groundwater flow direction is toward the southwest.

Tables 1 and 2 summarize the detected soil concentrations (expressed in mg/kg). The test pit logs indicate test pits that exhibited petroleum impacts (primarily diesel) from PID readings and noted visual staining (Appendix B). Appendix C includes the complete analytical results.

4.1.2 Groundwater

Analytical results show petroleum constituent detections in groundwater at very low concentrations; however, all are below their respective MTCA Method A Unrestricted Groundwater CULs (Tables 4 and 5). Although all monitoring wells show groundwater in compliance during this baseline monitoring event, there appears to be a groundwater data gap between wells MW-4 and MW-2. During test pitting, the field crew observed a petroleum sheen on the groundwater and noted a significant petroleum odor. TerraGraphics recommends installing additional groundwater monitoring wells to fill this data gap and to provide a point of compliance for cleanup monitoring. Appendix C includes complete analytical results.

5 Potential Exposure Pathways

The following sections discuss the exposure pathways for the Site that TerraGraphics evaluated and considered in the development of this CAP.

5.1 Soil to Groundwater Pathway

The results of the 2012 Fulcrum and the 2015 TerraGraphics RIs indicate that the Site contains soil concentrations of DRO and GRO exceeding MTCA Method A Unrestricted Soil CULs. Although groundwater is in compliance at all monitoring wells there appears to be groundwater data gap between wells MW-4 and MW-2. During test pitting petroleum sheen was observed on the groundwater and significant petroleum odor was noted. Therefore, TerraGraphics considers the soil to groundwater pathway is complete.

5.2 Soil to Vapor Inhalation Pathway

The results of the 2012 Fulcrum and 2015 TerraGraphics RIs detected no benzene in either soil or groundwater; therefore, it is unlikely that the low levels of other volatile petroleum constituents would pose a volatilization and inhalation risk.. The samples did not find any volatile constituents (e.g., toluene, total xylenes) above MTCA Method A Unrestricted CULs and do not pose a risk. During the 2012 Fulcrum RI, they did not take any indoor air samples while the Site buildings were present. In 2014, the buildings were demolished; therefore, TerraGraphics considers this pathway incomplete.

5.3 Soil Direct Contact Pathway

The 2012 Fulcrum RI noted some staining in the asphalt paved areas. Fulcrum noted that petroleum migrated through the asphalt in only a few areas and was confined to within 1 foot of the ground surface. The 2014 building demolition and asphalt removal and re-grading has disturbed the surface soils to the extant where TerraGraphics could not observe this visual staining in these areas. As a result, the 2015 TerraGraphics RI did not include surface soils samples since they considered any residual contamination insignificant. Therefore, this pathway is currently complete but is not a concern for the planned Site use because the following proposed cleanup actions will either remove or will treat *in-situ* with chemical and biological oxidants the soils exceeding MTCA Method A Unrestricted CULs.

6 Summary of Cleanup Standards

This section discusses the application of MTCA CULs, and contains an overview of the extent of soil contamination identified at the Site during investigation activities.

6.1 Cleanup and Performance Standards

The KVFR Station 2-9 will operate at the Site after remediation activities are complete. The primary requirements of this CAP developed under MTCA are to protect human health and the environment, by following these site-specific cleanup actions:

- Prevent potential receptors (e.g., general public or on-site workers) from contacting or ingesting soil with concentrations of hazardous substances exceeding CULs.
- Prevent or minimize hazardous substances in soil from potentially migrating to groundwater where groundwater is not already impacted.

6.2 Site Cleanup and Remediation Levels

This section discusses the relevant MTCA Methodology for determining cleanup levels.

6.2.1 MTCA Cleanup Level Methods

MTCA provides three methods for determining cleanup levels. The following briefly describes the three methods.

Method A applies to sites undergoing routine interim cleanup actions or to sites where numerical standards are available for all hazardous substances in all media of concern. MTCA tables provide predetermined CULs for approximately 25 chemicals. These cleanup levels are easy to use, but are also often extremely conservative. MTCA developed Method A CULs for both residential (unrestricted) site and industrial site exposure scenarios.

Method B is the standard approach applicable to all sites. MTCA determines CULs according to equations provided in the regulation and by using the most current toxicity data available on the USEPA Integrated Risk Information System (IRIS) database. MTCA has calculated the CULs for soil assuming accidental ingestion of contaminated soil by a young child; this represents an overly conservative scenario for an industrial site.

Method C applies in cases where land use meets certain criteria and can be classified as industrial, in other special cases where Method A or B CULs are below area background concentrations, or in cases where Method A or B CULs are not technically possible to achieve. As with Method B, MTCA calculated CULs by using equations provided in the regulation and by using the most current toxicity data available on USEPA's IRIS database. The equations use less conservative assumptions and in some cases allow higher risk levels that Method B. When one uses Method C CULs, it generally requires one to use institutional controls (e.g., site fence, deed restrictions).

6.2.2 Site-Specific Cleanup Levels

Based on the 2012 Fulcrum and the 2015 TerraGraphics RIs, TerraGraphics determined that DRO, GRO, and heavy oil are the site-specific COCs and will use MTCA Method A Unrestricted CULs shown below.

Soil

DRO is 2,000 mg/kg.

GRO (without benzene present) is 100 mg/kg.

Heavy Oil is 2,000 mg/kg.

Groundwater

DRO is 500 µg/L.

GRO (without benzene present) is 1,000 µg/L.

Heavy Oil is 500 µg/L.

6.2.3 Remediation Areas

The goal is to remove soil that is impacted where COCs are above applicable CULs to the maximum extent possible. Based on a review of laboratory results associated with the investigation activities, the following areas will require remediation.

1. COCs occur in ground water and soils at a depth of 6-7 feet bgs in a roughly rectangular area within the northwest corner at the location of TP-1 and extending into the northeast corner at TP-5. The area then extends in a south-southeasterly direction for approximately 152 feet (see Figure 3). TerraGraphics estimates this area to be 7,200 ft^2 with a volume of 1,600 cubic Yards (Yd^3) (see Figure 5). Test pit observations indicate

and estimated 273 Yd^3 of impacted soil may also occur in the immediate area of the former UTS's at depths ranging from 3-6 bgs (see Figure 4). TerraGraphics will determine the actual quantity of soil to be removed from this area based on compliance monitoring during the source removal.

2. To bring the building site level with the street elevation of Mountain View Avenue, TerraGraphics estimates the building construction will place 4 vertical feet of structural fill above existing ground surface.

7 Summary of Selected Cleanup Action

Figure 3 shows the approximate areas of the Site where COCs in soil exceed CULS. TerraGraphics evaluated alternatives for Site soil cleanup with respect to criteria that determines if the cleanup action is permanent to the maximum extent practicable. The sections below describe the selected cleanup action:

- It is protective of human health and the environment.
- It is compliant with the cleanup standards defined in WAC 173-340-700 through -760.
- It is a permanent solution.
- It is attainable in a reasonable restoration time frame
- It is in accordance with the development goals for the Site.

7.1 Selected Cleanup Action

The selected cleanup action for soils where concentrations exceed the CULs includes:

- Excavating and stockpiling the source area soil from locations described in Section 7.2.
- Segregating non-contaminated overburden soils and contaminated source area soils.
- Removing and disposing soils where COC concentrations exceed MTCA Method A Unrestricted CULs.
- Installing a perforated pipe infiltration gallery within the groundwater saturation zone under the future building footprint for supplemental *in-situ* chemical and biological treatment of saturated soils and groundwater.
- Treating remaining impacted soils with chemical and biological treatments to reduce the potential of COCs in groundwater increasing above MCTA Method A CULs.
- Capping with asphalt and concrete in areas where contaminated material is not removed from the Site.
- Initiating monitored attenuation of groundwater.

7.2 CAP Implementations

This section presents the conceptual design, assumptions, and construction specifications for a successful cleanup action at the future KVFR Station 2-9 in Ellensburg, Washington.

7.2.1 Applicable or Relevant and Appropriate Requirements (ARARs)

The selected cleanup action plan will comply with federal, state, and local ARARs. Applicable requirements are federal and state laws or regulations that legally apply to a hazardous substance,

a cleanup action, a location, or another circumstances at the property. Relevant and appropriate requirements are those federal and state regulations that do not legally apply but address situations sufficiently similar that they may warrant application to the cleanup action.

TerraGraphics identified the following ARARs for the Site:

- **MTCA 70.105D Revised Code of Washington (RCW), Chapter 173-340 WAC.**

  MTCA contains detailed requirements and Washington State's expectations for cleanup of contaminated sites.

- **State Environmental Policy Act (SEPA) Statute RCW 43.21, SEPA Rules Chapter 197-11 WAC.**

  An environmental checklist is necessary as part of any permitting activity. Independent Cleanup Actions where Ecology is not the lead agency are subject to the normal SEPA process.

- **Minimum Standards for Construction and Maintenance of Wells (Chapter 173-160 WAC).**

  This regulation contains requirements for construction and abandonment of resource protection wells (i.e., monitoring wells).

- **Underground Injection Control Program (Chapter 173-218 WAC)**

  This includes rules and requirements for conducting *in-situ* remediation using subsurface injection of amendments.

7.2.2 Permits

TerraGraphics does not expect that Ecology and USEPA will require remediation-specific permits other than those required for Site development, underground injection, monitoring well installation, and groundwater discharge. TerraGraphics will perform the Site cleanup action as an independent remedial action under the Voluntary Cleanup Program (VCP) administered by Ecology's Toxics Cleanup Program.

7.3 Cleanup Construction

Figure 6 shows the Site areas that exceed the cleanup and remediation levels. The following sections present an overview of the sequencing and events associated with remedial activities conducted before and during construction.

7.3.1 Site Preparation and Safety

- Construct temporary erosion and sediment control measures as necessary.
- Prepare a temporary soil stockpile and segregation area that will contain contaminated soil and protect the general public from contact.
- Prepare an equipment staging area, decontamination station for workers, residual storage area, and Site ingress and egress locations.
- Delineate health and safety-regulated areas (i.e., exclusion zone, contamination reduction zone, and support zone).

7.3.2 Soil Excavation, Segregation, and Stockpiling

7.3.2.1 Soils Segregation

The subcontractor, with TerraGraphics' oversight, will remove non-contaminated overburden from the trench installation area and place it on either side of the excavation (eastern and western sides). The subcontractor will place contaminated soil on a lined stockpile area for subsequent disposal

7.3.2.2 Non-contaminated over burden

With TerraGraphics' oversight, a subcontractor will remove approximately 1,161 cubic yards of non-contaminated overburden soils to a depth of 4 feet bgs. to expose the contaminated layer, to facilitate trenching and the installation the infiltration gallery, and to ease the lance injection of chemical and biological oxidants to the source area saturated zone. The subcontractor will stockpile the soils adjacent to the excavation area as illustrated in Figure 7.

7.3.2.3 Contaminated soils

With TerraGraphics' oversight, a subcontractor will excavate the soil with documented COCs from the trench locations (see Figure 8). The subcontractor will place the contaminated soil from the excavations in a temporary lined stockpile that the subcontractor will cover and secure at the end of work each day (see Figure 8 and 9). TerraGraphics will collect soil samples from the stockpile for disposal certification requirements per Yakima County Health Department.

TerraGraphics will notify KVFR immediately and suspend excavation activities if the subcontractor encounters USTs, buried drums or other containers, unusual soil or other debris, or other unanticipated environmentally sensitive materials during site work. This is to protect site workers and to minimize potential for increased environmental risk.

7.3.2.4 Temporary Stockpile Liner

The subcontractor will construct the temporary stockpile liner using sturdy plastic sheeting that is approved by the construction engineer. The subcontractor will construct the liner so that the it will contain storm water that may infiltrate through the stockpile but will also minimize run-on water. At the end of each work day, the subcontractor will cover the stockpile with sturdy plastic sheeting and secure the cover to minimize the stockpile's potential exposure to the public. The owner and contractor will agree upon the location of the stockpile.

7.3.3 Removal and Disposal of Soils Where COC Concentrations Exceed MTCA Method A Unrestricted CULs

The subcontractor must properly dispose all removed Site soil with COC concentrations in accordance with applicable local, state, and federal laws. A waste manifest must accompany each disposal load. The soil dump trucks must cover the load during transport to the disposal facility.

7.3.4 Infiltration Gallery

The TerraGraphics will install an infiltration gallery within the groundwater saturation zone under the building footprint for chemical and biological treatment of saturated soils and groundwater should this option become necessary in the future. The infiltration gallery will

consist of 5 trenches running in 20-foot parallel spacing's and 2 feet below the overburden excavation (a total of 6 feet bgs). The subcontractor will place ¾-inch diameter pre-pack perforated well piping in the length of each trench and surround it with 1 foot of drain rock. Each run of piping will connect to a ¾-inch diameter poly-vinyl chloride (PVC) feed pipe in the center of its length. The chemical and biological treatment feed piping will run north and outside of the excavation area with a monumented well opening at a location determined by the owner.

7.3.5 Bioremediation

Chemical and biological treatment of remaining impacted soils to reduce the potential of COCs in groundwater increasing above MCTA Method A CULs.

7.3.6 Oxidative Bioremediation Overview

There are several commercially available biological oxidants that are designed to enhance the natural attenuation of petroleum. The mechanism of biological oxidation determines which microbes can degrade the contaminant and through which pathways. Most broadly, these mechanisms are divided into aerobic and anaerobic. Aerobic mechanisms ultimately place electrons on to molecular oxygen to make carbon dioxide. Anaerobic mechanisms ultimately place electrons on to other oxidants except for molecular oxygen.

The selected CAP alternative (chemical and biological oxidation) includes in situ injection of chemical oxidants for the direct destruction of petroleum hydrocarbons and subsequent enhanced biological oxidation polishing.

Ion-exchange oxidants were selected as the chemical to be used at the Site, and NovIO X™ has been selected as the preferred ion-exchange oxidant based on our experience with the product. Ion-exchange was selected based on implementability, cost, and proximity of Wilson Creek

Ion-exchange oxidants were selected as the chemical to be used at the Site, and NovIO X™ has been selected as the preferred ion-exchange oxidant.

Two distinct amendment solutions will be prepared. A chemical oxidant solution will be comprised of NovIO Xconcentrate diluted with tap water to a working solution of 1:150 in tap water, based on manufacturer's recommendation. A biological oxidant solution will be comprised of AnoxEA-aq, AM3, and ReleaSE-Dx. The biological oxidant solution will be prepared in 50-gallon batches comprised of up to 50 pounds of AnoxEA-aq, 25 grams of AM3, and 0.5 liter of ReleaSE-Dx in tap water

The excavation area within the building footprint will leave approximately one to two feet of native, fine-grained soil above the coarser gravel and cobbles encountered during the test injections. While this soil is exposed, the chemical oxidant NovIOX will be lance injected into the zone of contamination. To the extent practicable, the lance will be advanced into the gravel and a 1:150 solution of NovIOX in tap water will be introduced at the rate of approximately 10 gallons per point, totaling approximately 2,000 gallons of solution or 13.3 gallons of NovIOX product. For estimating purposes, it has been assumed that the treatment area will be approximately 80 feet by 80 feet. Using 6-foot spacing, approximately 200 injection locations

are estimated to cover the impacted area. Because NovIOX causes a visible chemical reaction upon contact with weathered petroleum, TerraGraphics may approve modifying the final treatment area based on this evidence. .

The biological oxidant solution will be applied via slug injection into the infiltration gallery at a later date.The biological solution can be introduced approximately 7 or more days following the initial NovIOX treatment. The biological oxidant solution can be prepared in 50-gallon batches comprised of between 50 and 100 pounds of AnoxEA AQ, 30 grams of AM3-S, and 0.5 liter of ReleaSE-Dx in tap water. This solution can then be transferred by pump into the infiltration gallery periodically based on groundwater results. The initial slug injection include at least 2,000 pounds of biological oxidant solution at the 2 pounds of AnoxEA AQ per gallon ratio, plus AM3-S and ReleaSE-Dx based on investigation data and NovIOX pre-treatment. If needed subsequent slug injections can excluded the AM3-S product.

7.4 Engineering and Institutional Controls

TerraGraphics will contain and manage the undisturbed soils below the groundwater saturation zone with COC concentrations exceeding MTCA Method A CULs remaining on the Site by capping the area with asphalt, concrete paving, or building structures in accordance with the KVFR development plan. The Owner will file a deed restriction and develop a post-construction soil management plan that will describe how to maintain the cap or repair the cap if disturbed.

7.5 Groundwater Management (contingency plan)

Cleanup excavation and other building construction activities have the potential to bring contaminated groundwater to the ground surface. Such groundwater may require special management to minimize human and environmental exposure COCs. The field crew will store groundwater in large on-site storage tanks (such as Baker tanks) and allowed to settle following generation. TerraGraphics will collect samples from the settled groundwater for analysis of parameters specified by the City of Ellensburg Wastewater Treatment Plant. TerraGraphics will provide the results of the analysis to the Wastewater Treatment Plant personnel. If the water is clean, TerraGraphics' field crew will use the water for alternative purposes with permission from the owner such as dust suppression during site grading. However, if the water is contaminated, TerraGraphics will obtain a discharge permit, treat the water by granular activated carbon or filter it, and discharge the water to the City of Ellensburg municipal sewer system at the direction of the City. Appropriately trained personnel will remove the saturated sediment that accumulates in the large storage tanks and mix it into the dry stockpile for off-site disposal to the approved landfill.

7.6 Demonstration of Compliance with Cleanup Requirements

7.6.1 Compliance Monitoring

TerraGraphics will demonstrate compliance with soil MTCA Method A CULs by sampling and testing soil samples from the excavation sidewalls. The field crew will collect soil samples from the excavation area on a regular, non-biased 50-foot by 50-foot grid pattern in areas where they

suspect all impacted soil to remain. The field crew will collect excavation sidewall samples at the frequency of 1 sample per 100 linear feet of sidewall. TerraGraphics will submit the soil samples to TestAmerica with a rush 24- or 48-hour turnaround time. TerraGraphics will evaluate the results of the confirmation soil sampling using a statistical data evaluation method such as MTCA-Stat or other equivalent method.

TerraGraphics will also install a groundwater compliance monitoring well at the southern edge of the building footprint since this is the nearest accessible location once KVFR constructs the building. However, Ecology and KVFR will determine the actual location.

7.6.2 Soil Excavation/Soil Sampling and testing

For characterization purposes, TerraGraphics' field crew will collect composite soil samples from the soil stockpiles before removing it from the Site for disposal. TerraGraphics will submit these soil samples to TestAmerica with a rush 24-hour turnaround time. TestAmerica will analyze soil samples being disposed at the approved landfill for DRO and GRO and heavy oil as these constituents are the only COCs detected above MCTA Method A CULs. For all other soils, TestAmerica will analyze them for all COCs.

TerraGraphics' field crew will collect the composite soil samples from the soil stockpiles based on the following:

Cubic Yards of Soil	Minimum Number of Samples
0-100	3
101-500	5
501-1,000	7

7.6.3 Laboratory Quality Assurance and Quality Control

The laboratory quality control (QC) requirements will follow the guidance outlined in the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Data Review* (USEPA: OSRTI 2008) and the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA: OSRTI 2010). The laboratory analytical report will include QC measures such as appropriate surrogates, duplicates, laboratory control samples/duplicates (LCS/LCSDs), matrix spikes and duplicates (MS/MSDs), method blanks, and also include reporting limits, holding times, dilutions, etc. as outlined in the guidance document (Table 6).

Table 1. **Laboratory Quality Control Checks**

Quality Control Check	Frequency
Surrogates	Each organic sample prior to analysis
MS/MSD	1:20 samples
LCS/LCSD	1:20 samples
Method Blank	1:20 samples (for every analytical batch)
Laboratory Duplicate	1:20 samples

7.7 Institutional Controls

7.7.1 Restrictive Covenants for Soil and Groundwater

If COCs exceeding MTCA Method A and Method B CULs remain on Site beneath paved parking lots and building structures, KVFR will implement institutional controls at the Site with a restrictive covenant in the deed, which informs potential future property users or purchasers of the presence of contamination beneath the Site and prohibits domestic use of groundwater at the Site.

7.7.2 Post Construction Soil Management Plan

If a restrictive covenant for soil is necessary, KVFR will develop a plan that specifies procedures to 1) inspect and maintain the cover (cap) over the contaminated soil, 2) notify and protect utility and other workers that might encounter contaminated soil beneath the cap, and 3) repair the cap if breached.

8 Rationale for Selection of the Cleanup Plan

The following summarizes the selected cleanup actions for the Site soil and groundwater in general accordance with WAC-173-340-360.

8.1 Protection of Human Health and the Environment

The preferred remedial action for soil and groundwater is protective of human health and the environment because it will remove and dispose the soil with COCs exceeding the cleanup levels from the Site to an appropriate landfill, and it will treat the remaining contaminated soil with chemical and biological oxidants and contain them beneath a protective cap.

8.2 Attainment of Standards

TerraGraphics expects the planned remedial actions, excavation and disposal of soils with COCs exceeding MTCA Method A CULs, chemical and biological oxidant treatment of remaining soils

impacting groundwater, and placement protective cap and institutional controls will result in a permanent elimination of risks related to direct exposure to COCs in soil and groundwater.

8.3 Use of Permanent Solutions to the Maximum Extent Practicable

Physical removal coupled with chemical and biological oxidation is a preferred technology because it permanently eliminates risk from the highest concentration source soils, converts petroleum to carbon dioxide and water as end products, and precipitates heavy metals to insoluble sulfides to reduce dissolved lead and arsenic concentrations. The preferred remedy is protective of human health and the environment, can be effectively implemented, and is cost-effective. It is the most practicable alternative for addressing the primary exposure pathways of concern.

8.4 Compliance Monitoring

During implementation of remedial actions, TerraGraphics will conduct performance monitoring to confirm that treatment compounds remain within the plume boundary, which is an underground injection control (UIC) well requirement, and that cleanup actions have attained cleanup levels and treatment goals. After TerraGraphics completes the remedial actions and injected all both of the amendments, they will conduct confirmation soil and groundwater monitoring to ensure that cleanup actions have attained cleanup levels and performance standards.

9 Schedule

TerraGraphics anticipates remediation activities will occur in April 2015and and will last approximately 2 weeks. KVFR anticipates Site development will commence in early May 2015. Final paving of the asphalt and concrete cap will occur later in the project, depending on the KFVR Station construction schedule.

10 Public Notice and Public Comment

Public notice and comment are not required as KVFR is completing remedial activities as an independent remedial action.

11 Residuals Management

TerraGraphics expects the remedial activities will generate the following residuals:

- Decontaminated wash and rinse water for personnel.
- Decontaminated wash and rinse water for heavy equipment.
- Used personal protective equipment (PPE), such as Tyvek™, gloves, and respirator cartridges.
- Non-contaminated solid waste such as plastic bags, rope, and sheeting.

TerraGraphics will store residuals in a designated, labeled, and secured area within the Site to prevent access by unauthorized personnel. The field crew will drum and temporarily store wastewater on site. TerraGraphics personnel will sample the wastewater to determine proper disposal. The field crew will place used PPE and non-contaminated solid waste residuals in the on-site dumpster, which a licensed solid waste disposal company will dispose.

12 Health and Safety Considerations

12.1 Site Safety Plan

TerraGraphics will keep a copy of the Site Safety Plan on site and will make it available to authorized visitors to the Site for general information. The sub-contractors must maintain their own Site Safety Plan. TerraGraphics advises that site personnel are required to have 40 hours of training for hazardous waste operations to work on the contaminated site.

12.2 Protection Monitoring During Remedial Activities

TerraGraphics will monitor the excavation activities and the soil movement to and from stockpiles.

12.3 Construction Procedures Pertinent to Health and Safety

TerraGraphics will employ the following measures to assure that remedial activities conform to site health and safety requirements:

- Site workers will have training for hazardous waste operations consistent with the Washington State Industrial Safety and Health Act (WSISHA), WAC 296-62 300.
- TerraGraphics will maintain copies of the Site Safety Plan on the Site at all times during remedial activities.
- Site personnel will conduct a detailed pre-construction meeting.
- Brief tailgate safety meeting will take place before the start of work each day.
- The TerraGraphics field operations manager will prepare daily field logs that document Site safety meetings and events.

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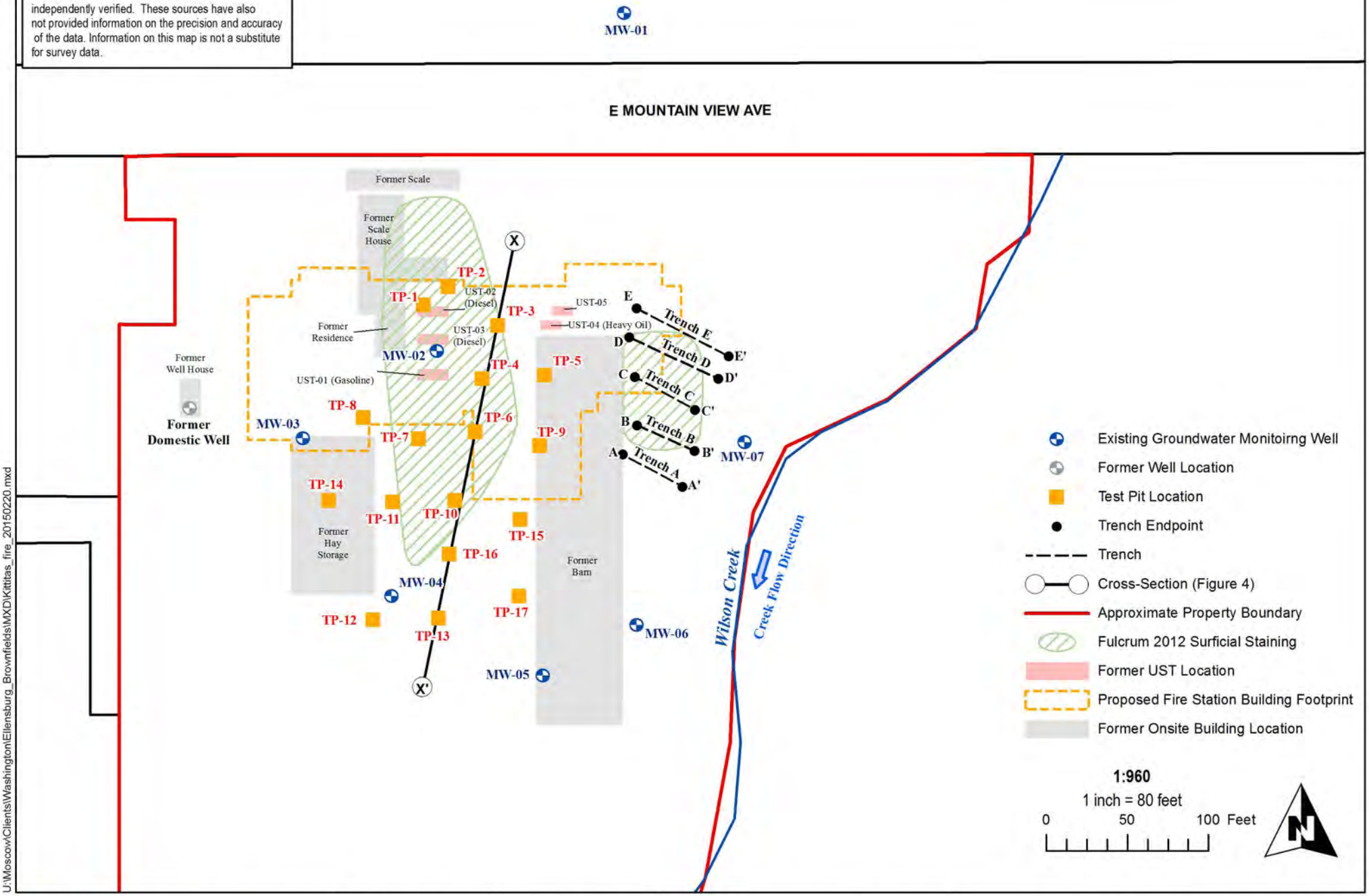
This map was produced using information obtained from several different sources that have not been independently verified. These sources have also not provided information on the precision and accuracy of the data. Information on this map is not a substitute for survey data.



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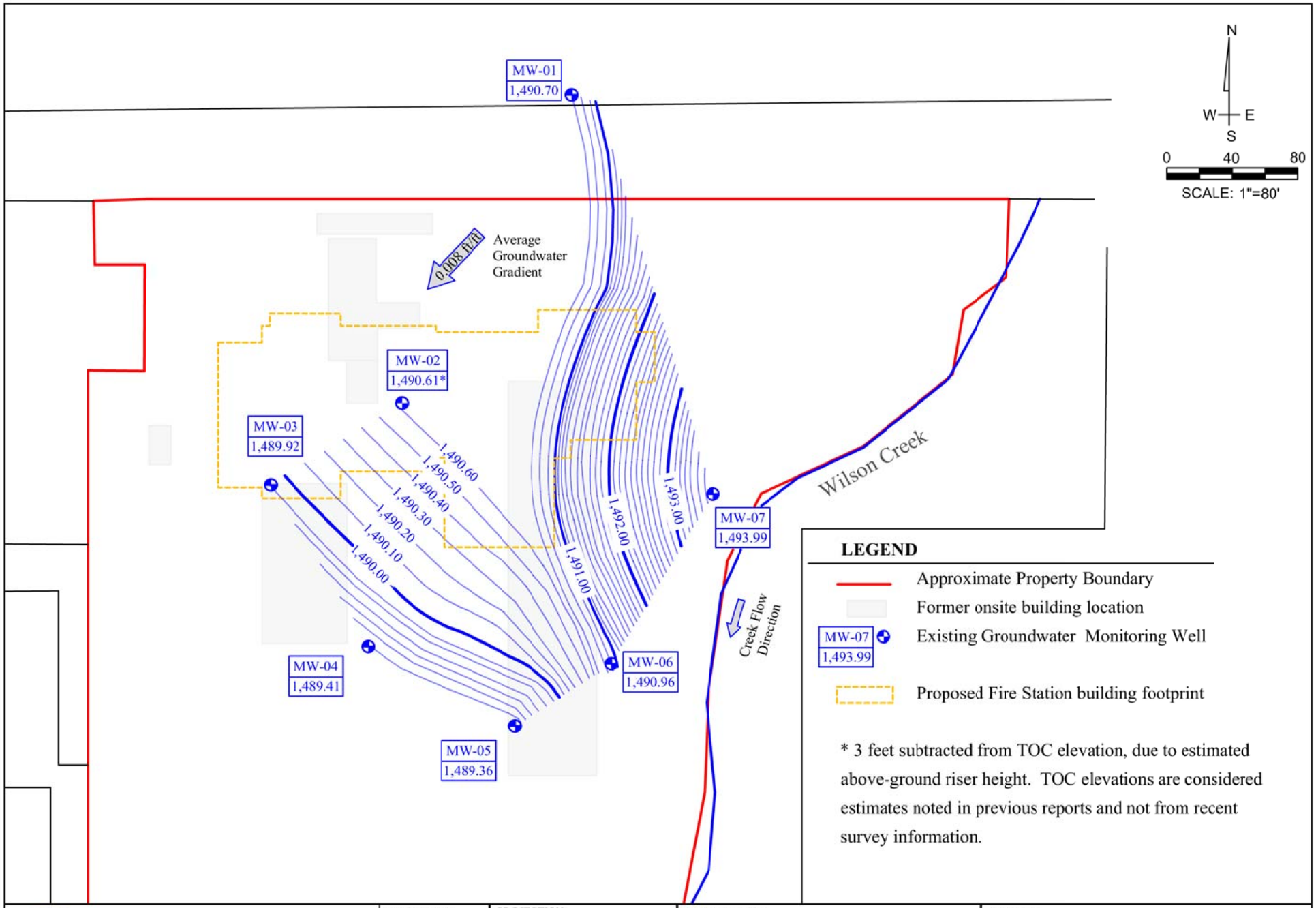
TerraGraphics Environmental Engineering, Inc. www.TerraGraphics.com	Print Date: February 23, 2015 Project Number: 15006	Requestor: M. Studer Project Manager: J. Means Cartographer: B. Bailey	Project Name: Kittitas Valley Fire & Rescue 400 East Mountain View Avenue Ellensburg, WA 98926	Figure 1 **Site Layout with Actual Sample Locations**



TerraGraphics Environmental Engineering, Inc. www.TerraGraphics.com	PRINT DATE: February 27, 2015 PROJECT NUMBER: 15006	PROJECTION: UTM NAD 83, Zone 10N PROJECT MANAGER: J. Means CARTOGRAPHER: M. Studer	PROJECT NAME: Kittitas Valley Fire & Rescue 400 East Mountain View Avenue Ellensburg, WA 98926	FIGURE 2 Groundwater Contour Map February 2015

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.

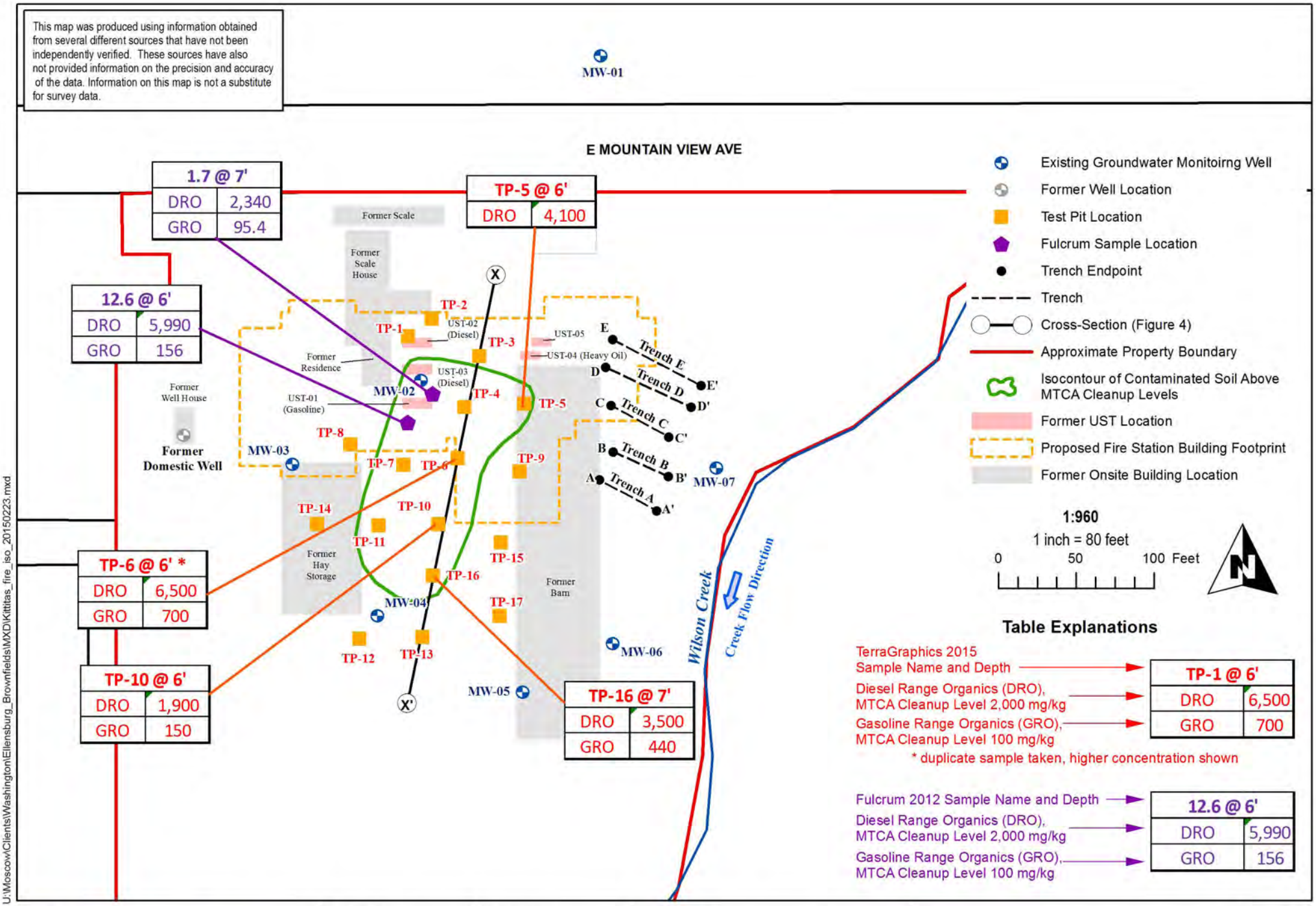


Table Explanations

TerraGraphics 2015 Sample Name and Depth → **TP-1 @ 6'**

Diesel Range Organics (DRO), MTCA Cleanup Level 2,000 mg/kg → DRO 6,500

Gasoline Range Organics (GRO), MTCA Cleanup Level 100 mg/kg → GRO 700

* duplicate sample taken, higher concentration shown

Fulcrum 2012 Sample Name and Depth → **12.6 @ 6'**

Diesel Range Organics (DRO), MTCA Cleanup Level 2,000 mg/kg → DRO 5,990

Gasoline Range Organics (GRO), MTCA Cleanup Level 100 mg/kg → GRO 156

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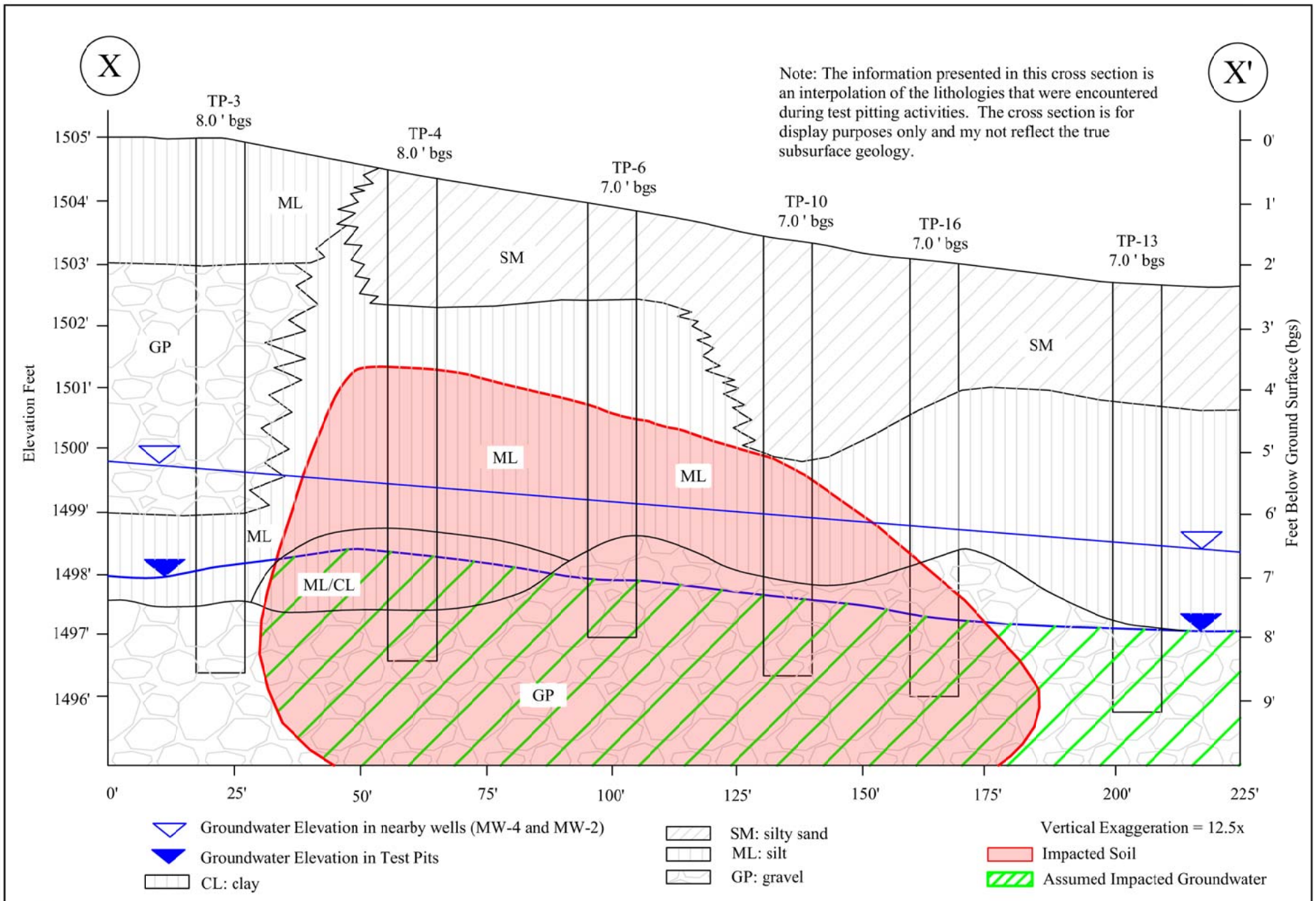
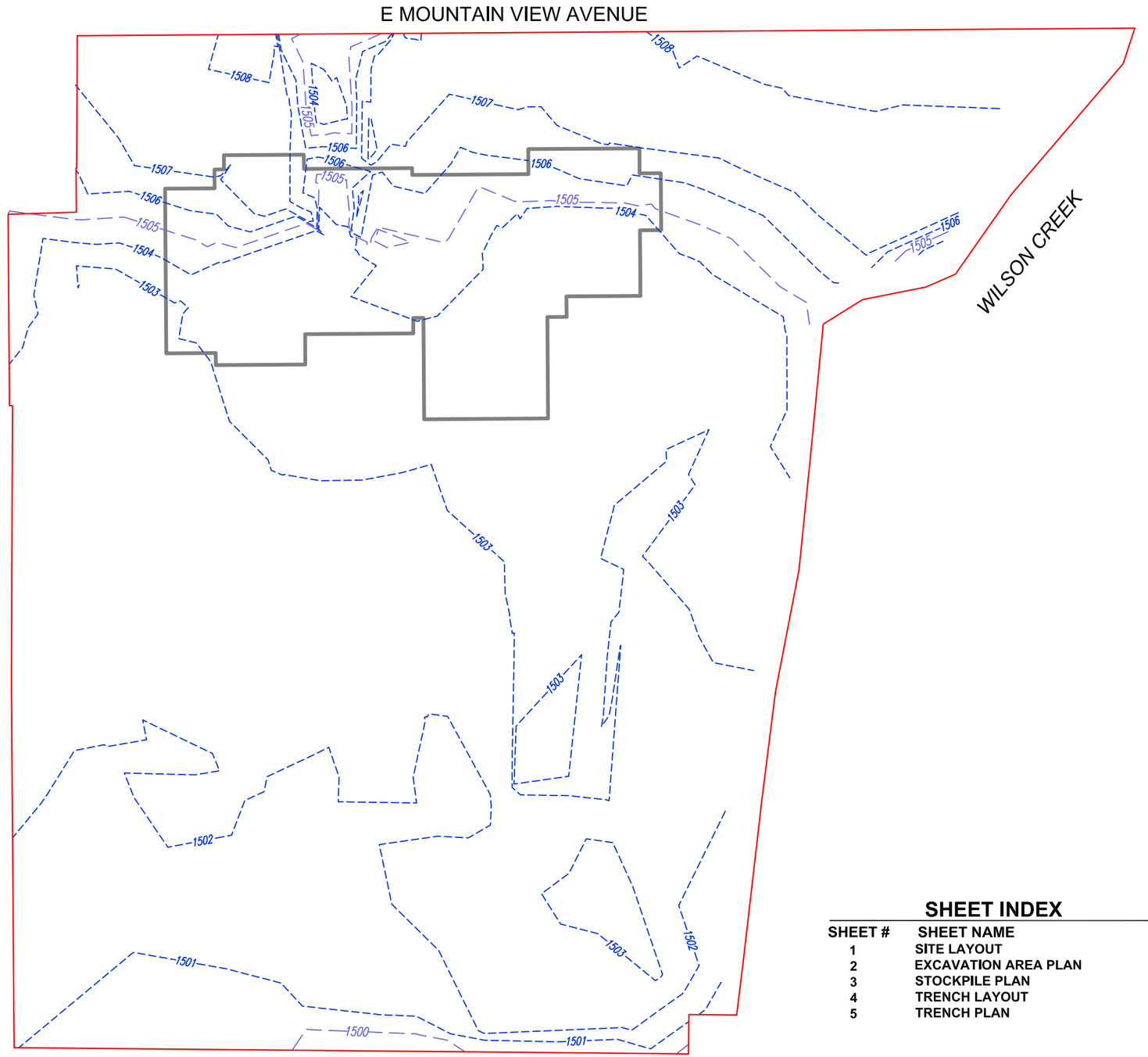
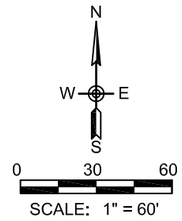
TerraGraphics Environmental Engineering, Inc. www.TerraGraphics.com	Print Date: February 26, 2015 Project Number: 15006	Requestor: M. Studer Project Manager: J. Means Cartographer: B. Bailey	Project Name: Kittitas Valley Fire & Rescue 400 East Mountain View Avenue Ellensburg, WA 98926	Figure 3 **Isocontour of Site Contamination Above MTCA Cleanup Levels**



TerraGraphics Environmental Engineering, Inc. www.TerraGraphics.com	PRINT DATE: February 23, 2015 PROJECT NUMBER: 15006	PROJECTION: UTM NAD 83, Zone 10N PROJECT MANAGER: J. Means CARTOGRAPHER: M. Studer	PROJECT NAME: Kittitas Valley Fire & Rescue 400 East Mountain View Avenue Ellensburg, WA 98926	FIGURE 4 X-X' Cross Section North South Trend

NOTES
1.TOPOGRAPHY AND BUILDING OUTLINE INFORMATION WAS OBTAINED FROM COUGHLIN PORTER LUNDEEN.
3. HORIZONTAL EXCAVATION EXTENTS ARE APPROXIMATE AND WILL BE FIELD VERIFIED BY THE ON-SITE ENVIRONMENTAL CONSULTANT.
4. VERTICAL EXCAVATION EXTENTS ARE NOT SHOWN ON THIS MAP AND WILL BE FIELD DIRECTED BY THE ON-SITE ENVIRONMENTAL CONSULTANT BASED UPON THE FIELD SAMPLE RESULTS.
5. NO OFFSITE MATERIAL TRACKING IS ALLOWED. CONTRACTOR SHOULD MAINTAIN STABILIZED CONSTRUCTION EXIT AND SILT FENCE.
5. CLEAN FILL MATERIALS CAN BE STOCK PILED ON SITE BUT MUST BE STAGED OUTSIDE OF THE EXCAVATED AREA UNTIL ALL CONTAMINATED MATERIALS ARE REMOVED.
6. THE INFORMATION PRESENTED IN THIS SET OF DRAWINGS HAS BEEN DEVELOPED FOR REMEDIATION ACTIVITIES ONLY. ALTHOUGH SPECIFICATIONS ARE PROVIDED FOR BACKFILL MATERIALS AND COMPACTION, THE WORK BEING CONDUCTED FOR THESE REMEDIATION ACTIVITIES DO NOT REPLACE OR SUPPLEMENT IN ANY WAY PROPOSED CONSTRUCTION ACTIVITIES AND/OR FOUNDATION DESIGN REQUIREMENT FOR THE KITTITAS VALLEY FIRE STATION





SHEET INDEX

SHEET #	SHEET NAME	SHEET INDEX
1	SITE LAYOUT	T-1
2	EXCAVATION AREA PLAN	C-1
3	STOCKPILE PLAN	C-2
4	TRENCH LAYOUT	C-3
5	TRENCH PLAN	C-4

NO.	DATE	REVISIONS	BY	CHK
A	XX/XX/XX	XXXX	XX	XX

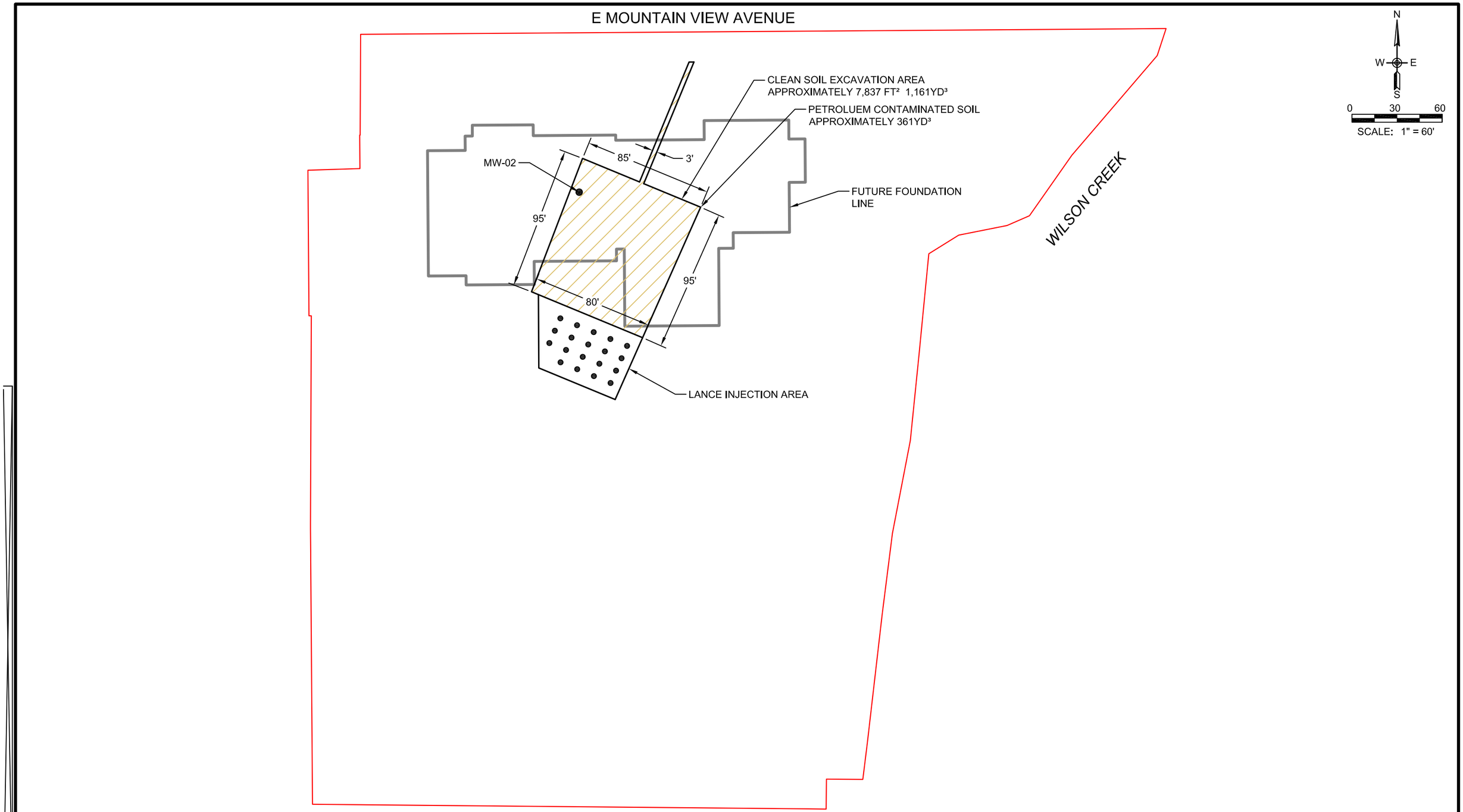
DRAWN BY: ERR
PROJECT MANAGER: MP
CHECKED: X.XXXX
DATE: XX/XX/XXXX
COORDINATE SYSTEM: ISP, NAD 83, US FT, WEST
SCALE: 1" = 60'
APPROVED: X.XXXX
DATE: XX/XX/XXXX

TerraGraphics Environmental Engineering, Inc.

KITTITAS VALLEY FIRE AND RESCUE CLEANUP ACTION
400 E MOUNTAIN VIEW AVENUE ELLENSBURG, WA

FIGURE 5
SITE LAYOUT

SHEET NAME: T-1
DATE: 3/19/2015
PROJECT NO.: 15006
SHEET: 1 OF 5



NO.	DATE	REVISIONS	BY	CHK
A	XX/XX/XX	XXXX	XX	XX

DRAWN BY: ERR
PROJECT MANAGER: MP
CHECKED: X.XXXX
DATE: XX/XX/XXXX

COORDINATE SYSTEM: ISP, NAD 83, US FT, WEST
SCALE: 1" = 60'
APPROVED: X.XXXX
DATE: XX/XX/XXXX

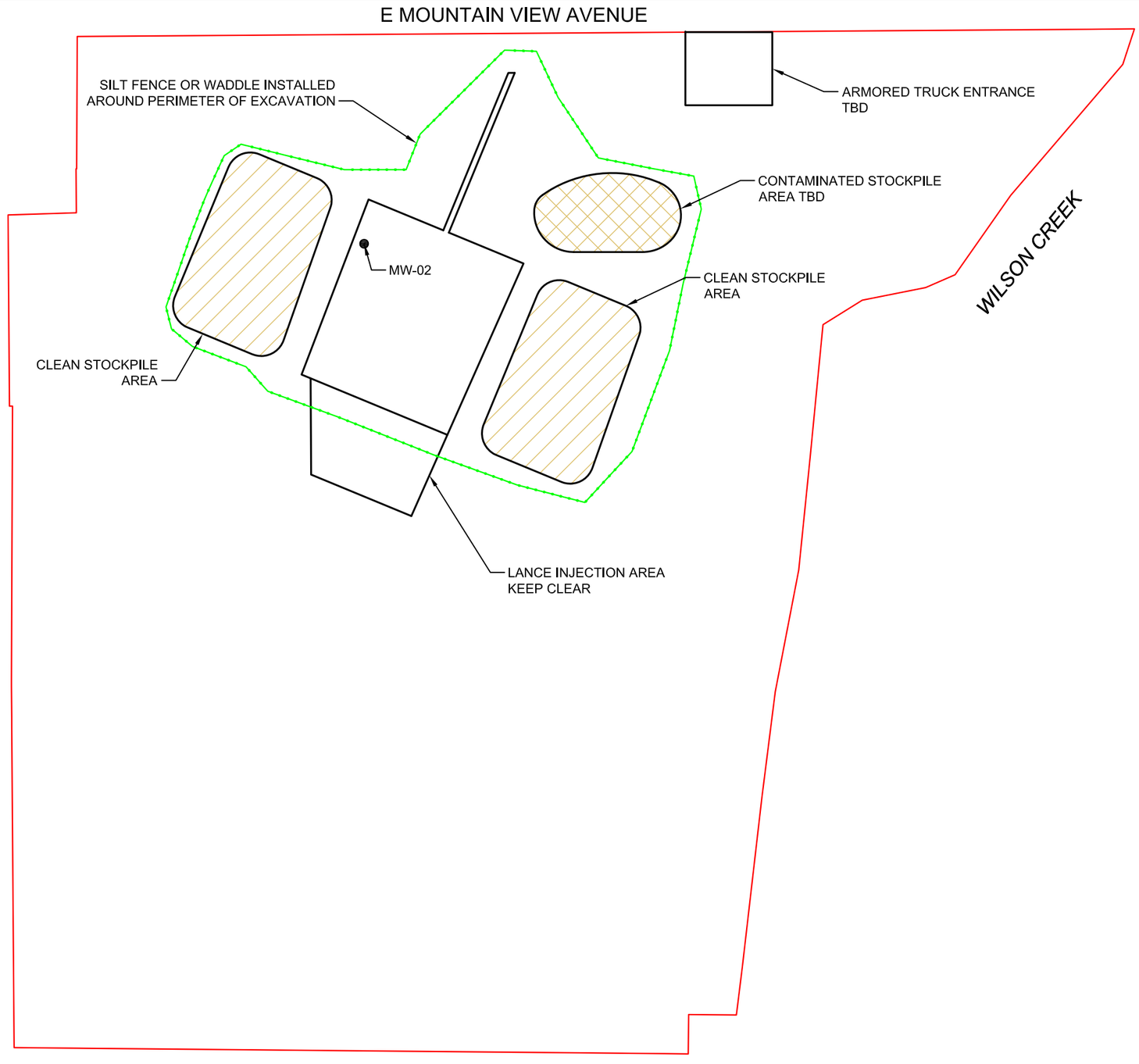
TerraGraphics
Environmental Engineering, Inc.

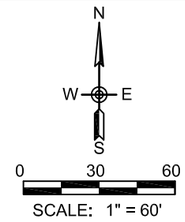
KITTITAS VALLEY FIRE AND RESCUE CLEANUP ACTION

400 E MOUNTAIN VIEW AVENUE
ELLENSBURG, WA

FIGURE 6
EXCAVATION AREA PLAN

SHEET NAME: C-1
DATE: 3/19/2015
PROJECT NO.: 15006
SHEET: 2 OF 5





NO.	DATE	REVISIONS	BY	CHK
A	XX/XX/XX	XXXX	XX	XX

DRAWN BY: ERR
PROJECT MANAGER: MP
CHECKED: X.XXXX
DATE: XX/XX/XXXX

COORDINATE SYSTEM: ISP, NAD 83, US FT, WEST
SCALE: 1" = 60'
APPROVED: X.XXXX
DATE: XX/XX/XXXX

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KITTITAS VALLEY FIRE AND RESCUE CLEANUP ACTION

400 E MOUNTAIN VIEW AVENUE ELLENSBURG, WA

FIGURE 7 STOCK PILE PLAN

SHEET NAME: C-2
DATE: 3/19/2015
PROJECT NO.: 15006
SHEET: 3 OF 5

E MOUNTAIN VIEW AVENUE

N
W E
S
0 15 30
SCALE: 1" = 30'

WELL VAULT

TRENCH PLAN
1
C-4

WILSON CREEK

A	XX/XX/XX	XXXX	XX	XX	DRAWN BY: ERR	COORDINATE SYSTEM: ISP, NAD 83, US FT, WEST	
					PROJECT MANAGER: MP	SCALE: 1" = 30'	
					CHECKED: X.XXXX	APPROVED: X.XXXX	
NO.	DATE	REVISIONS	BY	CHK	DATE: XX/XX/XXXX	DATE: XX/XX/XXXX	

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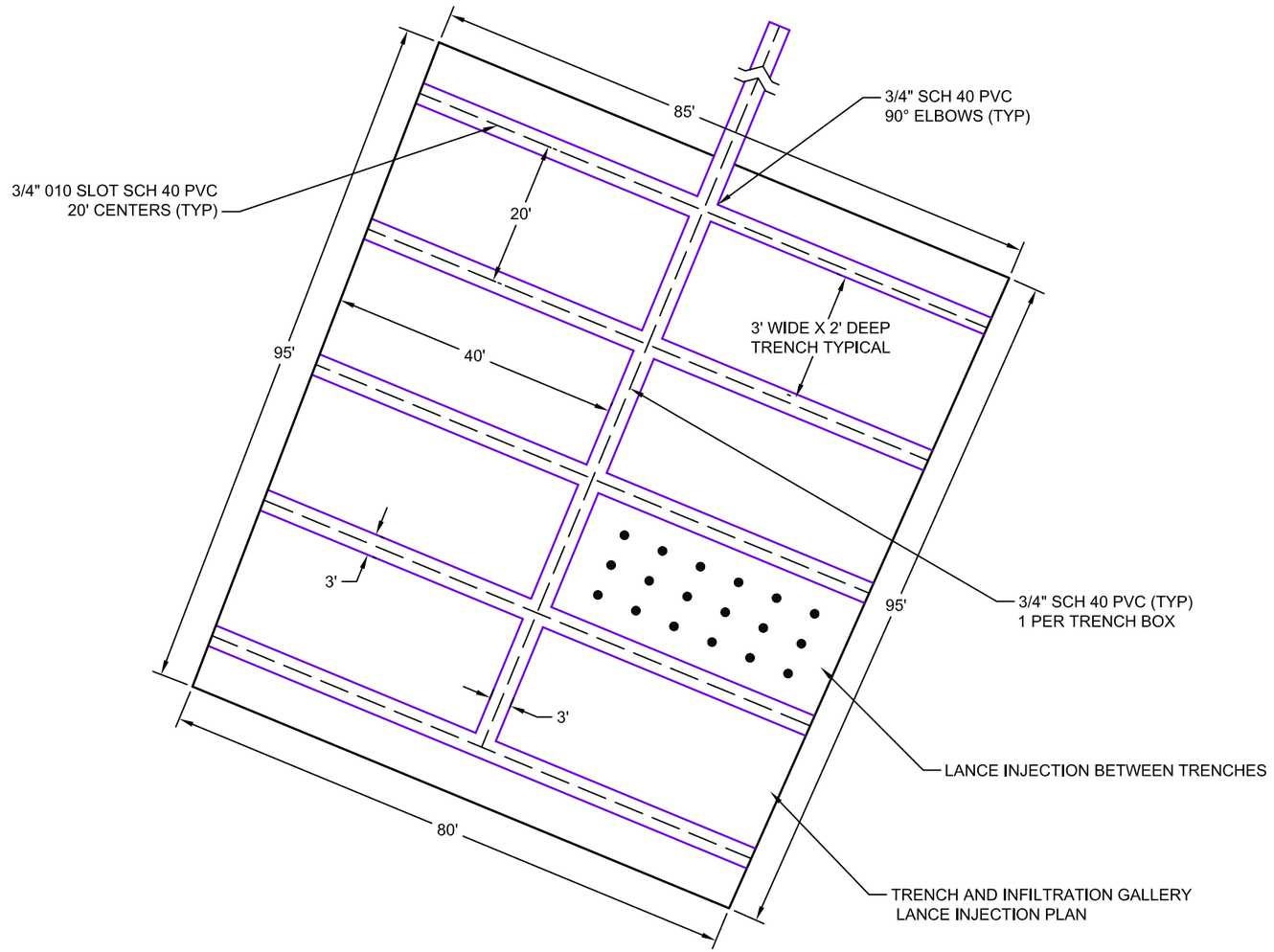
KITTITAS VALLEY FIRE AND RESCUE CLEANUP ACTION

400 E MOUNTAIN VIEW AVENUE
ELLENSBURG, WA

FIGURE 8
TRENCH LAYOUT

SHEET NAME:	C-3
DATE:	3/19/2015
PROJECT NO.:	15006
SHEET:	4 OF 5



NO.	DATE	REVISIONS	BY	CHK
A	XX/XX/XX	XXXX	XX	XX

DRAWN BY: ERR	COORDINATE SYSTEM: ISP, NAD 83, US FT, WEST
PROJECT MANAGER: MP	SCALE: 1" = 20'
CHECKED: X.XXXX	APPROVED: X.XXXX
DATE: XX/XX/XXXX	DATE: XX/XX/XXXX

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KITTITAS VALLEY FIRE AND RESCUE CLEANUP ACTION

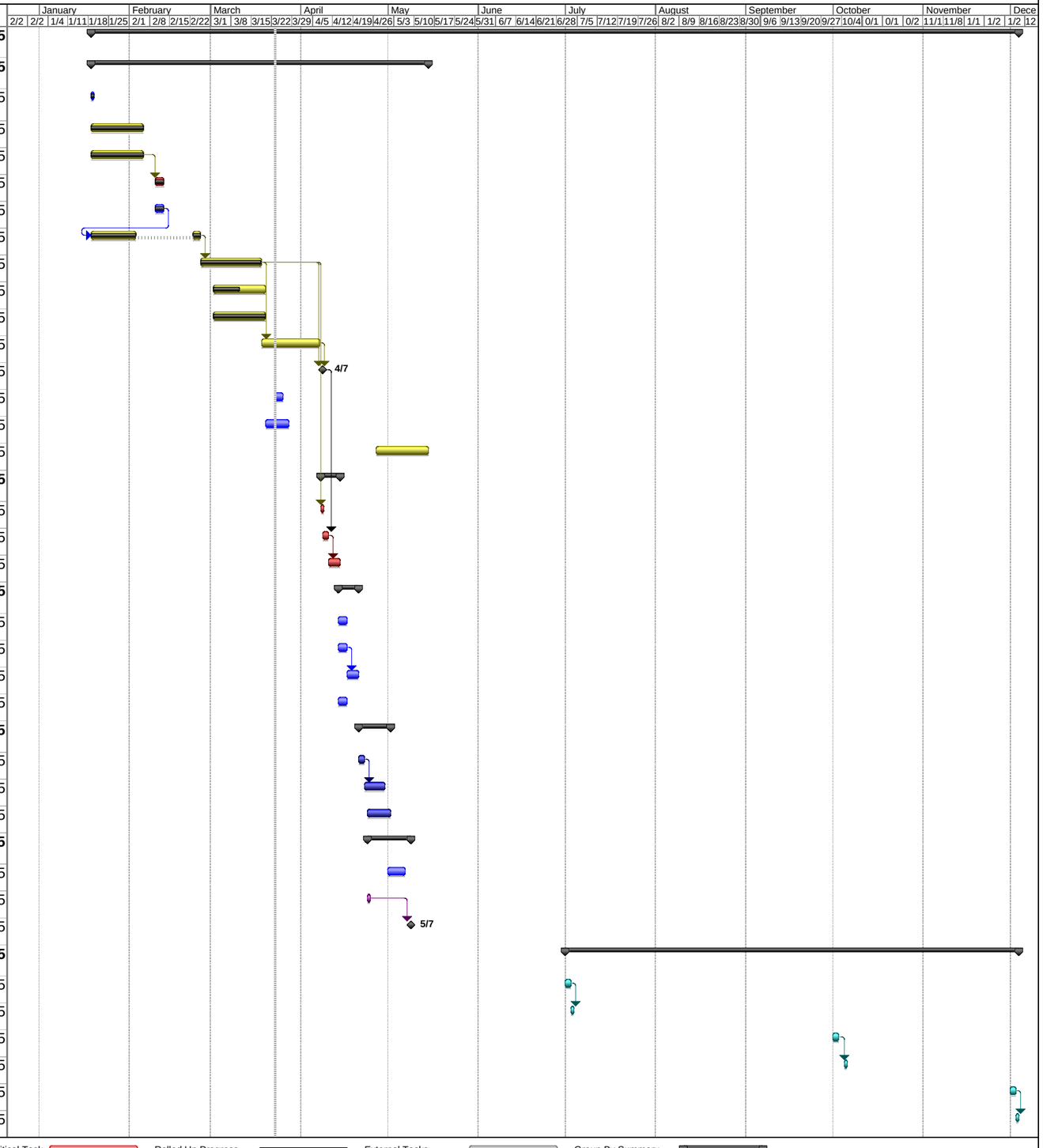
400 E MOUNTAIN VIEW AVENUE
ELLENSBURG, WA

FIGURE 9
TRENCH PLAN

SHEET NAME:	C-4
DATE:	3/19/2015
PROJECT NO.:	15006
SHEET:	5 OF 5

Figure 10. Project Ghantt Chart and Schedule

ID	WBS	Task Name	Duration	Start	Finish
1	**5**	**WORK PLAN MOUNTAIN VIEW CLEANUP ACTION PLAN**	**229 days**	**Mon 1/19/15**	**Thu 12/3/15**
2	**5.1**	**Construction Documents**	**84 days**	**Mon 1/19/15**	**Thu 5/14/15**
3	5.1.1	Kickoff Meeting	1 day	Mon 1/19/15	Mon 1/19/15
4	5.1.2	Sampling and Analysis Plan	14 days	Mon 1/19/15	Thu 2/5/15
5	5.1.4	Quality and Assurance/Health and Safety Project Plan	14 days	Mon 1/19/15	Thu 2/5/15
6	5.1.5	Groundwater 1st Baseline Sampling	3 days	Tue 2/10/15	Thu 2/12/15
7	5.1.6	Soil Sampling and Analysis	3 days	Tue 2/10/15	Thu 2/12/15
8	5.1.7	CAP Finalization (and Amendment if needed)	14 days	Mon 1/19/15	Wed 2/25/15
9	5.1.8	Plans and Specs	15 days	Wed 2/25/15	Wed 3/18/15
10	5.1.10	Underground Injection Control Registration	14 days	Mon 3/2/15	Thu 3/19/15
11	5.1.11	Access Agreements - Permitting	14 days	Mon 3/2/15	Thu 3/19/15
12	5.1.12	Ecology Review of Work Plan	14 days	Wed 3/18/15	Tue 4/7/15
13	5.1.13	Ecology Concurrence(Approval) of Work Plan	1 day	Tue 4/7/15	Wed 4/8/15
14	5.1.16	Yakima County PCS Data Review and Disposal/Transfer permit	3 days	Mon 3/23/15	Wed 3/25/15
15	5.1.15	Contractor Bidding	6 days	Fri 3/20/15	Fri 3/27/15
16	5.1.14	Cap Implementation Report	14 days	Mon 4/27/15	Thu 5/14/15
17	**5.2**	**Site Preparation and Mobilization**	**4.8 days**	**Wed 4/8/15**	**Tue 4/14/15**
18	5.2.3	Site Preparation, Fencing, Limits of Work, BMPs, Water & Electrical	1 day	Wed 4/8/15	Wed 4/8/15
19	5.2.4	Equipment Mobilization	2 days	Wed 4/8/15	Fri 4/10/15
20	5.2.5	Soil Cell Construction	2 days	Fri 4/10/15	Tue 4/14/15
21	**5.3**	**Shallow Soil Excavation**	**5 days**	**Tue 4/14/15**	**Mon 4/20/15**
22	5.3.1	Excavate 3' overburden	3 days	Tue 4/14/15	Thu 4/16/15
23	5.3.2	Segregate and Transfer to Temporary Holding Cell	3 days	Tue 4/14/15	Thu 4/16/15
24	5.3.3	Excavate Infiltration Gallery Trenching	2 days	Fri 4/17/15	Mon 4/20/15
25	5.3.4	Soil Haul and Disposal	3 days	Tue 4/14/15	Thu 4/16/15
26	**5.4**	**Sub-surface Soil Amendment**	**9 days**	**Tue 4/21/15**	**Fri 5/1/15**
27	5.4.2	Perforated Pipe Installation	2 days	Tue 4/21/15	Wed 4/22/15
28	5.4.5	NovIOX/H20 Oxidant Solution Injection	5 days	Thu 4/23/15	Wed 4/29/15
29	5.4.6	AnoxEA-aq,AM3,ReleaSE-DX Biological Solution Injection	6 days	Fri 4/24/15	Fri 5/1/15
30	5.5	**Site Restoration**	**11 days**	**Fri 4/24/15**	**Fri 5/8/15**
31	5.5.1	Replace and Compact Overburden	4 days	Fri 5/1/15	Wed 5/6/15
32	5.5.2	Soil Containment Cell De-construction	1 day	Fri 4/24/15	Fri 4/24/15
33	5.5.4	Demobilization	2 days	Thu 5/7/15	Fri 5/8/15
34	**5.6**	**Periodic Sampling**	**112 days**	**Wed 7/1/15**	**Thu 12/3/15**
35	5.6.1	Quarterly Compliance Monitoring 2	2 days	Wed 7/1/15	Thu 7/2/15
36	5.6.2	Ecology EIM Database Input	1 day	Fri 7/3/15	Fri 7/3/15
37	5.6.3	Quarterly Compliance Monitoring 3	2 days	Thu 10/1/15	Fri 10/2/15
38	5.6.4	Ecology EIM Database Input	1 day	Mon 10/5/15	Mon 10/5/15
39	5.6.5	Quarterly Compliance Monitoring 4	2 days	Tue 12/1/15	Wed 12/2/15
40	5.6.6	Ecology EIM Database Input	1 day	Thu 12/3/15	Thu 12/3/15



Project: Revised KVFR Mountainview
Date: Mon 3/23/15

Task | Progress | Summary | Rolled Up Critical Task | Rolled Up Progress | External Tasks | Group By Summary
Critical Task | Milestone | Rolled Up Task | Rolled Up Milestone | Split | Project Summary | Deadline

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

Sample ID/Sample Date		Sample Depth (feet bgs)	DRO	Motor Oil Range	*** Heavy Oil	GRO	Benzene	Ethylene Dibromide (EDB)	1,2-Dichloroethane (EDC)	Ethylbenzene	methyl-t-butyl ether (MTBE)	Naphthalene	Toluene	Total Xylenes
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
TP-1 7'	2/10/2015	7	67 Y	27 J	94 J	1.2 J	<0.00031 UJ	<0.00021 UJ	<0.00041 UJ	<0.00041 UJ	<0.00031 UJ	<0.00051 UJ	<0.00031 UJ	<0.00051 UJ
TP-2 8'	2/10/2015	8	360 Y	18 J	378 J	17	<0.00035 UJ	<0.00023 UJ	<0.00047 UJ	<0.00035 UJ	<0.00035 UJ	<0.00058 UJ	<0.00035 UJ	<0.00058 UJ
TP-3 8'	2/10/2015	8	9.6 J	<13	16.1 J	3.0 J	<0.00031	<0.00021	<0.00041	<0.00041	<0.00031	<0.00052	<0.00031	<0.00052
TP-4 7'	2/10/2015	7	440 Y	<12	446	70	<0.00035	<0.00023	<0.00047	<0.00047	<0.00035	<0.00059	<0.00035	<0.00059
TP-5 6'	2/10/2015	6	**4,100 Y**	82 Y	**4,182**	1.6 J	<0.00028	<0.00018	<0.00037	<0.00037	<0.00028	<0.00056	<0.00028	<0.00046
TP-6 6'	2/10/2015	6	**4,800 Y**	94 Y	**4,894**	**610**	<0.00042	<0.00028	<0.00056	<0.00056	<0.00042	<0.00070	<0.00042	0.0038 J
TP-6 6' D	2/10/2015	6	**6,500 Y**	120 Y	**6,620**	**700**	<0.00044	<0.00029	<0.00059	<0.00059	<0.00044	<0.00074	<0.00044	<0.00074 J
TP-8 5'	2/10/2015	5	9.8 J	<11	15.3 J	2.8 J	<0.00037	<0.00024	<0.00049	<0.00049	<0.00037	<0.00061	<0.00037	<0.00061
TP-9 5'	2/10/2015	5	120 Y	1,600 Y	1,720	1.3 J	<0.00042	<0.00028	<0.00056	<0.00056	<0.00042	<0.00070	<0.00042	<0.00070
TP-10 6'	2/10/2015	6	1,900 Y	66 J	1,966 J	**150**	<0.00034	<0.00022	<0.00045	<0.00045	<0.00034	<0.00056	<0.00034	<0.00056
TP-12 8'	2/10/2015	8	7.2 J	<11	12.7 J	4.4 J	<0.00029	<0.00020 *	<0.00039 *	<0.00039	<0.00029 *	<0.00049	<0.00029	<0.00049
TP-13 7'	2/10/2015	7	8.6 J	<12	14.6 J	16	<0.00028	<0.00019	<0.00038	<0.00038	<0.00028	<0.00047	<0.00028	<0.00047
TP-16 7'	2/10/2015	7	**3,500 Y**	74 Y	**3,574**	**440**	<0.00016	<0.00011 J	<0.00022 J	<0.00022	<0.00016 J	0.0030 J	0.00021 J	<0.00027
C-C'	2/11/2015	1.5	21 J	66 J	87 J	<0.75 UJ	0.00044 J	<0.00022	<0.00045	<0.00045	<0.00034	0.0011 J	0.00074 J	0.0015 J
D-D'	2/11/2015	1.5	17 J	65 Y	82 J	<0.78 UJ	<0.00035	<0.00023	<0.00046	<0.00046	<0.00035	<0.00058	<0.00035	<0.00058
MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses (mg/kg)			2,000	2,000 or 4,000**	2,000	30 or 100*	0.03	0.005	-	6.0	0.1	5.0	7.0	9.0

Notes:
all concentrations reported in mg/kg = milligrams per kilogram
GRO = Gasoline Range Organics analyzed by Method NWTPH-Gx
DRO = Diesel Range Organics analyzed by Method NWTPH-Dx
MTBE = methyl tert-butyl ether
EDC = 1,2-dichloroethane
EDB = ethylene dibromide
< = less than the method detection limit
bgs = below ground surface
Concentrations in **BOLD** are above the Screening Levels as defined by Washington's Model Toxics Control Act (MTCA) (WAC 173-340) Method A unrestricted cleanup levels (Table 740-1, WAC 173-340-900).
J = reported result was flagged "J" because it is an estimated value.
UJ = less than the MDL and qualified as an estimate.
Y = contained a hydrocarbon pattern in the diesel range; however, the elution pattern was earlier than the typical diesel fuel pattern used by thelaboratory for quantitative purposes
* = when gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture then the cleanup level is 100 mg/kg,
all other gasoline mixtures have a cleanup level of 30 mg/kg.
** = heavy oil cleanup level is 2,000 mg/kg, mineral oil cleanup level is 4,000 mg/kg.
*** = summation of DRO and Motor Oil values. 1/2 detection limit used where necessary in summation of heavy oil.
- = no value established

Table 3
Soil Analytical Results (mg/kg)
KVFR
Ellensburg, Washington

Sample ID/Sample Date		Sample Depth (feet bgs)	Benzo(a)anthracene	Chrysene	Benxo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthrachene	Lead	total organic carbon	Cadmium	Chromium	Nickel	Zinc
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
TP-1 7'	2/10/2015	7	<0.0017	<0.0017 UJ	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	3.2	NS	NS	NS	NS	NS
TP-2 8'	2/10/2015	8	0.0076	0.01 J	0.0065 J	0.0028 J	0.0061 J	0.0034 J	<0.0022	6.3	NS	NS	NS	NS	NS
TP-3 8'	2/10/2015	8	<0.0021	<0.0021 UJ	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	5.5	NS	NS	NS	NS	NS
TP-4 7'	2/10/2015	7	<0.0019	<0.0019 UJ	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	4.5	2,100	NS	NS	NS	NS
TP-5 6'	2/10/2015	6	<0.0021	0.018 J	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	8.4	NS	NS	NS	NS	NS
TP-6 6'	2/10/2015	6	<0.0021	<0.0021 UJ	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	8.8	7,900	NS	NS	NS	NS
TP-6 6' D	2/10/2015	6	<0.0021	0.038 J	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	9.3	NS	NS	NS	NS	NS
TP-8 5'	2/10/2015	5	<0.0020	<0.0020 UJ	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	6.2	NS	NS	NS	NS	NS
TP-9 5'	2/10/2015	5	<0.00017	0.045 J	0.026	<0.00017	0.015	0.016	0.0086	12	NS	NS	NS	NS	NS
TP-10 6'	2/10/2015	6	<0.0019	0.014 J	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	6.0	NS	NS	NS	NS	NS
TP-12 8'	2/10/2015	8	<0.0018	<0.0018 UJ	<0.0018	<0.0018	<0.0018	<0.0018	<0.0018	2.4	NS	NS	NS	NS	NS
TP-13 7'	2/10/2015	7	<0.0018	<0.0018 UJ	<0.0018	<0.0018	<0.0018	<0.0018	<0.0018	4.5	NS	NS	NS	NS	NS
TP-16 7'	2/10/2015	7	<0.0019	0.015 J	<0.00019	<0.0019	<0.0019	<0.0019	<0.0019	4.5	NS	NS	NS	NS	NS
C-C'	2/11/2015	1.5	0.0028 J	0.0073	0.0063	0.0025 J	0.0035 J	0.0045 J	<0.0018	10	NS	0.22	25	20	83
D-D'	2/11/2015	1.5	0.0067	0.01 J	0.012	0.0057 J	0.0077	0.011	<0.0019	9.8	NS	0.20	42	58	68
MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses (mg/kg)			0.1	0.1	0.1	0.1	0.1	0.1	0.1	250	-	2	2,000	-	-

Notes:
all concentrations reported in mg/kg = milligrams per kilogram
< = less than the method detection limit
bgs = below ground surface
Concentrations in **BOLD** are above the Screening Levels as defined by Washington's Model Toxics Control Act (MTCA) (WAC 173-340) Method A unrestricted cleanup levels (Table 740-1, WAC 173-340-900).
J = reported result was flagged "J" because it is an estimated value.
UJ = less than the MDL and qualified as an estimate.
NS = not sampled
- = no value established

Table 4
Soil Analytical Results (mg/kg)
KVFR
Ellensburg, Washington

Sample ID/Sample Date		VPH [C8-C10 aliphatics + C10-C12 aliphatics]	VPH [C8-C10 aromatics + C10-C12 aromatics]	VPH [C12-C16 aliphatics + C16-C21 aliphatics]	VPH [C12-C16 aromatics + C16-C21 aromatics]	VPH [C21-C34 aliphatics]	VPH [C21-C34 aromatics]
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
C-C'	2/11/2015	0.75 J	0.9 J*	24.1 J	7.8 J*	420 J	23
D-D'	2/11/2015	0.105 J	<1.391 J*	<2.6 J	<2.6	7.8 J	4.2 J
MTCA Method B Soil Cleanup Levels for Unrestricted Land Uses (mg/kg)		not established	not established	not established	not established	not established	not established

Notes:
all concentrations reported in mg/kg = milligrams per kilogram
VPH = volatile petroleum hydrocarbons
< = less than the combined reporting limit of each aliphatic or aromatic range
* = Value is determined by adding the detected result from one range of aliphatic or aromatic (i.e., C5-C6 aliphatics) to 1/2 of the MDL value for the other range (i.e., C6-C8 aliphatics) that had a non-detect result
Concentrations in **BOLD** are above the Screening Levels as defined by Washington's Model Toxics Control Act (MTCA) Method B Unrestricted (residential) Table B-1 Groundwater Screening Levels
J = reported result was flagged "J" because it is an estimated value.

Table 5
Groundwater Analytical Results (mg/L)
KVFR
Ellensburg, Washington

Sample ID/Sample Date		Depth to Water (ft. bgs)	DRO	Motor Oil Range	*** Heavy Oil	GRO	Lead	Benzene	Ethylene Dibromide (EDB)	1,2-Dichloroethane (EDC)	Ethylbenzene	methyl-t-butyl ether (MTBE)	Naphthalene	Toluene	Total Xylenes
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW-1	2/11/2015	7.85	0.022 J	0.010 J	0.032 J	0.033 J	<0.00017	<0.000025	<0.000002 J	<0.000025 UJ	<0.00003	<0.000025	<0.0001	<0.000025	<0.00006
MW-2	2/11/2015	8.26**	0.19 Y	0.12 J	0.31 JY	0.030 J	<0.00017	<0.000025	<0.000002 J	<0.000025 UJ	<0.00003	<0.000025	<0.0001	0.000038 J	0.000098 J
MW-2 DUP	2/11/2015	8.26**	0.19 Y	0.13 J	0.32 JY	<0.027 UJ	<0.00017	<0.000025	<0.000002 J	<0.000025 UJ	0.000055 J	<0.000025	<0.0001	0.000036 J	0.00019 J
MW-3	2/11/2015	4.46	0.037 J	0.037 J	0.074 J	<0.027 UJ	<0.00017	<0.000025	<0.000002 J	<0.000025 UJ	0.000056 J	<0.000025	<0.0001	0.000026 J	0.000096 J
MW-4	2/10/2015	4.15	0.037 J	0.042 J	0.079 J	<0.027 UJ	<0.00017	<0.000025	<0.000002 J	<0.000025 UJ	<0.00003	<0.000025	<0.0001	<0.000025	<0.00006
MW-5	2/10/2015	3.56	0.03 J	0.065 J	0.095 J	<0.027 UJ	<0.00017	<0.000025	<0.000002 J	<0.000025 UJ	<0.00003	<0.000025	<0.0001	0.000032 J	<0.00006
MW-6	2/10/2015	3.73	0.064 J	0.20 J	0.264 J	<0.027 UJ	<0.00017	<0.000025	<0.000002 J	0.000038 J	<0.00003	<0.000025	<0.0001	0.000047 J	0.000091 J
MW-7	2/10/2015	0.9	0.031 J	0.064 J	0.095 J	<0.027 UJ	0.00032 J	<0.000025	<0.000002 J	<0.000025 UJ	0.000054 J	<0.000025	<0.0001	0.000026 J	<0.00006
MTCA Method A Groundwater Cleanup Levels (mg/L)			0.5	0.5	500	0.8 or 1.0*	0.015	0.005	0.00001	0.005	0.7	0.020	0.16	1.0	1.0

Notes:
famsl = feet above mean sea level
all concentrations reported in µg/L = micrograms per Liter
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, constituent analyzed by USPEA Method 8011.
< = less than the method detection limit
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)
m+p-Xylene and o-Xylene results were added to represent Total Xylene concentration and compared to Total Xylene Cleanup Level.
* = cleanup level when benzene is present is 800 µg/L , and 1,000 µg/L when there is no detectable benzene present.
** = depth to water is measured from the top of casing; MW-2 had an above-ground riser ~3 feet above the ground surface.
*** = summation of DRO and Motor Oil values. 1/2 detection limit used where necessary in summation of heavy oil.
J = qualified as an estimate.
UJ = less than the MDL and qualified as an estimate.

Y = the chromoatographic response resembles a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes.

Table 6
Groundwater Analytical Results (mg/L)
KVFR
Ellensburg, Washington

Sample ID/Sample Date		Depth to Water (ft. bgs)	Manganese	Sulfate	Alkalinity	TSS
			(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW-1	2/11/2015	7.85	0.004 J	12.0 J	170	<3.0
MW-2	2/11/2015	8.26*	0.14	7.9 J	150	<3.0
MW-2 DUP	2/11/2015	8.26*	0.15	7.8 J	140	<3.0
MW-3	2/11/2015	4.46	0.0029 J	9.7 J	150	20
MW-4	2/10/2015	4.15	0.083	11.0 J	160	<3.0
MW-5	2/10/2015	3.56	0.17	4.6 J	150	<3.0
MW-6	2/10/2015	3.73	0.31	5.3 J	58.0	<3.0
MW-7	2/10/2015	0.9	0.0180	3.9 J	160	<3.0

Notes:
famsl = feet above mean sea level
all concentrations reported in mg/L = milligrams per Liter
< = less than the reporting limit
TSS = Total Suspended Solids
J = qualified as an estimate.
* = depth to water was measured from the top of casing which is typically close to the ground surface level; MW-2 had an above-ground riser ~3 feet above the ground surface.

Table 7
Groundwater Analytical Results (mg/L)
KVFR
Ellensburg, Washington

Well ID	Date	pH	Electrical Conductivity (µS/cm)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	ORP (mV)
MW-01	2/11/2015	6.69	483.9	11.5	2.23	-
		6.67	484.5	11.3	2.07	-
		6.68	484.4	11.2	2.04	-
		6.68	484.8	11.2	2.00	58.4
		---	---	---	---	56.3
		---	---	---	---	55.4
		---	---	---	---	54.2
MW-2	2/11/2015	8.19	380.3	10.5	0.80	-
		6.58	386.6	10.6	3.29	-
		6.56	394.2	10.7	0.28	-
		6.54	392.1	10.7	0.34	-
		6.54	397.4	10.7	0.28	90.4
		---	397.0	---	---	89.0
		---	---	---	---	88.2
MW-3	2/11/2015	6.62	410.5	9.10	1.93	-
		6.65	414.7	8.80	2.13	-
		6.64	417.0	8.80	2.18	-
		6.64	417.7	8.80	2.16	73.6
		---	416.5	8.70	2.17	73.2
		---	---	8.70	2.17	72.8
MW-4	2/10/2015	7.05	479.1	10.0	2.30	-
		7.05	466.3	10.1	2.00	-
		7.01	456.5	10.3	1.25	-
		7.03	450.5	10.5	0.92	-
		7.00	444.3	10.6	0.43	-
		---	442.2	10.6	0.46	67.5
		---	439.6	10.7	0.39	68.4
MW-5	2/10/2015	6.95	351.2	10.3	0.23	-
		6.95	361.1	10.2	0.51	-
		6.97	366.5	10.1	0.65	-
		6.97	372.8	10.0	0.73	62.4
		---	376.9	9.90	0.82	68.1
		---	375.4	10.0	0.90	62.8
MW-6	2/10/2015	7.05	285.5	8.10	1.18	-
		6.90	319.2	7.90	1.80	-
		6.90	326.8	7.80	1.71	-
		6.91	328.4	7.80	1.68	12.5
		---	329.9	7.90	1.66	7.7
		---	---	7.90	1.69	8.0
MW-7	2/10/2015	7.00	143.4	6.20	2.71	-
		6.99	142.2	5.40	2.99	-
		6.96	142.4	5.30	2.91	-
		6.91	141.7	5.50	2.98	-
		6.90	142.8	5.60	3.03	72.1
		---	143.1	5.50	3.16	73.1
		---	143.1	5.50	3.22	73.0

Notes:
values listed are the final readings collected once the well stabilized
µS= micro siemens
C = celcius
mg/L = milligrams per Liter
ORP = oxidation reduction potential
mV = millivolts
- = no value established
--- = stable measurements

Appendix A
Photographs

Photo 1

Site facing north.

Photo 2

Site facing south.

Photo 3

Site facing east near the former scales. Concrete foundation on the left is part of the former scale.

Photo 4

Test pitting on February 10, 2015.

TerraGraphics Environmental Engineering, Inc. www.TerrraGraphics.com	PRINT DATE: 2-19-2015	PROJECT MANAGER: John Means	PROJECT NAME: Kittitas Valley Fire & Rescue 400 East Mountain View Avenue Ellensburg, WA 98926	APPENDIX A, PHOTO LOG Kittitas Valley Fire & Rescue
	PROJECT NUMBER: 15006-03	CREATED BY: Pete Richter		

Photo 5

Typical test pit within petroleum impacted area showing green stained soils.

Photo 6

Sharp contact between stained silt and overlying un-impacted silty sand at TP-10.

Photo 7

Typical test pit advanced to approximately 8 feet bgs. Depth to groundwater in this test pit is approximately 7 feet bgs.

Photo 8

Trenches A through E (right to left) advanced near the former mechanic shop.

TerraGraphics Environmental Engineering, Inc. www.TerrraGraphics.com	PRINT DATE: 2-19-2015	PROJECT MANAGER: John Means	PROJECT NAME: Kittitas Valley Fire & Rescue 400 East Mountain View Avenue Ellensburg, WA 98926	APPENDIX A, PHOTO LOG Kittitas Valley Fire & Rescue
	PROJECT NUMBER: 15006-03	CREATED BY: Pete Richter		

Photo 9

This is a photo of a trench dug for surface sampling. Variable coloration changes can seen throughout the trench.

Photo 10

In this photo, inconsistent soil coloring can be seen indicating that the top foot or so of soil is not native.

Photo 11

This is a photo of a surface trench. Variable soil coloration can be seen indicating possible, but minimal contamination.

Photo 12

In this photo a groundwater monitoring well can be seen. All but one monitoring well at the site was constructed like this.

TerraGraphics Environmental Engineering, Inc. www.TerrraGraphics.com	PRINT DATE: 2-19-2015	PROJECT MANAGER: John Means	PROJECT NAME: Kittitas Valley Fire & Rescue 400 East Mountain View Avenue Ellensburg, WA 98926	APPENDIX A, PHOTO LOG Kittitas Valley Fire & Rescue
	PROJECT NUMBER: 15006-03	CREATED BY: Pete Richter		

Appendix B

Test Pit Logs and Groundwater Field Sheets

2/10/15

0800 Arrive on site
- Meet w/ GDR Guy

1050 Set up for GW Sampling
- calibrate flow Cell

1120 Gauge Wells
old sample tubing in wells → Remove.

Well	Depth
MW-01	7.85' TOC
MW-02	8.26' TOC
MW-03	4.46' TOC
MW-04	4.15' TOC
MW-05	3.56' TOC
MW-06	3.73'
MW-07	0.90' TOC Below stream level

* 1225 Sample MW-06

* 1345 Sample MW-07

☆ 1525 Sampled MW-5

☆ 1550 Sampled MW-4

1712 Finish MW-4 / begin packing up + decon of equipment

1730 off site

2/10/15

2/11/15

0800 Arrive on site
- Set up for GW sampling

0830 - callibrate flow cell

*0950 - Sample MW-02
*0955 - Sample MW02 DUP

*1055 - Sample MW-03

~~* - Sample MW-01~~

* 1215 sampled MW-1

1300 off site

Ricky Bibbs
2/11/15

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GROUNDWATER SAMPLING RECORD

Project: KVFR	Well Number: MW-01
Project Number:	Sample Number:
Location: Ellensburg	Weather: Overcast ~45° F
Date: 2.11.15	Sampler(s): Richter & Lantau
Depth to Bottom (ft):	Purge Time:
Depth to Water (ft): 7.85 Toc	Purge Method: Peristaltic
DTB-DTW (ft):	Volume Measurement Method: bucket
Volume (gal):	Purge Volume (Volume x 3) (gal):

Conversion Factors (height x factor=vol)	¾" diameter 0.023	1" diameter 0.041	1 ½" diameter 0.092	2" diameter 0.163	4" diameter 0.652	8" diameter 2.611

GROUNDWATER DATA

Purged Volume (gal)	Time	pH	Cond (µS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
		6.69	483.9	11.5	2.23		
		6.67	484.5	11.3	2.07		
		6.68	484.4	11.2	2.04		
		6.68	484.8	11.2	2.00	5*	58.4
		—	—	—	—		56.3
		—	—	—	—		55.4
		—	—	—	—		54.2

Sampling Date: 2.11.15 | Sampling Method: Low Flow | Time Sampled: 1215

Container	Volume (ml)	Preservative	# Containers	Other
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	6	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	2	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	2	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none		
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none		

Duplicate Sample Number:

Notes: No petro odor / no sheen Clear GW

Ferrous - 0 mg/L
Nitrates - ~ 5.5 mg/L

Stabilization Criteria

Temperature ± 0.2°C	**pH = ± 0.1°**	**DO = ± 10% or 0.2 mg/L**
Turbidity = ± 10%	**SEC = ± 3%**	**ORP = ± 5.0 mV**

— = Stabil

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GROUNDWATER SAMPLING RECORD

Project:	KVFR	Well Number:	MW-2
Project Number:		Sample Number:	
Location:	Ellensburg	Weather:	Cloudy ~ 40°
Date:	2/11/15	Sampler(s):	Richards / Lantain
Depth to Bottom (ft):		Purge Time:	
Depth to Water (ft):	8.26'	Purge Method:	Peristaltic
DTB-DTW (ft):		Volume Measurement Method:	Bucket
Volume (gal):		Purge Volume (Volume x 3) (gal):	

Conversion Factors (height x factor=vol)	¾" diameter	1" diameter	1 ½" diameter	2" diameter	4" diameter	8" diameter
	0.023	0.041	0.092	0.163	0.652	2.611

GROUNDWATER DATA

Purged Volume (gal)	Time	pH	Cond (µS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
		8.19	500.3	10.5	0.00		
		6.56	386.6	10.6	3.29		
		6.55	394.2	10.7	0.28		
		6.54	392.1	10.7	0.34		
		6.54	397.4	10.7	0.28		90.4
		—	397.0	—	—		89.0
		—	—	—	—		86.2

Sampling Date:	Sampling Method:	Time Sampled: 0950	
Container	Volume (ml)	Preservative	# Containers	Other
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	2	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	4	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	4	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	3	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	3	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	2	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none		

Duplicate Sample Number: MW-2 DUP 0955

Notes: No Petro odor, Clear GW, no sheen

Ferrous Iron = 0 mg/L
Nitrates = 4.0 mg/L

Stabilization Criteria

Temperature ± 0.2°C	**pH = ± 0.1°**	**DO = ± 10% or 0.2 mg/L**
Turbidity = ± 10%	**SEC = ± 3%**	**ORP = ± 5.0 mV**

— = stable

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GROUNDWATER SAMPLING RECORD

Project:	KVFR	Well Number:	MW-3
Project Number:		Sample Number:	
Location:	Ellensburg	Weather:	Cloudy ~45°
Date:	2/11/15	Sampler(s):	Richter / Lantay
Depth to Bottom (ft):		Purge Time:	
Depth to Water (ft):	4.46'	Purge Method:	Peristaltic
DTB-DTW (ft):		Volume Measurement Method:	Bucket
Volume (gal):		Purge Volume (Volume x 3) (gal):	

Conversion Factors (height x factor=vol)	¾" diameter	1" diameter	1 ½" diameter	2" diameter	4" diameter	8" diameter
	0.023	0.041	0.092	0.163	0.652	2.611

GROUNDWATER DATA

Purged Volume (gal)	Time	pH	Cond (uS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
		6.62	410.5	9.1	1.93		
		6.65	414.7	8.8	2.13		
		6.64	417.0	8.8	2.18		
		6.64	417.7	8.8	2.16		73.6
		—	416.5	8.7	2.17		73.2
		—	—	8.7	2.17		72.8

Sampling Date: 2.11.15 | Sampling Method: Low Flow | Time Sampled: 1055

Container	Volume (ml)	Preservative	# Containers	Other
~~Poly~~, ~~Glass~~	~~40~~, 125, 250, 500, 1,000	~~Hcl~~, nitric, NaThio, MeoH, none	6	
~~Poly~~, ~~Glass~~	~~40~~, 125, 250, 500, 1,000	Hcl, nitric, ~~NaThio~~, MeoH, none	2	
Poly, ~~Glass~~	40, 125, 250, 500, ~~1,000~~	~~Hcl~~, nitric, NaThio, MeoH, none	2	
~~Poly~~, Glass	40, 125, ~~250~~, 500, 1,000	Hcl, ~~nitric~~, NaThio, MeoH, none	1	
~~Poly~~, Glass	40, 125, ~~250~~, 500, 1,000	Hcl, nitric, NaThio, MeoH, ~~none~~	1	
~~Poly~~, Glass	40, 125, 250, 500, ~~1,000~~	Hcl, nitric, NaThio, MeoH, ~~none~~	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none		

Duplicate Sample Number:

Notes: No petro odor / no sheen Clear GW

Ferrous Iron - 0 mg/L
Nitrates - 8 mg/L

Stabilization Criteria

Temperature ± 0.2°C	**pH = ± 0.1°**	**DO = ± 10% or 0.2 mg/L**
Turbidity = ± 10%	**SEC = ± 3%**	**ORP = ± 5.0 mV**

— = stable

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GROUNDWATER SAMPLING RECORD

Project: KVFR	Well Number: MW-4
Project Number:	Sample Number:
Location: Ellensburg	Weather: Sunny ~45°
Date: 2/10/15	Sampler(s): Richter / MacLantaq
Depth to Bottom (ft):	Purge Time:
Depth to Water (ft): 4.15'	Purge Method: Peristaltic
DTB-DTW (ft):	Volume Measurement Method: Bucket
Volume (gal):	Purge Volume (Volume x 3) (gal):

Conversion Factors (height x factor=vol)	¾" diameter 0.023	1" diameter 0.041	1 ½" diameter 0.092	2" diameter 0.163	4" diameter 0.652	8" diameter 2.611

GROUNDWATER DATA

Purged Volume (gal)	Time	pH	Cond (µS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
		7.05	479.1	10.0	2.30		
		7.05	466.3	10.1	2.06		
		7.01	456.5	10.3	1.25		
		7.03	450.5	10.5	0.92		
		7.00	444.3	10.6	0.43		~~[illegible]~~
		—	442.2	10.6	0.46		67.5
		—	439.6	10.7	0.39		68.4
~4 gal							

Sampling Date: 2/10/15 | Sampling Method: Low Flow | Time Sampled: 1650

Container	Volume (ml)	Preservative	# Containers	Other
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	3	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	2	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none		
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none		

Duplicate Sample Number:

Notes: No Petro odor / no sheen Clear GW

Ferrous Iron – 0 mg/L
Nitrates – ~4.0 mg/L

Stabilization Criteria

Temperature ± 0.2°C	**pH = ± 0.1°**	**DO = ± 10% or 0.2 mg/L**
Turbidity = ± 10%	**SEC = ± 3%**	**ORP = ± 5.0 mV**

— = Stable

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GROUNDWATER SAMPLING RECORD

Project: KVFR	Well Number: MW-05
Project Number:	Sample Number:
Location: Ellensburg.	Weather: Sunny/windy ~50°F
Date: 2.10.15	Sampler(s): Richter/Lanton
Depth to Bottom (ft):	Purge Time:
Depth to Water (ft): 3.56' TOC.	Purge Method: Peristaltic
DTB-DTW (ft):	Volume Measurement Method: bucket
Volume (gal):	Purge Volume (Volume x 3) (gal):

Conversion Factors (height x factor=vol)	¾" diameter 0.023	1" diameter 0.041	1 ½" diameter 0.092	2" diameter 0.163	4" diameter 0.652	8" diameter 2.611

GROUNDWATER DATA

Purged Volume (gal)	Time	pH	Cond (µS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
		6.95	351.2	10.3	0.23		
		6.95	361.1	10.2	0.51		
		6.97	366.5	10.1	0.65		
		6.97	372.8	10.0	0.73		62.4
		—	376.9	9.9	0.82		48.1
		—	375.4	10.0	0.90		62.8

Sampling Date: Sampling Method: Time Sampled:

Container	Volume (ml)	Preservative	# Containers	Other
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	6	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	3	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	2	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none		

Duplicate Sample Number:

Notes: No Petro odor GW Clear / no Sheen
Ferrous Fe^{2+} ~0 mg/L
Nitrates ~ 6.0 mg/L

Stabilization Criteria

Temperature ± 0.2°C	**pH = ± 0.1°**	**DO = ± 10% or 0.2 mg/L**
Turbidity = ± 10%	**SEC = ± 3%**	**ORP = ± 5.0 mV**

— = Stable

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GROUNDWATER SAMPLING RECORD

Project:	KVFR	Well Number:	MW-06
Project Number:		Sample Number:	
Location:	Ellensburg, WA	Weather:	Sunny ~ 90°
Date:	2/10/15	Sampler(s):	Richter
Depth to Bottom (ft):		Purge Time:	
Depth to Water (ft):	3.73'	Purge Method:	Peristaltic
DTB-DTW (ft):		Volume Measurement Method:	Bucket
Volume (gal):		Purge Volume (Volume x 3) (gal):	

Conversion Factors (height x factor=vol)	¾" diameter 0.023	1" diameter 0.041	1 ½" diameter 0.092	2" diameter 0.163	4" diameter 0.652	8" diameter 2.611

GROUNDWATER DATA

Purged Volume (gal)	Time	pH	Cond (uS/cm)	Temp (°C)	Dissolved Oxygen		ORP (mV)
					mg/L	%	
		7.05	289.5	6.1	1.18		
		6.90	319.2	7.9	1.80		
		6.90	326.8	7.8	1.71		
		6.91	328.4	7.8	1.68		12.5
		—	329.9	7.9	1.66		7.7
~3.5		—	—	7.9	1.69		8.0

Sampling Date:	Sampling Method:	Time Sampled:	

Container	Volume (ml)	Preservative	# Containers	Other
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	6	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	2	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	1	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none	2	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none		

Duplicate Sample Number:

Notes: No Petro odor
GW very clear / no sheen
Ferrous Iron — ~1.0 mg/L
Nitrates — ~4.0 mg/L

Stabilization Criteria

Temperature ± 0.2°C	**pH = ± 0.1°**	**DO = ± 10% or 0.2 mg/L**
Turbidity = ± 10%	**SEC = ± 3%**	**ORP = ± 5.0 mV**

— = Dupe

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GROUNDWATER SAMPLING RECORD

Project: KVFR	Well Number: MW-07
Project Number:	Sample Number:
Location: Ellensburg	Weather: Sunny 50°F
Date: 2·10·15	Sampler(s): Richter / Lenihan
Depth to Bottom (ft):	Purge Time:
Depth to Water (ft): 0.9' TOC	Purge Method: Peristaltic
DTB-DTW (ft):	Volume Measurement Method: bucket
Volume (gal):	Purge Volume (Volume x 3) (gal):

Conversion Factors (height x factor=vol)	¾" diameter 0.023	1" diameter 0.041	1 ½" diameter 0.092	2" diameter 0.163	4" diameter 0.652	8" diameter 2.611

GROUNDWATER DATA

Purged Volume (gal)	Time	pH	Cond (µ /cm)	Temp (°C)	Dissolved Oxygen		ORP (mV)
					mg/L	%	
		7.00	143.4	6.2	2.71		
		6.99	142.2	5.4	2.99		
		6.96	142.4	5.3	2.91		
		6.91	141.7	5.5	2.98		
		6.90	142.8	5.6	3.03		~~5.65~~ 72.1
		—	143.1	5.5	3.16		73.1
		—	143.1	5.5	3.22		73.0

Sampling Date: 2·10·15 | Sampling Method: Low Flow | Time Sampled: 1345

Container	Volume (ml)	Preservative	# Containers	Other
Poly, Glass	(40) 125, 250, 500, 1,000	(Hcl) nitric, NaThio, MeoH, none	6	
Poly, Glass	(40) 125, 250, 500, 1,000	Hcl, nitric, (NaThio) MeoH, none	2	
(Poly) Glass	40, 125, (250), 500, 1,000	Hcl, nitric, NaThio, MeoH, (none)	1	
(Poly) Glass	40, 125, (250), 500, 1,000	Hcl, (nitric) NaThio, MeoH, none	1	
(Poly) Glass	40, 125, 250, 500, (1,000)	Hcl, nitric, NaThio, MeoH, (none)	1	
Poly, (Glass)	40, 125, 250, 500, (1,000)	(Hcl) nitric, NaThio, MeoH, none	2	
Poly, Glass	40, 125, 250, 500, 1,000	Hcl, nitric, NaThio, MeoH, none		

Duplicate Sample Number:

Notes: No petrol odor, GW very clear, No petrol sheen
Ferrous Fe^{+2} → Ø mg/L
Nitrates → Ø mg/L

Stabilization Criteria

Temperature ± 0.2°C	**pH = ± 0.1°**	**DO = ± 10% or 0.2 mg/L**
Turbidity = ± 10%	**SEC = ± 3%**	**ORP = ± 5.0 mV**

— = stable

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: John Mecum	Site Contact:	Date: 2/11/15	COC No:
TerraGraphics	Tel/Fax: 208 336 7080	Lab Contact: David Bush	Carrier:	1 of 4 COCs
988 S longmont ave	Analysis Turnaround Time			Sampler: Richter
boise idaho 83706	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone 208 336 7080	TAT if different from Below Standard			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: KVFR	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH Gx	BTEX, MTBE, EDC	TPH-Dx 8011	EDB 8011	Lead	Sulfate	Total Suspended Solids	Sample Specific Notes:
MW-1	2/11/15	1215	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-2	2/11/15	0950	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-2 DUP	2/11/15	0955	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-3	2/11/15	1055	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-4	2/10/15	1650	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-5	2/10/15	1525	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-6	2/10/15	1225	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-7	2/10/15	1345	G	WT	13	N	N	3	3	2	2	1	1	1	
TB				WT		N	N		X						

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

1400

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____
Relinquished by: Pete Richter	Company: TerraGraphics	Date/Time: 2/11/15	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TEST PIT NUMBER TP-1

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 10:49 **COMPLETED** 02/10/15 11:09
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES Collect sample to confirm clean; no visual sign or odor
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		ML		SILT, (ML) brown silt with fine sand, loose, dry	PID = 0
2.5					
3.0				SILT WITH SAND, (ML) brown silt with fine sand, soft to medium stiff, moist to wet	PID = 0
5.0		ML			
7.0	TP-1 7' 11:00			Wet at 7'	
7.5		GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	PID = 0
8.0				Bottom of test pit at 8.0 feet.	

GENERAL BH / TP / WELL - GINT STD US.GDT - 2/25/15 13:38 - R:\GINT\TG PROJECTS\KVFR\KVFR.GPJ

TEST PIT NUMBER TP-2

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 11:15 **COMPLETED** 02/10/15 11:35
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES Slight sheen on water running from gravel
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0				SILT, (ML) brown silt with fine sand, loose, dry	
		ML			PID = 0
2.5					
				3.0	
				SILT WITH SAND, (ML) brown silt with fine sand, soft to medium stiff, moist to wet	PID = 0
5.0		ML			PID = 0
				7.0 Wet at 7'	
				GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	
7.5		GP			
	TP-2 8' 11:25			8.0	
				Bottom of test pit at 8.0 feet.	PID = 0.4

GENERAL BH / TP / WELL - GINT STD US.GDT - 2/25/15 13:38 - R:\GINT\TG PROJECTS\KVFR\KVFR.GPJ

TEST PIT NUMBER TP-3

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 11:36 **COMPLETED** 02/10/15 11:50
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES Collect sample to confirm clean; no visual sign or odor
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0					
		ML		SILT, (ML) brown, dry	PID = 0
2.0					
		GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to medium sand and cobbles, dry	
2.5	TP-3 8' 11:25				PID = 0
5.0					
6.0					
		ML		SILT, (ML) brown, loose, moist to wet Wet at 7'	PID = 0
7.5					
7.5		GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	
8.5					

Bottom of test pit at 8.5 feet.

TEST PIT NUMBER TP-4

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 12:00 **COMPLETED** 02/10/15 12:20
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		SM		SILTY SAND, (SM) dark brown silty fine to medium sand, loose, dry to moist	PID = 0
2.0					
2.5		ML		SILT, (ML) brown silt with fine sand and cobbles, soft to medium stiff, moist	PID = 0
5.0					PID = 0
6.0		CL-ML		CLAY/SILT, (CL-ML) brown clay with silt, stained green, medium dense to dense, wet	
7.0	TP-4 7' 12:04	GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	
7.5					PID = 10
8.0				Bottom of test pit at 8.0 feet.	

TEST PIT NUMBER TP-5

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 12:29 **COMPLETED** 02/10/15 12:45
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES Collect sample to confirm clean; no visual sign or odor
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0					
		SM		(SM) dark brown, silty fine to medium sand, loose, dry to moist	PID = 0
2.5					
				3.0	
		ML		SILT, (ML) brown silt with fine sand, soft to medium stiff, moist	PID = 0
5.0				5.0	
	TP-5 6' 12:25	GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	PID = 0
				6.5	

Bottom of test pit at 6.5 feet.

TEST PIT NUMBER TP-6

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 12:48 **COMPLETED** 02/10/15 13:00
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		SM		SILTY SAND, (SM) dark brown silty fine to medium sand, loose, dry to moist	PID = 0
1.5					
		ML		SILT, (ML) brown silt with fine sand, loose, soft to medium stiff, moist	PID = 0
2.5				stained at 3'	PID = 0
5.0					
	TP-6 6' 12:57	GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	PID = 4
				Wet at 6'	PID = 10
7.0				Bottom of test pit at 7.0 feet.	

TEST PIT NUMBER TP-7

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 13:05 **COMPLETED** 02/10/15 13:15
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES No sample collected. Petroleum odor, green stained soil
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		SM		(SM) dark brown silty fine to medium sand, loose, dry to moist	
2.5				Heavily impacted from green staining at 3'	
4.0				Bottom of test pit at 4.0 feet.	PID = 10

TEST PIT NUMBER TP-8

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 13:20 **COMPLETED** 02/10/15 13:35
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0				SILT, (ML) brown silt with fine sand, soft to medium stiffness, dry to moist	PID = 0
2.5		ML			PID = 0
5.0	TP-8 5' 13:30	GP	5.0	GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium to dense, wet	PID = 0
			6.0	Bottom of test pit at 6.0 feet.	

TEST PIT NUMBER TP-9

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 14:05 **COMPLETED** 02/10/15 14:20
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		ML		SILT, (ML) brown silt with silty fine sand, medium stiff, dry	PID = 0
2.5		GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and ~20% coarse sand, dense, moist to wet	PID = 0
5.0	TP-9 5' 13:50			Wet at 5'	PID = 0
5.5				Bottom of test pit at 5.5 feet.	

TEST PIT NUMBER TP-10

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 14:25 **COMPLETED** 02/10/15 14:45
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		SM		SILTY SAND, (SM) dark brown silty fine to medium sand, loose to medium dense, moist	PID = 0
2.5					PID = 0
				3.5	
		ML		SILT, (ML) brown silt with fine sand, soft to medium stiff, moist to wet, stained with sharp soil contact (see photolog)	PID = 0
5.0					
				5.5	
	TP-10 6' 14:30	GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	PID = 1.4
				7.0	

Bottom of test pit at 7.0 feet.

TEST PIT NUMBER TP-11

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 15:00 **COMPLETED** 02/10/15 11:09
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES No sample collected
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		SM		SILTY SAND, (SM) dark brown, fine to medium silty sand, loose, dry to moist	PID = 0
2.2		ML		SILT, (ML) brown silt with fine sand, soft to medium stiff, moist to wet	PID = 0
4.0		SM		SILTY SAND, (SM) silty fine to medium sand, stained blue/gray, petroleum odor, loose to medium dense, moist to wet	PID = 7.8
6.0		GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, stained blue/gray, petroleum odor, wet	PID = 1.4
7.0				Bottom of test pit at 7.0 feet.	

TEST PIT NUMBER TP-12

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 15:17 **COMPLETED** 02/10/15 15:40
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		SM		SILTY SAND, (SM) dark brown, fine to medium silty sand, loose to medium dense, dry	PID = 0
2.2					
2.5		ML		SILT, (ML) brown silt with fine sand, loose, dry to moist	
4.0					
		SM		SILTY SAND, (SM) brown silty fine sand, loose to medium dense, stained blue/gray, petroleum odor, moist to wet	PID = 0
5.0					
6.0					
		GP		GRAVEL WITH SAND, (GP) brown gravel with silty to fine, stained, petroleum odor, wet	PID = 0
7.5					
8.0	TP-12 8' 15:30			Bottom of test pit at 8.0 feet.	

TEST PIT NUMBER TP-13

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 13:40 **COMPLETED** 02/10/15 14:00
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		SM		SILTY SAND, (SM) dark brown silty fine to medium sand, loose, dry to moist	PID = 0
2.0					
2.5		ML		SILT, (ML) brown silt with fine sand, soft to medium stiff, moist to wet	PID = 0
5.0					
5.5		GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	PID = 0
7.0	TP-13 7' 15:43			Bottom of test pit at 7.0 feet.	

TEST PIT NUMBER TP-14

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 15:45 **COMPLETED** 02/10/15 16:05
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES No petroleum odor, no visual impacts, no soil sample collected
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0				SILT, (ML) dark brown silt with fine sand, soft to medium stiff, dry to moist	PID = 0
2.5		ML			PID = 0
5.0				5.0 CLAY, (CL) light brown clay, high plasticity, medium stiff, moist to wet	PID = 0
7.5		CL		7.0 GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	
		GP		8.5 Bottom of test pit at 8.5 feet.	

TEST PIT NUMBER TP-15

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 16:10 **COMPLETED** 02/10/15 16:20
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES No sample collected
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0				Brown gravel with silty fine to medium sand and cobbles, loose fill material, dry	
1.0					
		ML		SILT, (ML) brown silt with fine sand, soft to medium stiff, moist to wet	PID = 0
2.5					
4.0					
		GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet	PID = 0
5.0					
6.5					

Bottom of test pit at 6.5 feet.

TEST PIT NUMBER TP-16

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/10/15 16:24 **COMPLETED** 02/10/15 16:45
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		SILTY SAND, (SM) dark brown silty fine to medium sand, loose, dry to moist
2.0				
2.5		ML		SILT, (ML) brown silt with fine sand, soft to medium stiff, moist to wet
4.5				
5.0		GP		GRAVEL WITH SAND, (GP) brown gravel with silty fine to coarse sand and cobbles, medium dense to dense, wet
7.0	TP-16 7' 16:30			Bottom of test pit at 7.0 feet.

TEST PIT NUMBER TP-17

TerraGraphics Environmental Engineering, Inc.
www.TerraGraphics.com

CLIENT WA State Dept. of Ecology Toxics Cleanup Program
PROJECT NAME 400 E. Mountain View Avenue
PROJECT NUMBER 15006
PROJECT LOCATION Yakima, Washington
DATE STARTED 02/11/15 08:20 **COMPLETED** 02/11/15 08:45
GROUND ELEVATION TBD **TEST PIT SIZE** 3 foot wide bucket
EXCAVATION CONTRACTOR TJ's Bulldozing
GROUND WATER LEVELS:
EXCAVATION METHOD Excavator, John Deere 590-D
AT TIME OF EXCAVATION ---
LOGGED BY Mike Procsal **CHECKED BY** Melody Studer
AT END OF EXCAVATION ---
NOTES No petroleum odor, no visual impacts, no soil sample collected
AFTER EXCAVATION ---

DEPTH (ft)	COMPOSITE SAMPLE ID	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data
0.0		SM		SILTY SAND, (SM) brown silty fine to medium sand, loose, dry	PID = 0
1.0		ML		SILT, (ML) dark brown silty fine sand, loose to dense, dry to moist	
2.5					
3.0		CL		CLAY, (CL) dark brown fine clay, medium dense, moist to wet	PID = 0
4.2		GW		WELL GRADED GRAVEL, (GW) brown gravel with silty fine to coarse sand and ~10% cobbles, sub-rounded, medium dense to dense, wet	
5.0					PID = 0
6.0					

Bottom of test pit at 6.0 feet.

Appendix C

Laboratory Analytical Results and Chain of Custody Documentation

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 580-47473-1
Client Project/Site: KVFR

For:
TerraGraphics Inc
TerraGraphics Environmental Engineering
988 South Longmont Ave
Suite 200
Boise, Idaho 83706

Attn: John Means

David D Burk

Authorized for release by:
2/18/2015 6:15:13 PM

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

Table of Contents

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Job ID: 580-47473-1

Laboratory: TestAmerica Seattle

Narrative

Receipt

The samples were received on 2/12/2015 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.1º C and 2.5º C.

Except:

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): The sample added to the bottom of the COC and placed on hold pending client notification. The client instructed to run this sample as a 3 day Rush tat.TP-12 8' (580-47473-16)

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. C-C' (580-47473-13), D-D' (580-47473-14), TP-1 7' (580-47473-1), TP-10 6' (580-47473-10), TP-12 8' (580-47473-16), TP-13 7' (580-47473-11), TP-16 7' (580-47473-12), TP-2 8' (580-47473-2), TP-3 8' (580-47473-3), TP-4 7' (580-47473-4), TP-5 6' (580-47473-5), TP-6 6' (580-47473-6), TP-6 6' D (580-47473-7), TP-8 5' (580-47473-8), TP-9 5' (580-47473-9), Trip Blank (580-47473-15).

The sitr bar vials for 8260 for the following samples C-C' (580-47473-13), D-D' (580-47473-14), TP-1 7' (580-47473-1), TP-10 6' (580-47473-10), TP-12 8' (580-47473-16), TP-13 7' (580-47473-11), TP-16 7' (580-47473-12), TP-2 8' (580-47473-2), TP-3 8' (580-47473-3), TP-4 7' (580-47473-4), TP-5 6' (580-47473-5), TP-6 6' (580-47473-6), TP-6 6' D (580-47473-7), TP-8 5' (580-47473-8), TP-9 5' (580-47473-9), Trip Blank (580-47473-15)were frozen immediately upon arrival to the laboratory.

GC/MS VOA

Method(s) 8260C: The following sample(s) was received with insufficient time remaining to freeze within 48 hours, as required for samples collected in water preserved TerraCores: TP-1 7' (580-47473-1), TP-2 8' (580-47473-2), Trip Blank (580-47473-15). The sample(s) was collected on 2/10/2015 at 11:00 and 11:25. The sample(s) was received on 2/12/2015 at 11:30 and placed immediately in the freezer.

Method(s) 8260C: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 182696 recovered outside control limits for the following analytes: 1,2-dichloroethane, ethylene dibromide, and methyl tert-butyl ether. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8260C: The following sample was reanalyzed for target analyte naphthalene due to the internal standard associated with naphthalene recovering below control limits during the original analysis: TP-16 7' (580-47473-12).

Method(s) NWTPH-Gx: The method blank for batch 182502 contained Gasoline 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) NWTPH-Gx: Surrogate recovery for the following sample was outside control limits: TP-6 6' D (580-47473-7). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) NWTPH-Gx: The method blank for batch 182639 contained Gasoline 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) NWTPH-Gx: AB: 182639
NWTPH_GX: The associated samples were reanalyzed due to the likelihood of carryover from a previously analyzed heavily contaminated sample in the original analysis.

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

GC/MS Semi VOA

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

GC Semi VOA

Method(s) NWTPH-Dx: In analysis batch 182566, for the following sample(s) from preparation batch 182463: The following sample(s) contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the

Job ID: 580-47473-1 (Continued)

Laboratory: TestAmerica Seattle (Continued)

laboratory for quantitative purposes: ST-CB-08-20150210-S (580-47459-1).

Method(s) NWTPH-Dx: In analysis batch 182566, for the following sample(s) from preparation batch 182463: The following sample(s) contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: TP-1 7' (580-47473-1), TP-9 5' (580-47473-9).

Method(s) NWTPH-Dx: In analysis batch 182566, for the following sample(s) from preparation batch 182463: The following sample(s) contained a hydrocarbon pattern in the diesel range; however, the elution pattern was earlier than the typical diesel fuel pattern used by the laboratory for quantitative purposes: TP-10 6' (580-47473-10), TP-16 7' (580-47473-12), TP-2 8' (580-47473-2), TP-4 7' (580-47473-4), TP-5 6' (580-47473-5), TP-6 6' (580-47473-6), TP-6 6' D (580-47473-7).

Method(s) NWTPH-Dx: In analysis batch 182566, for the following sample(s) from preparation batch 182463: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision were outside control limits. The matrix spike was spilled see NCM # 98112: laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method(s) NWTPH-Dx: Surrogate recovery for the following sample(s) was outside control limits: (580-47459-1 MS). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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 182463, the following samples: TP-1 7' (580-47473-1), contained mud, rocks, and plant matter.

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
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits

GC/MS Semi VOA

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

GC 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.
X	Surrogate is outside control limits

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.

General Chemistry

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

Glossary

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

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-1 7'
Date Collected: 02/10/15 11:00
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-1
Matrix: Solid
Percent Solids: 86.1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	0.0010	0.00031	mg/Kg	☼	02/12/15 11:30	02/17/15 13:40	1
Toluene	ND	H	0.0021	0.00031	mg/Kg	☼	02/12/15 11:30	02/17/15 13:40	1
Ethylbenzene	ND	H	0.0010	0.00041	mg/Kg	☼	02/12/15 11:30	02/17/15 13:40	1
m-Xylene & p-Xylene	ND	H	0.0021	0.00021	mg/Kg	☼	02/12/15 11:30	02/17/15 13:40	1
o-Xylene	ND	H	0.0021	0.00051	mg/Kg	☼	02/12/15 11:30	02/17/15 13:40	1
Methyl tert-butyl ether	ND	H	0.0010	0.00031	mg/Kg	☼	02/12/15 11:30	02/17/15 13:40	1
EDC	ND	H	0.0010	0.00041	mg/Kg	☼	02/12/15 11:30	02/17/15 13:40	1
Naphthalene	ND	H	0.0051	0.00051	mg/Kg	☼	02/12/15 11:30	02/17/15 13:40	1
Xylenes, Total	ND	H	2.1	0.51	ug/Kg	☼	02/12/15 11:30	02/17/15 13:40	1
EDB	ND	H	0.0010	0.00021	mg/Kg	☼	02/12/15 11:30	02/17/15 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*	*02/12/15 11:30*	*02/17/15 13:40*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 120*	*02/12/15 11:30*	*02/17/15 13:40*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*	*02/12/15 11:30*	*02/17/15 13:40*	*1*
Trifluorotoluene (Surr)	*101*		*65 - 140*	*02/12/15 11:30*	*02/17/15 13:40*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*02/12/15 11:30*	*02/17/15 13:40*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0056	0.0017	mg/Kg	☼	02/13/15 09:20	02/17/15 15:24	1
Chrysene	ND		0.0056	0.0017	mg/Kg	☼	02/13/15 09:20	02/17/15 15:24	1
Benzo[b]fluoranthene	ND		0.0056	0.0017	mg/Kg	☼	02/13/15 09:20	02/17/15 15:24	1
Benzo[k]fluoranthene	ND		0.0056	0.0017	mg/Kg	☼	02/13/15 09:20	02/17/15 15:24	1
Benzo[a]pyrene	ND		0.0056	0.0017	mg/Kg	☼	02/13/15 09:20	02/17/15 15:24	1
Indeno[1,2,3-cd]pyrene	ND		0.0056	0.0017	mg/Kg	☼	02/13/15 09:20	02/17/15 15:24	1
Dibenz(a,h)anthracene	ND		0.0056	0.0017	mg/Kg	☼	02/13/15 09:20	02/17/15 15:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*83*		*42 - 151*	*02/13/15 09:20*	*02/17/15 15:24*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1.2**	**J B**	4.7	0.58	mg/Kg	☼	02/17/15 13:51	02/17/15 16:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*50 - 150*	*02/17/15 13:51*	*02/17/15 16:09*	*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)	**67**	**Y**	29	6.6	mg/Kg	☼	02/13/15 10:52	02/17/15 13:00	1
Motor Oil (>C24-C36)	**27**	**J**	58	11	mg/Kg	☼	02/13/15 10:52	02/17/15 13:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*02/13/15 10:52*	*02/17/15 13:00*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3.2**		0.46	0.044	mg/Kg	☼	02/13/15 11:11	02/13/15 16:55	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-1 7'
Date Collected: 02/10/15 11:00
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-1
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	14		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-2 8'
Date Collected: 02/10/15 11:25
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-2
Matrix: Solid
Percent Solids: 68.8

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	0.0012	0.00035	mg/Kg	☼	02/12/15 11:30	02/17/15 14:06	1
Toluene	ND	H	0.0023	0.00035	mg/Kg	☼	02/12/15 11:30	02/17/15 14:06	1
Ethylbenzene	ND	H	0.0012	0.00047	mg/Kg	☼	02/12/15 11:30	02/17/15 14:06	1
m-Xylene & p-Xylene	ND	H	0.0023	0.00023	mg/Kg	☼	02/12/15 11:30	02/17/15 14:06	1
o-Xylene	ND	H	0.0023	0.00058	mg/Kg	☼	02/12/15 11:30	02/17/15 14:06	1
Methyl tert-butyl ether	ND	H	0.0012	0.00035	mg/Kg	☼	02/12/15 11:30	02/17/15 14:06	1
EDC	ND	H	0.0012	0.00047	mg/Kg	☼	02/12/15 11:30	02/17/15 14:06	1
Naphthalene	ND	H	0.0058	0.00058	mg/Kg	☼	02/12/15 11:30	02/17/15 14:06	1
Xylenes, Total	ND	H	2.3	0.58	ug/Kg	☼	02/12/15 11:30	02/17/15 14:06	1
EDB	ND	H	0.0012	0.00023	mg/Kg	☼	02/12/15 11:30	02/17/15 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*	*02/12/15 11:30*	*02/17/15 14:06*	*1*
4-Bromofluorobenzene (Surr)	*92*		*70 - 120*	*02/12/15 11:30*	*02/17/15 14:06*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*	*02/12/15 11:30*	*02/17/15 14:06*	*1*
Trifluorotoluene (Surr)	*97*		*65 - 140*	*02/12/15 11:30*	*02/17/15 14:06*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*02/12/15 11:30*	*02/17/15 14:06*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	**0.0076**		0.0072	0.0022	mg/Kg	☼	02/13/15 09:20	02/17/15 16:30	1
Chrysene	**0.010**		0.0072	0.0022	mg/Kg	☼	02/13/15 09:20	02/17/15 16:30	1
Benzo[b]fluoranthene	**0.0065**	**J**	0.0072	0.0022	mg/Kg	☼	02/13/15 09:20	02/17/15 16:30	1
Benzo[k]fluoranthene	**0.0028**	**J**	0.0072	0.0022	mg/Kg	☼	02/13/15 09:20	02/17/15 16:30	1
Benzo[a]pyrene	**0.0061**	**J**	0.0072	0.0022	mg/Kg	☼	02/13/15 09:20	02/17/15 16:30	1
Indeno[1,2,3-cd]pyrene	**0.0034**	**J**	0.0072	0.0022	mg/Kg	☼	02/13/15 09:20	02/17/15 16:30	1
Dibenz(a,h)anthracene	ND		0.0072	0.0022	mg/Kg	☼	02/13/15 09:20	02/17/15 16:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*95*		*42 - 151*	*02/13/15 09:20*	*02/17/15 16:30*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**17**	**B**	7.0	0.87	mg/Kg	☼	02/13/15 13:00	02/13/15 19:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*02/13/15 13:00*	*02/13/15 19:26*	*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)	**360**	**Y**	34	7.8	mg/Kg	☼	02/13/15 10:52	02/17/15 13:33	1
Motor Oil (>C24-C36)	**18**	**J**	68	12	mg/Kg	☼	02/13/15 10:52	02/17/15 13:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*50 - 150*	*02/13/15 10:52*	*02/17/15 13:33*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**6.3**		0.72	0.069	mg/Kg	☼	02/13/15 11:11	02/13/15 16:59	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-2 8'
Date Collected: 02/10/15 11:25
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-2
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	69		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	31		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-3 8'
Date Collected: 02/10/15 11:35
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-3
Matrix: Solid
Percent Solids: 71.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010	0.00031	mg/Kg	☼	02/12/15 11:30	02/17/15 20:52	1
Toluene	ND		0.0021	0.00031	mg/Kg	☼	02/12/15 11:30	02/17/15 20:52	1
Ethylbenzene	ND		0.0010	0.00041	mg/Kg	☼	02/12/15 11:30	02/17/15 20:52	1
m-Xylene & p-Xylene	ND		0.0021	0.00021	mg/Kg	☼	02/12/15 11:30	02/17/15 20:52	1
o-Xylene	ND		0.0021	0.00052	mg/Kg	☼	02/12/15 11:30	02/17/15 20:52	1
Methyl tert-butyl ether	ND		0.0010	0.00031	mg/Kg	☼	02/12/15 11:30	02/17/15 20:52	1
EDC	ND		0.0010	0.00041	mg/Kg	☼	02/12/15 11:30	02/17/15 20:52	1
Naphthalene	ND		0.0052	0.00052	mg/Kg	☼	02/12/15 11:30	02/17/15 20:52	1
Xylenes, Total	ND		2.1	0.52	ug/Kg	☼	02/12/15 11:30	02/17/15 20:52	1
EDB	ND		0.0010	0.00021	mg/Kg	☼	02/12/15 11:30	02/17/15 20:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 136*	*02/12/15 11:30*	*02/17/15 20:52*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 120*	*02/12/15 11:30*	*02/17/15 20:52*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*	*02/12/15 11:30*	*02/17/15 20:52*	*1*
Trifluorotoluene (Surr)	*101*		*65 - 140*	*02/12/15 11:30*	*02/17/15 20:52*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 132*	*02/12/15 11:30*	*02/17/15 20:52*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 16:52	1
Chrysene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 16:52	1
Benzo[b]fluoranthene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 16:52	1
Benzo[k]fluoranthene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 16:52	1
Benzo[a]pyrene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 16:52	1
Indeno[1,2,3-cd]pyrene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 16:52	1
Dibenz(a,h)anthracene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 16:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*87*		*42 - 151*	*02/13/15 09:20*	*02/17/15 16:52*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**3.0**	**J B**	6.1	0.76	mg/Kg	☼	02/13/15 13:00	02/13/15 19:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*02/13/15 13:00*	*02/13/15 19:59*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**9.6**	**J**	35	8.0	mg/Kg	☼	02/13/15 10:52	02/17/15 13:49	1
Motor Oil (>C24-C36)	ND		70	13	mg/Kg	☼	02/13/15 10:52	02/17/15 13:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*68*		*50 - 150*	*02/13/15 10:52*	*02/17/15 13:49*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**5.5**		0.60	0.058	mg/Kg	☼	02/13/15 11:11	02/13/15 17:02	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-3 8'
Date Collected: 02/10/15 11:35
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-3
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	71		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	29		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-4 7'
Date Collected: 02/10/15 12:04
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-4
Matrix: Solid
Percent Solids: 76.1

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0012	0.00035	mg/Kg	☼	02/12/15 11:30	02/17/15 18:20	1
Toluene	ND		0.0023	0.00035	mg/Kg	☼	02/12/15 11:30	02/17/15 18:20	1
Ethylbenzene	ND		0.0012	0.00047	mg/Kg	☼	02/12/15 11:30	02/17/15 18:20	1
m-Xylene & p-Xylene	ND		0.0023	0.00023	mg/Kg	☼	02/12/15 11:30	02/17/15 18:20	1
o-Xylene	ND		0.0023	0.00059	mg/Kg	☼	02/12/15 11:30	02/17/15 18:20	1
Methyl tert-butyl ether	ND		0.0012	0.00035	mg/Kg	☼	02/12/15 11:30	02/17/15 18:20	1
EDC	ND		0.0012	0.00047	mg/Kg	☼	02/12/15 11:30	02/17/15 18:20	1
Naphthalene	ND		0.0059	0.00059	mg/Kg	☼	02/12/15 11:30	02/17/15 18:20	1
Xylenes, Total	ND		2.3	0.59	ug/Kg	☼	02/12/15 11:30	02/17/15 18:20	1
EDB	ND		0.0012	0.00023	mg/Kg	☼	02/12/15 11:30	02/17/15 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 136*	*02/12/15 11:30*	*02/17/15 18:20*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 120*	*02/12/15 11:30*	*02/17/15 18:20*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*	*02/12/15 11:30*	*02/17/15 18:20*	*1*
Trifluorotoluene (Surr)	*103*		*65 - 140*	*02/12/15 11:30*	*02/17/15 18:20*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 132*	*02/12/15 11:30*	*02/17/15 18:20*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0064	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 17:14	1
Chrysene	ND		0.0064	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 17:14	1
Benzo[b]fluoranthene	ND		0.0064	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 17:14	1
Benzo[k]fluoranthene	ND		0.0064	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 17:14	1
Benzo[a]pyrene	ND		0.0064	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 17:14	1
Indeno[1,2,3-cd]pyrene	ND		0.0064	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 17:14	1
Dibenz(a,h)anthracene	ND		0.0064	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 17:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*95*		*42 - 151*	*02/13/15 09:20*	*02/17/15 17:14*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**70**	**B**	5.8	0.73	mg/Kg	☼	02/13/15 13:00	02/13/15 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*	*02/13/15 13:00*	*02/13/15 20:32*	*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)	**440**	**Y**	32	7.4	mg/Kg	☼	02/13/15 10:52	02/17/15 14:05	1
Motor Oil (>C24-C36)	ND		65	12	mg/Kg	☼	02/13/15 10:52	02/17/15 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*75*		*50 - 150*	*02/13/15 10:52*	*02/17/15 14:05*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**4.5**		0.46	0.044	mg/Kg	☼	02/13/15 11:11	02/13/15 17:06	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-4 7'
Date Collected: 02/10/15 12:04
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-4
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2100		2000	44	mg/Kg			02/18/15 15:01	1
Percent Solids	76		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	24		0.10	0.10	%			02/14/15 18:05	1

Client Sample ID: TP-5 6'
Date Collected: 02/10/15 12:35
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-5
Matrix: Solid
Percent Solids: 69.2

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00092	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 14:58	1
Toluene	ND		0.0018	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 14:58	1
Ethylbenzene	ND		0.00092	0.00037	mg/Kg	☼	02/12/15 11:30	02/17/15 14:58	1
m-Xylene & p-Xylene	ND		0.0018	0.00018	mg/Kg	☼	02/12/15 11:30	02/17/15 14:58	1
o-Xylene	ND		0.0018	0.00046	mg/Kg	☼	02/12/15 11:30	02/17/15 14:58	1
Methyl tert-butyl ether	ND		0.00092	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 14:58	1
EDC	ND		0.00092	0.00037	mg/Kg	☼	02/12/15 11:30	02/17/15 14:58	1
Naphthalene	ND		0.0046	0.00046	mg/Kg	☼	02/12/15 11:30	02/17/15 14:58	1
Xylenes, Total	ND		1.8	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 14:58	1
EDB	ND		0.00092	0.00018	mg/Kg	☼	02/12/15 11:30	02/17/15 14:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*	*02/12/15 11:30*	*02/17/15 14:58*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 120*	*02/12/15 11:30*	*02/17/15 14:58*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*	*02/12/15 11:30*	*02/17/15 14:58*	*1*
Trifluorotoluene (Surr)	*102*		*65 - 140*	*02/12/15 11:30*	*02/17/15 14:58*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 132*	*02/12/15 11:30*	*02/17/15 14:58*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0071	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:35	1
Chrysene	**0.018**		0.0071	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:35	1
Benzo[b]fluoranthene	ND		0.0071	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:35	1
Benzo[k]fluoranthene	ND		0.0071	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:35	1
Benzo[a]pyrene	ND		0.0071	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:35	1
Indeno[1,2,3-cd]pyrene	ND		0.0071	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:35	1
Dibenz(a,h)anthracene	ND		0.0071	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*77*		*42 - 151*	*02/13/15 09:20*	*02/17/15 17:35*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1.6**	**J B**	6.5	0.81	mg/Kg	☼	02/17/15 13:51	02/17/15 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*50 - 150*	*02/17/15 13:51*	*02/17/15 16:39*	*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)	**4100**	**Y**	33	7.6	mg/Kg	☼	02/13/15 10:52	02/17/15 14:21	1
Motor Oil (>C24-C36)	**82**	**Y**	67	12	mg/Kg	☼	02/13/15 10:52	02/17/15 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*62*		*50 - 150*	*02/13/15 10:52*	*02/17/15 14:21*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**8.4**		0.66	0.063	mg/Kg	☼	02/13/15 11:11	02/13/15 17:10	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-5 6'
Date Collected: 02/10/15 12:35
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-5
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	69		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	31		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-6 6'
Date Collected: 02/10/15 12:57
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-6
Matrix: Solid
Percent Solids: 69.5

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0014	0.00042	mg/Kg	☼	02/12/15 11:30	02/17/15 19:11	1
Toluene	ND		0.0028	0.00042	mg/Kg	☼	02/12/15 11:30	02/17/15 19:11	1
Ethylbenzene	ND		0.0014	0.00056	mg/Kg	☼	02/12/15 11:30	02/17/15 19:11	1
m-Xylene & p-Xylene	ND		0.0028	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 19:11	1
o-Xylene	**0.0038**		0.0028	0.00070	mg/Kg	☼	02/12/15 11:30	02/17/15 19:11	1
Methyl tert-butyl ether	ND		0.0014	0.00042	mg/Kg	☼	02/12/15 11:30	02/17/15 19:11	1
EDC	ND		0.0014	0.00056	mg/Kg	☼	02/12/15 11:30	02/17/15 19:11	1
Naphthalene	ND		0.0070	0.00070	mg/Kg	☼	02/12/15 11:30	02/17/15 19:11	1
Xylenes, Total	**3.8**		2.8	0.70	ug/Kg	☼	02/12/15 11:30	02/17/15 19:11	1
EDB	ND		0.0014	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*	*02/12/15 11:30*	*02/17/15 19:11*	*1*
4-Bromofluorobenzene (Surr)	*85*		*70 - 120*	*02/12/15 11:30*	*02/17/15 19:11*	*1*
Toluene-d8 (Surr)	*115*		*80 - 120*	*02/12/15 11:30*	*02/17/15 19:11*	*1*
Trifluorotoluene (Surr)	*94*		*65 - 140*	*02/12/15 11:30*	*02/17/15 19:11*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 132*	*02/12/15 11:30*	*02/17/15 19:11*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0070	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:57	1
Chrysene	ND		0.0070	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:57	1
Benzo[b]fluoranthene	ND		0.0070	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:57	1
Benzo[k]fluoranthene	ND		0.0070	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:57	1
Benzo[a]pyrene	ND		0.0070	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:57	1
Indeno[1,2,3-cd]pyrene	ND		0.0070	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:57	1
Dibenz(a,h)anthracene	ND		0.0070	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 17:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*89*		*42 - 151*	*02/13/15 09:20*	*02/17/15 17:57*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**610**	**B**	7.7	0.97	mg/Kg	☼	02/13/15 13:00	02/13/15 22:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*137*		*50 - 150*	*02/13/15 13:00*	*02/13/15 22:11*	*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)	**4800**	**Y**	36	8.1	mg/Kg	☼	02/13/15 10:52	02/17/15 14:37	1
Motor Oil (>C24-C36)	**94**	**Y**	71	13	mg/Kg	☼	02/13/15 10:52	02/17/15 14:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*02/13/15 10:52*	*02/17/15 14:37*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**8.8**		0.61	0.059	mg/Kg	☼	02/13/15 11:11	02/13/15 17:14	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-6 6'
Date Collected: 02/10/15 12:57
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-6
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	7900		2000	44	mg/Kg			02/18/15 15:01	1
Percent Solids	69		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	31		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-6 6' D
Date Collected: 02/10/15 13:00
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-7
Matrix: Solid
Percent Solids: 66.9

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0015	0.00044	mg/Kg	☼	02/12/15 11:30	02/17/15 19:36	1
Toluene	ND		0.0029	0.00044	mg/Kg	☼	02/12/15 11:30	02/17/15 19:36	1
Ethylbenzene	ND		0.0015	0.00059	mg/Kg	☼	02/12/15 11:30	02/17/15 19:36	1
m-Xylene & p-Xylene	ND		0.0029	0.00029	mg/Kg	☼	02/12/15 11:30	02/17/15 19:36	1
o-Xylene	ND		0.0029	0.00074	mg/Kg	☼	02/12/15 11:30	02/17/15 19:36	1
Methyl tert-butyl ether	ND		0.0015	0.00044	mg/Kg	☼	02/12/15 11:30	02/17/15 19:36	1
EDC	ND		0.0015	0.00059	mg/Kg	☼	02/12/15 11:30	02/17/15 19:36	1
Naphthalene	ND		0.0074	0.00074	mg/Kg	☼	02/12/15 11:30	02/17/15 19:36	1
Xylenes, Total	ND		2.9	0.74	ug/Kg	☼	02/12/15 11:30	02/17/15 19:36	1
EDB	ND		0.0015	0.00029	mg/Kg	☼	02/12/15 11:30	02/17/15 19:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 136*	*02/12/15 11:30*	*02/17/15 19:36*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 120*	*02/12/15 11:30*	*02/17/15 19:36*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*02/12/15 11:30*	*02/17/15 19:36*	*1*
Trifluorotoluene (Surr)	*106*		*65 - 140*	*02/12/15 11:30*	*02/17/15 19:36*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*02/12/15 11:30*	*02/17/15 19:36*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 18:19	1
Chrysene	**0.038**		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 18:19	1
Benzo[b]fluoranthene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 18:19	1
Benzo[k]fluoranthene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 18:19	1
Benzo[a]pyrene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 18:19	1
Indeno[1,2,3-cd]pyrene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 18:19	1
Dibenz(a,h)anthracene	ND		0.0069	0.0021	mg/Kg	☼	02/13/15 09:20	02/17/15 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*79*		*42 - 151*	*02/13/15 09:20*	*02/17/15 18:19*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**700**	**B**	7.7	0.96	mg/Kg	☼	02/13/15 13:00	02/13/15 22:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*168*	*X*	*50 - 150*	*02/13/15 13:00*	*02/13/15 22:45*	*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)	**6500**	**Y**	36	8.3	mg/Kg	☼	02/13/15 10:52	02/17/15 14:54	1
Motor Oil (>C24-C36)	**120**	**Y**	73	13	mg/Kg	☼	02/13/15 10:52	02/17/15 14:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*50 - 150*	*02/13/15 10:52*	*02/17/15 14:54*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**9.3**		0.66	0.063	mg/Kg	☼	02/13/15 11:11	02/13/15 17:17	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-6 6' D
Date Collected: 02/10/15 13:00
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-7
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	67		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	33		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-8 5'
Date Collected: 02/10/15 13:30
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-8
Matrix: Solid
Percent Solids: 74.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0012	0.00037	mg/Kg	☼	02/12/15 11:30	02/17/15 15:23	1
Toluene	ND		0.0024	0.00037	mg/Kg	☼	02/12/15 11:30	02/17/15 15:23	1
Ethylbenzene	ND		0.0012	0.00049	mg/Kg	☼	02/12/15 11:30	02/17/15 15:23	1
m-Xylene & p-Xylene	ND		0.0024	0.00024	mg/Kg	☼	02/12/15 11:30	02/17/15 15:23	1
o-Xylene	ND		0.0024	0.00061	mg/Kg	☼	02/12/15 11:30	02/17/15 15:23	1
Methyl tert-butyl ether	ND		0.0012	0.00037	mg/Kg	☼	02/12/15 11:30	02/17/15 15:23	1
EDC	ND		0.0012	0.00049	mg/Kg	☼	02/12/15 11:30	02/17/15 15:23	1
Naphthalene	ND		0.0061	0.00061	mg/Kg	☼	02/12/15 11:30	02/17/15 15:23	1
Xylenes, Total	ND		2.4	0.61	ug/Kg	☼	02/12/15 11:30	02/17/15 15:23	1
EDB	ND		0.0012	0.00024	mg/Kg	☼	02/12/15 11:30	02/17/15 15:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*02/12/15 11:30*	*02/17/15 15:23*	*1*
4-Bromofluorobenzene (Surr)	*90*		*70 - 120*	*02/12/15 11:30*	*02/17/15 15:23*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*	*02/12/15 11:30*	*02/17/15 15:23*	*1*
Trifluorotoluene (Surr)	*106*		*65 - 140*	*02/12/15 11:30*	*02/17/15 15:23*	*1*
Dibromofluoromethane (Surr)	*91*		*75 - 132*	*02/12/15 11:30*	*02/17/15 15:23*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0067	0.0020	mg/Kg	☼	02/13/15 09:20	02/17/15 18:40	1
Chrysene	ND		0.0067	0.0020	mg/Kg	☼	02/13/15 09:20	02/17/15 18:40	1
Benzo[b]fluoranthene	ND		0.0067	0.0020	mg/Kg	☼	02/13/15 09:20	02/17/15 18:40	1
Benzo[k]fluoranthene	ND		0.0067	0.0020	mg/Kg	☼	02/13/15 09:20	02/17/15 18:40	1
Benzo[a]pyrene	ND		0.0067	0.0020	mg/Kg	☼	02/13/15 09:20	02/17/15 18:40	1
Indeno[1,2,3-cd]pyrene	ND		0.0067	0.0020	mg/Kg	☼	02/13/15 09:20	02/17/15 18:40	1
Dibenz(a,h)anthracene	ND		0.0067	0.0020	mg/Kg	☼	02/13/15 09:20	02/17/15 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*85*		*42 - 151*	*02/13/15 09:20*	*02/17/15 18:40*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**2.8**	**J B**	6.5	0.81	mg/Kg	☼	02/17/15 13:51	02/17/15 18:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*50 - 150*	*02/17/15 13:51*	*02/17/15 18:43*	*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)	**9.8**	**J**	31	7.0	mg/Kg	☼	02/13/15 10:52	02/17/15 15:10	1
Motor Oil (>C24-C36)	ND		62	11	mg/Kg	☼	02/13/15 10:52	02/17/15 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*71*		*50 - 150*	*02/13/15 10:52*	*02/17/15 15:10*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**6.2**		0.46	0.044	mg/Kg	☼	02/13/15 11:11	02/13/15 17:21	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-8 5'
Date Collected: 02/10/15 13:30
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-8
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	75		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	25		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-9 5'
Date Collected: 02/10/15 13:50
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-9
Matrix: Solid
Percent Solids: 86.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0014	0.00042	mg/Kg	☼	02/12/15 11:30	02/17/15 15:48	1
Toluene	ND		0.0028	0.00042	mg/Kg	☼	02/12/15 11:30	02/17/15 15:48	1
Ethylbenzene	ND		0.0014	0.00056	mg/Kg	☼	02/12/15 11:30	02/17/15 15:48	1
m-Xylene & p-Xylene	ND		0.0028	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 15:48	1
o-Xylene	ND		0.0028	0.00070	mg/Kg	☼	02/12/15 11:30	02/17/15 15:48	1
Methyl tert-butyl ether	ND		0.0014	0.00042	mg/Kg	☼	02/12/15 11:30	02/17/15 15:48	1
EDC	ND		0.0014	0.00056	mg/Kg	☼	02/12/15 11:30	02/17/15 15:48	1
Naphthalene	ND		0.0070	0.00070	mg/Kg	☼	02/12/15 11:30	02/17/15 15:48	1
Xylenes, Total	ND		2.8	0.70	ug/Kg	☼	02/12/15 11:30	02/17/15 15:48	1
EDB	ND		0.0014	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*	*02/12/15 11:30*	*02/17/15 15:48*	*1*
4-Bromofluorobenzene (Surr)	*87*		*70 - 120*	*02/12/15 11:30*	*02/17/15 15:48*	*1*
Toluene-d8 (Surr)	*110*		*80 - 120*	*02/12/15 11:30*	*02/17/15 15:48*	*1*
Trifluorotoluene (Surr)	*102*		*65 - 140*	*02/12/15 11:30*	*02/17/15 15:48*	*1*
Dibromofluoromethane (Surr)	*93*		*75 - 132*	*02/12/15 11:30*	*02/17/15 15:48*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0057	0.0017	mg/Kg	☼	02/13/15 09:20	02/18/15 11:48	1
Chrysene	**0.045**		0.0057	0.0017	mg/Kg	☼	02/13/15 09:20	02/18/15 11:48	1
Benzo[b]fluoranthene	**0.026**		0.0057	0.0017	mg/Kg	☼	02/13/15 09:20	02/18/15 11:48	1
Benzo[k]fluoranthene	ND		0.0057	0.0017	mg/Kg	☼	02/13/15 09:20	02/18/15 11:48	1
Benzo[a]pyrene	**0.015**		0.0057	0.0017	mg/Kg	☼	02/13/15 09:20	02/18/15 11:48	1
Indeno[1,2,3-cd]pyrene	**0.016**		0.0057	0.0017	mg/Kg	☼	02/13/15 09:20	02/18/15 11:48	1
Dibenz(a,h)anthracene	**0.0086**		0.0057	0.0017	mg/Kg	☼	02/13/15 09:20	02/18/15 11:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*88*		*42 - 151*	*02/13/15 09:20*	*02/18/15 11:48*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**1.3**	**J B**	6.1	0.76	mg/Kg	☼	02/17/15 13:51	02/17/15 17:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*50 - 150*	*02/17/15 13:51*	*02/17/15 17:42*	*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)	**120**	**Y**	27	6.1	mg/Kg	☼	02/13/15 10:52	02/17/15 15:26	1
Motor Oil (>C24-C36)	**1600**	**Y**	53	9.7	mg/Kg	☼	02/13/15 10:52	02/17/15 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*73*		*50 - 150*	*02/13/15 10:52*	*02/17/15 15:26*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**12**		0.50	0.048	mg/Kg	☼	02/13/15 11:11	02/13/15 17:25	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-9 5'
Date Collected: 02/10/15 13:50
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-9
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	14		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-10 6'
Date Collected: 02/10/15 14:30
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-10
Matrix: Solid
Percent Solids: 74.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0011	0.00034	mg/Kg	☼	02/12/15 11:30	02/17/15 20:02	1
Toluene	ND		0.0022	0.00034	mg/Kg	☼	02/12/15 11:30	02/17/15 20:02	1
Ethylbenzene	ND		0.0011	0.00045	mg/Kg	☼	02/12/15 11:30	02/17/15 20:02	1
m-Xylene & p-Xylene	ND		0.0022	0.00022	mg/Kg	☼	02/12/15 11:30	02/17/15 20:02	1
o-Xylene	ND		0.0022	0.00056	mg/Kg	☼	02/12/15 11:30	02/17/15 20:02	1
Methyl tert-butyl ether	ND		0.0011	0.00034	mg/Kg	☼	02/12/15 11:30	02/17/15 20:02	1
EDC	ND		0.0011	0.00045	mg/Kg	☼	02/12/15 11:30	02/17/15 20:02	1
Naphthalene	ND		0.0056	0.00056	mg/Kg	☼	02/12/15 11:30	02/17/15 20:02	1
Xylenes, Total	ND		2.2	0.56	ug/Kg	☼	02/12/15 11:30	02/17/15 20:02	1
EDB	ND		0.0011	0.00022	mg/Kg	☼	02/12/15 11:30	02/17/15 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*71 - 136*	*02/12/15 11:30*	*02/17/15 20:02*	*1*
4-Bromofluorobenzene (Surr)	*91*		*70 - 120*	*02/12/15 11:30*	*02/17/15 20:02*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*	*02/12/15 11:30*	*02/17/15 20:02*	*1*
Trifluorotoluene (Surr)	*101*		*65 - 140*	*02/12/15 11:30*	*02/17/15 20:02*	*1*
Dibromofluoromethane (Surr)	*93*		*75 - 132*	*02/12/15 11:30*	*02/17/15 20:02*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 19:24	1
Chrysene	**0.014**		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 19:24	1
Benzo[b]fluoranthene	ND		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 19:24	1
Benzo[k]fluoranthene	ND		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 19:24	1
Benzo[a]pyrene	ND		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 19:24	1
Indeno[1,2,3-cd]pyrene	ND		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 19:24	1
Dibenz(a,h)anthracene	ND		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 19:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*101*		*42 - 151*	*02/13/15 09:20*	*02/17/15 19:24*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**150**	**B**	5.6	0.70	mg/Kg	☼	02/13/15 13:00	02/14/15 00:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*50 - 150*	*02/13/15 13:00*	*02/14/15 00:24*	*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)	**1900**	**Y**	33	7.6	mg/Kg	☼	02/13/15 10:52	02/17/15 15:42	1
Motor Oil (>C24-C36)	**66**	**J**	67	12	mg/Kg	☼	02/13/15 10:52	02/17/15 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*77*		*50 - 150*	*02/13/15 10:52*	*02/17/15 15:42*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**6.0**		0.43	0.042	mg/Kg	☼	02/13/15 11:11	02/13/15 17:44	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-10 6'
Date Collected: 02/10/15 14:30
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-10
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	75		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	25		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-13 7'
Date Collected: 02/10/15 15:43
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-11
Matrix: Solid
Percent Solids: 75.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00094	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 16:14	1
Toluene	ND		0.0019	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 16:14	1
Ethylbenzene	ND		0.00094	0.00038	mg/Kg	☼	02/12/15 11:30	02/17/15 16:14	1
m-Xylene & p-Xylene	ND		0.0019	0.00019	mg/Kg	☼	02/12/15 11:30	02/17/15 16:14	1
o-Xylene	ND		0.0019	0.00047	mg/Kg	☼	02/12/15 11:30	02/17/15 16:14	1
Methyl tert-butyl ether	ND		0.00094	0.00028	mg/Kg	☼	02/12/15 11:30	02/17/15 16:14	1
EDC	ND		0.00094	0.00038	mg/Kg	☼	02/12/15 11:30	02/17/15 16:14	1
Naphthalene	ND		0.0047	0.00047	mg/Kg	☼	02/12/15 11:30	02/17/15 16:14	1
Xylenes, Total	ND		1.9	0.47	ug/Kg	☼	02/12/15 11:30	02/17/15 16:14	1
EDB	ND		0.00094	0.00019	mg/Kg	☼	02/12/15 11:30	02/17/15 16:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 136*	*02/12/15 11:30*	*02/17/15 16:14*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 120*	*02/12/15 11:30*	*02/17/15 16:14*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*	*02/12/15 11:30*	*02/17/15 16:14*	*1*
Trifluorotoluene (Surr)	*101*		*65 - 140*	*02/12/15 11:30*	*02/17/15 16:14*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 132*	*02/12/15 11:30*	*02/17/15 16:14*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 19:46	1
Chrysene	ND		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 19:46	1
Benzo[b]fluoranthene	ND		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 19:46	1
Benzo[k]fluoranthene	ND		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 19:46	1
Benzo[a]pyrene	ND		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 19:46	1
Indeno[1,2,3-cd]pyrene	ND		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 19:46	1
Dibenz(a,h)anthracene	ND		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 19:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*94*		*42 - 151*	*02/13/15 09:20*	*02/17/15 19:46*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**16**	**B**	5.1	0.64	mg/Kg	☼	02/13/15 13:00	02/14/15 00:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*02/13/15 13:00*	*02/14/15 00:57*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	**8.6**	**J**	33	7.5	mg/Kg	☼	02/13/15 10:52	02/17/15 15:58	1
Motor Oil (>C24-C36)	ND		65	12	mg/Kg	☼	02/13/15 10:52	02/17/15 15:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*71*		*50 - 150*	*02/13/15 10:52*	*02/17/15 15:58*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**4.5**		0.40	0.038	mg/Kg	☼	02/13/15 11:11	02/13/15 17:48	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-13 7'
Date Collected: 02/10/15 15:43
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-11
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	76		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	24		0.10	0.10	%			02/14/15 18:05	1

Client Sample ID: TP-16 7'
Date Collected: 02/10/15 16:30
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-12
Matrix: Solid
Percent Solids: 75.0

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00055	0.00016	mg/Kg	☼	02/12/15 11:30	02/17/15 18:46	1
Toluene	**0.00021**	**J**	0.0011	0.00016	mg/Kg	☼	02/12/15 11:30	02/17/15 18:46	1
Ethylbenzene	ND		0.00055	0.00022	mg/Kg	☼	02/12/15 11:30	02/17/15 18:46	1
m-Xylene & p-Xylene	ND		0.0011	0.00011	mg/Kg	☼	02/12/15 11:30	02/17/15 18:46	1
o-Xylene	ND		0.0011	0.00027	mg/Kg	☼	02/12/15 11:30	02/17/15 18:46	1
Methyl tert-butyl ether	ND		0.00055	0.00016	mg/Kg	☼	02/12/15 11:30	02/17/15 18:46	1
EDC	ND		0.00055	0.00022	mg/Kg	☼	02/12/15 11:30	02/17/15 18:46	1
Xylenes, Total	ND		1.1	0.27	ug/Kg	☼	02/12/15 11:30	02/17/15 18:46	1
EDB	ND		0.00055	0.00011	mg/Kg	☼	02/12/15 11:30	02/17/15 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*71 - 136*	*02/12/15 11:30*	*02/17/15 18:46*	*1*
4-Bromofluorobenzene (Surr)	*77*		*70 - 120*	*02/12/15 11:30*	*02/17/15 18:46*	*1*
Toluene-d8 (Surr)	*110*		*80 - 120*	*02/12/15 11:30*	*02/17/15 18:46*	*1*
Trifluorotoluene (Surr)	*102*		*65 - 140*	*02/12/15 11:30*	*02/17/15 18:46*	*1*
Dibromofluoromethane (Surr)	*91*		*75 - 132*	*02/12/15 11:30*	*02/17/15 18:46*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.0030**	**J**	0.0056	0.00056	mg/Kg	☼	02/12/15 11:30	02/18/15 13:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*71 - 136*	*02/12/15 11:30*	*02/18/15 13:22*	*1*
4-Bromofluorobenzene (Surr)	*107*		*70 - 120*	*02/12/15 11:30*	*02/18/15 13:22*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*	*02/12/15 11:30*	*02/18/15 13:22*	*1*
Trifluorotoluene (Surr)	*98*		*65 - 140*	*02/12/15 11:30*	*02/18/15 13:22*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 132*	*02/12/15 11:30*	*02/18/15 13:22*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0063	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:07	1
Chrysene	**0.015**		0.0063	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:07	1
Benzo[b]fluoranthene	ND		0.0063	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:07	1
Benzo[k]fluoranthene	ND		0.0063	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:07	1
Benzo[a]pyrene	ND		0.0063	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:07	1
Indeno[1,2,3-cd]pyrene	ND		0.0063	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:07	1
Dibenz(a,h)anthracene	ND		0.0063	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*105*		*42 - 151*	*02/13/15 09:20*	*02/17/15 20:07*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**440**	**B**	6.9	0.86	mg/Kg	☼	02/13/15 13:00	02/14/15 01:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*120*		*50 - 150*	*02/13/15 13:00*	*02/14/15 01:30*	*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)	**3500**	**Y**	32	7.3	mg/Kg	☼	02/13/15 10:54	02/17/15 16:31	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-16 7'
Date Collected: 02/10/15 16:30
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-12
Matrix: Solid
Percent Solids: 75.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Motor Oil (>C24-C36)	74	Y	64	12	mg/Kg	☼	02/13/15 10:54	02/17/15 16:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*56*		*50 - 150*	*02/13/15 10:54*	*02/17/15 16:31*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	4.5		0.45	0.043	mg/Kg	☼	02/13/15 11:11	02/13/15 17:52	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	75		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	25		0.10	0.10	%			02/14/15 18:05	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: Trip Blank
Date Collected: 02/10/15 00:00
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-15
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	H	0.0010	0.00030	mg/Kg		02/12/15 11:30	02/17/15 13:15	1
Toluene	ND	H	0.0020	0.00030	mg/Kg		02/12/15 11:30	02/17/15 13:15	1
Ethylbenzene	ND	H	0.0010	0.00040	mg/Kg		02/12/15 11:30	02/17/15 13:15	1
m-Xylene & p-Xylene	ND	H	0.0020	0.00020	mg/Kg		02/12/15 11:30	02/17/15 13:15	1
o-Xylene	ND	H	0.0020	0.00050	mg/Kg		02/12/15 11:30	02/17/15 13:15	1
Methyl tert-butyl ether	ND	H	0.0010	0.00030	mg/Kg		02/12/15 11:30	02/17/15 13:15	1
EDC	ND	H	0.0010	0.00040	mg/Kg		02/12/15 11:30	02/17/15 13:15	1
Naphthalene	ND	H	0.0050	0.00050	mg/Kg		02/12/15 11:30	02/17/15 13:15	1
Xylenes, Total	ND	H	2.0	0.50	ug/Kg		02/12/15 11:30	02/17/15 13:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 136*	*02/12/15 11:30*	*02/17/15 13:15*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 120*	*02/12/15 11:30*	*02/17/15 13:15*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*	*02/12/15 11:30*	*02/17/15 13:15*	*1*
Trifluorotoluene (Surr)	*102*		*65 - 140*	*02/12/15 11:30*	*02/17/15 13:15*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 132*	*02/12/15 11:30*	*02/17/15 13:15*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	2.1	J B	4.0	0.50	mg/Kg		02/13/15 13:00	02/13/15 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*50 - 150*	*02/13/15 13:00*	*02/13/15 17:48*	*1*

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-12 8'
Date Collected: 02/10/15 15:20
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-16
Matrix: Solid
Percent Solids: 80.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00098	0.00029	mg/Kg	☼	02/12/15 11:30	02/18/15 12:56	1
Toluene	ND		0.0020	0.00029	mg/Kg	☼	02/12/15 11:30	02/18/15 12:56	1
Ethylbenzene	ND		0.00098	0.00039	mg/Kg	☼	02/12/15 11:30	02/18/15 12:56	1
m-Xylene & p-Xylene	ND		0.0020	0.00020	mg/Kg	☼	02/12/15 11:30	02/18/15 12:56	1
o-Xylene	ND		0.0020	0.00049	mg/Kg	☼	02/12/15 11:30	02/18/15 12:56	1
Methyl tert-butyl ether	ND	*	0.00098	0.00029	mg/Kg	☼	02/12/15 11:30	02/18/15 12:56	1
EDC	ND	*	0.00098	0.00039	mg/Kg	☼	02/12/15 11:30	02/18/15 12:56	1
Naphthalene	ND		0.0049	0.00049	mg/Kg	☼	02/12/15 11:30	02/18/15 12:56	1
Xylenes, Total	ND		2.0	0.49	ug/Kg	☼	02/12/15 11:30	02/18/15 12:56	1
EDB	ND	*	0.00098	0.00020	mg/Kg	☼	02/12/15 11:30	02/18/15 12:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*71 - 136*	*02/12/15 11:30*	*02/18/15 12:56*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 120*	*02/12/15 11:30*	*02/18/15 12:56*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*	*02/12/15 11:30*	*02/18/15 12:56*	*1*
Trifluorotoluene (Surr)	*91*		*65 - 140*	*02/12/15 11:30*	*02/18/15 12:56*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 132*	*02/12/15 11:30*	*02/18/15 12:56*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0059	0.0018	mg/Kg	☼	02/13/15 09:34	02/17/15 21:12	1
Chrysene	ND		0.0059	0.0018	mg/Kg	☼	02/13/15 09:34	02/17/15 21:12	1
Benzo[b]fluoranthene	ND		0.0059	0.0018	mg/Kg	☼	02/13/15 09:34	02/17/15 21:12	1
Benzo[k]fluoranthene	ND		0.0059	0.0018	mg/Kg	☼	02/13/15 09:34	02/17/15 21:12	1
Benzo[a]pyrene	ND		0.0059	0.0018	mg/Kg	☼	02/13/15 09:34	02/17/15 21:12	1
Indeno[1,2,3-cd]pyrene	ND		0.0059	0.0018	mg/Kg	☼	02/13/15 09:34	02/17/15 21:12	1
Dibenz(a,h)anthracene	ND		0.0059	0.0018	mg/Kg	☼	02/13/15 09:34	02/17/15 21:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*92*		*42 - 151*	*02/13/15 09:34*	*02/17/15 21:12*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**4.4**	**J B**	4.5	0.57	mg/Kg	☼	02/13/15 13:00	02/14/15 03:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*02/13/15 13:00*	*02/14/15 03:09*	*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)	**7.2**	**J**	31	7.0	mg/Kg	☼	02/13/15 10:54	02/17/15 17:19	1
Motor Oil (>C24-C36)	ND		62	11	mg/Kg	☼	02/13/15 10:54	02/17/15 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*73*		*50 - 150*	*02/13/15 10:54*	*02/17/15 17:19*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**2.4**		0.44	0.043	mg/Kg	☼	02/13/15 11:11	02/13/15 16:24	10

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-12 8'
Date Collected: 02/10/15 15:20
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-16
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	20		0.10	0.10	%			02/14/15 18:05	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-182616/1-A
Matrix: Solid
Analysis Batch: 182579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 182616

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010	0.00030	mg/Kg		02/17/15 12:27	02/17/15 09:58	1
Toluene	ND		0.0020	0.00030	mg/Kg		02/17/15 12:27	02/17/15 09:58	1
Ethylbenzene	ND		0.0010	0.00040	mg/Kg		02/17/15 12:27	02/17/15 09:58	1
m-Xylene & p-Xylene	ND		0.0020	0.00020	mg/Kg		02/17/15 12:27	02/17/15 09:58	1
o-Xylene	ND		0.0020	0.00050	mg/Kg		02/17/15 12:27	02/17/15 09:58	1
Methyl tert-butyl ether	ND		0.0010	0.00030	mg/Kg		02/17/15 12:27	02/17/15 09:58	1
EDC	ND		0.0010	0.00040	mg/Kg		02/17/15 12:27	02/17/15 09:58	1
Naphthalene	ND		0.0050	0.00050	mg/Kg		02/17/15 12:27	02/17/15 09:58	1
Xylenes, Total	ND		2.0	0.50	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
EDB	ND		0.0010	0.00020	mg/Kg		02/17/15 12:27	02/17/15 09:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*	*02/17/15 12:27*	*02/17/15 09:58*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 120*	*02/17/15 12:27*	*02/17/15 09:58*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*	*02/17/15 12:27*	*02/17/15 09:58*	*1*
Trifluorotoluene (Surr)	*97*		*65 - 140*	*02/17/15 12:27*	*02/17/15 09:58*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*02/17/15 12:27*	*02/17/15 09:58*	*1*

Lab Sample ID: LCS 580-182616/2-A
Matrix: Solid
Analysis Batch: 182579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 182616

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0100	0.0112		mg/Kg		112	70 - 128
Toluene	0.0100	0.0104		mg/Kg		104	75 - 126
Ethylbenzene	0.0100	0.0107		mg/Kg		107	78 - 126
m-Xylene & p-Xylene	0.0100	0.0108		mg/Kg		108	78 - 126
o-Xylene	0.0100	0.0107		mg/Kg		107	77 - 127
Methyl tert-butyl ether	0.0100	0.0123		mg/Kg		123	65 - 125
EDC	0.0100	0.0106		mg/Kg		106	71 - 128
Naphthalene	0.0100	0.0119		mg/Kg		119	14 - 170
EDB	0.0100	0.0115		mg/Kg		115	69 - 126

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*70 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*
Trifluorotoluene (Surr)	*99*		*65 - 140*
Dibromofluoromethane (Surr)	*103*		*75 - 132*

Lab Sample ID: LCSD 580-182616/3-A
Matrix: Solid
Analysis Batch: 182579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 182616

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0100	0.0110		mg/Kg		110	70 - 128	2	19
Toluene	0.0100	0.0106		mg/Kg		106	75 - 126	1	19

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

Lab Sample ID: LCSD 580-182616/3-A
Matrix: Solid
Analysis Batch: 182579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 182616

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene			0.0100	0.0105		mg/Kg		105	78 - 126	2	23
m-Xylene & p-Xylene			0.0100	0.0104		mg/Kg		104	78 - 126	4	23
o-Xylene			0.0100	0.0104		mg/Kg		104	77 - 127	4	22
Methyl tert-butyl ether			0.0100	0.0108		mg/Kg		108	65 - 125	13	30
EDC			0.0100	0.0102		mg/Kg		102	71 - 128	4	18
Naphthalene			0.0100	0.0123		mg/Kg		123	14 - 170	3	50
EDB			0.0100	0.0109		mg/Kg		109	69 - 126	5	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*
4-Bromofluorobenzene (Surr)	*98*		*70 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*
Trifluorotoluene (Surr)	*99*		*65 - 140*
Dibromofluoromethane (Surr)	*101*		*75 - 132*

Lab Sample ID: MB 580-182696/1-A
Matrix: Solid
Analysis Batch: 182694

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 182696

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010	0.00030	mg/Kg		02/18/15 10:54	02/18/15 10:37	1
Toluene	ND		0.0020	0.00030	mg/Kg		02/18/15 10:54	02/18/15 10:37	1
Ethylbenzene	ND		0.0010	0.00040	mg/Kg		02/18/15 10:54	02/18/15 10:37	1
m-Xylene & p-Xylene	ND		0.0020	0.00020	mg/Kg		02/18/15 10:54	02/18/15 10:37	1
o-Xylene	ND		0.0020	0.00050	mg/Kg		02/18/15 10:54	02/18/15 10:37	1
Methyl tert-butyl ether	ND		0.0010	0.00030	mg/Kg		02/18/15 10:54	02/18/15 10:37	1
EDC	ND		0.0010	0.00040	mg/Kg		02/18/15 10:54	02/18/15 10:37	1
Naphthalene	ND		0.0050	0.00050	mg/Kg		02/18/15 10:54	02/18/15 10:37	1
Xylenes, Total	ND		2.0	0.50	ug/Kg		02/18/15 10:54	02/18/15 10:37	1
EDB	ND		0.0010	0.00020	mg/Kg		02/18/15 10:54	02/18/15 10:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*126*		*71 - 136*	*02/18/15 10:54*	*02/18/15 10:37*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*	*02/18/15 10:54*	*02/18/15 10:37*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*	*02/18/15 10:54*	*02/18/15 10:37*	*1*
Trifluorotoluene (Surr)	*91*		*65 - 140*	*02/18/15 10:54*	*02/18/15 10:37*	*1*
Dibromofluoromethane (Surr)	*110*		*75 - 132*	*02/18/15 10:54*	*02/18/15 10:37*	*1*

Lab Sample ID: LCS 580-182696/2-A
Matrix: Solid
Analysis Batch: 182694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 182696

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene			0.0300	0.0354		mg/Kg		118	70 - 128
Toluene			0.0300	0.0336		mg/Kg		112	75 - 126
Ethylbenzene			0.0300	0.0328		mg/Kg		109	78 - 126
m-Xylene & p-Xylene			0.0300	0.0340		mg/Kg		113	78 - 126
o-Xylene			0.0300	0.0353		mg/Kg		118	77 - 127

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

Lab Sample ID: LCS 580-182696/2-A
Matrix: Solid
Analysis Batch: 182694

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 182696

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methyl tert-butyl ether			0.0300	0.0395	*	mg/Kg		132	65 - 125		
EDC			0.0300	0.0391	*	mg/Kg		130	71 - 128		
Naphthalene			0.0300	0.0371		mg/Kg		124	14 - 170		
EDB			0.0300	0.0397	*	mg/Kg		132	69 - 126		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*118*		*71 - 136*
4-Bromofluorobenzene (Surr)	*105*		*70 - 120*
Toluene-d8 (Surr)	*96*		*80 - 120*
Trifluorotoluene (Surr)	*85*		*65 - 140*
Dibromofluoromethane (Surr)	*105*		*75 - 132*

Lab Sample ID: LCSD 580-182696/3-A
Matrix: Solid
Analysis Batch: 182694

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 182696

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.0300	0.0346		mg/Kg		115	70 - 128	2	19
Toluene			0.0300	0.0326		mg/Kg		109	75 - 126	3	19
Ethylbenzene			0.0300	0.0324		mg/Kg		108	78 - 126	1	23
m-Xylene & p-Xylene			0.0300	0.0336		mg/Kg		112	78 - 126	1	23
o-Xylene			0.0300	0.0344		mg/Kg		115	77 - 127	3	22
Methyl tert-butyl ether			0.0300	0.0386	*	mg/Kg		129	65 - 125	2	30
EDC			0.0300	0.0380		mg/Kg		127	71 - 128	3	18
Naphthalene			0.0300	0.0382		mg/Kg		127	14 - 170	3	50
EDB			0.0300	0.0390	*	mg/Kg		130	69 - 126	2	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*117*		*71 - 136*
4-Bromofluorobenzene (Surr)	*104*		*70 - 120*
Toluene-d8 (Surr)	*94*		*80 - 120*
Trifluorotoluene (Surr)	*82*		*65 - 140*
Dibromofluoromethane (Surr)	*106*		*75 - 132*

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

Lab Sample ID: MB 580-182455/1-A
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 182455

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Chrysene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Benzo[b]fluoranthene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Benzo[k]fluoranthene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Benzo[a]pyrene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Indeno[1,2,3-cd]pyrene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1

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

Lab Sample ID: MB 580-182455/1-A
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 182455

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*93*		*42 - 151*	*02/13/15 09:19*	*02/17/15 14:19*	*1*

Lab Sample ID: LCS 580-182455/2-A
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 182455

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	1.00	0.842		mg/Kg		84	76 - 119
Chrysene	1.00	0.892		mg/Kg		89	75 - 114
Benzo[b]fluoranthene	1.00	0.855		mg/Kg		86	63 - 132
Benzo[k]fluoranthene	1.00	0.736		mg/Kg		74	63 - 119
Benzo[a]pyrene	1.00	0.822		mg/Kg		82	72 - 117
Indeno[1,2,3-cd]pyrene	1.00	0.829		mg/Kg		83	56 - 127
Dibenz(a,h)anthracene	1.00	0.843		mg/Kg		84	56 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*92*		*42 - 151*

Lab Sample ID: LCSD 580-182455/3-A
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 182455

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	1.00	0.756		mg/Kg		76	76 - 119	11	27
Chrysene	1.00	0.810		mg/Kg		81	75 - 114	10	26
Benzo[b]fluoranthene	1.00	0.773		mg/Kg		77	63 - 132	10	30
Benzo[k]fluoranthene	1.00	0.682		mg/Kg		68	63 - 119	8	30
Benzo[a]pyrene	1.00	0.752		mg/Kg		75	72 - 117	9	30
Indeno[1,2,3-cd]pyrene	1.00	0.741		mg/Kg		74	56 - 127	11	29
Dibenz(a,h)anthracene	1.00	0.773		mg/Kg		77	56 - 134	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*86*		*42 - 151*

Lab Sample ID: 580-47473-1 MS
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: TP-1 7'
Prep Type: Total/NA
Prep Batch: 182455

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	ND		1.10	0.830		mg/Kg	☼	76	76 - 119
Chrysene	ND		1.10	0.892		mg/Kg	☼	81	75 - 114
Benzo[b]fluoranthene	ND		1.10	0.881		mg/Kg	☼	80	63 - 132
Benzo[k]fluoranthene	ND		1.10	0.729		mg/Kg	☼	66	63 - 119
Benzo[a]pyrene	ND		1.10	0.813		mg/Kg	☼	74	72 - 117

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

Lab Sample ID: 580-47473-1 MS
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: TP-1 7'
Prep Type: Total/NA
Prep Batch: 182455

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Indeno[1,2,3-cd]pyrene	ND		1.10	0.807		mg/Kg	☼	73	56 - 127
Dibenz(a,h)anthracene	ND		1.10	0.829		mg/Kg	☼	76	56 - 134

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*80*		*42 - 151*

Lab Sample ID: 580-47473-1 MSD
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: TP-1 7'
Prep Type: Total/NA
Prep Batch: 182455

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	ND		1.08	0.836		mg/Kg	☼	78	76 - 119	1	27
Chrysene	ND		1.08	0.886		mg/Kg	☼	82	75 - 114	1	26
Benzo[b]fluoranthene	ND		1.08	0.749		mg/Kg	☼	69	63 - 132	16	31
Benzo[k]fluoranthene	ND		1.08	0.825		mg/Kg	☼	76	63 - 119	12	31
Benzo[a]pyrene	ND		1.08	0.810		mg/Kg	☼	75	72 - 117	0	30
Indeno[1,2,3-cd]pyrene	ND		1.08	0.770		mg/Kg	☼	71	56 - 127	5	29
Dibenz(a,h)anthracene	ND		1.08	0.826		mg/Kg	☼	77	56 - 134	0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*85*		*42 - 151*

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

Lab Sample ID: MB 580-182499/1-A
Matrix: Solid
Analysis Batch: 182502

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 182499

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.951	J	4.0	0.50	mg/Kg		02/13/15 13:00	02/13/15 16:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*	*02/13/15 13:00*	*02/13/15 16:09*	*1*

Lab Sample ID: LCS 580-182499/2-A
Matrix: Solid
Analysis Batch: 182502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 182499

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	40.0	37.5		mg/Kg		94	68 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*50 - 150*

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

Lab Sample ID: LCSD 580-182499/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182502 — **Prep Batch: 182499**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			40.0	37.7		mg/Kg		94	68 - 120	1	25

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

Lab Sample ID: MB 580-182632/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182639 — **Prep Batch: 182632**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.763	J	4.0	0.50	mg/Kg		02/17/15 13:51	02/17/15 14:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*50 - 150*	*02/17/15 13:51*	*02/17/15 14:36*	*1*

Lab Sample ID: LCS 580-182632/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182639 — **Prep Batch: 182632**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline			40.0	43.0		mg/Kg		108	68 - 120		

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

Lab Sample ID: LCSD 580-182632/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182639 — **Prep Batch: 182632**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			40.0	43.7		mg/Kg		109	68 - 120	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*116*		*50 - 150*

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

Lab Sample ID: MB 580-182463/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182566 — **Prep Batch: 182463**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		25	5.7	mg/Kg		02/13/15 10:52	02/17/15 10:35	1
Motor Oil (>C24-C36)	ND		50	9.1	mg/Kg		02/13/15 10:52	02/17/15 10:35	1

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

Lab Sample ID: MB 580-182463/1-A
Matrix: Solid
Analysis Batch: 182566

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 182463

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	56		50 - 150	02/13/15 10:52	02/17/15 10:35	1

Lab Sample ID: LCSD 580-182463/3-A
Matrix: Solid
Analysis Batch: 182566

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 182463

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			500	364		mg/Kg		73	70 - 125	4	16
Motor Oil (>C24-C36)			502	401		mg/Kg		80	64 - 127	6	17

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	56		50 - 150

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-182471/19-A
Matrix: Solid
Analysis Batch: 182582

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 182471

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.50	0.048	mg/Kg		02/13/15 11:11	02/13/15 16:09	10

Lab Sample ID: LCS 580-182471/20-A
Matrix: Solid
Analysis Batch: 182582

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 182471

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead			50.0	52.9		mg/Kg		106	80 - 120

Lab Sample ID: LCSD 580-182471/21-A
Matrix: Solid
Analysis Batch: 182582

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 182471

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead			50.0	51.8		mg/Kg		104	80 - 120	2	20

Lab Sample ID: 580-47473-16 MS
Matrix: Solid
Analysis Batch: 182582

Client Sample ID: TP-12 8'
Prep Type: Total/NA
Prep Batch: 182471

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	2.4		51.5	59.5		mg/Kg	☼	111	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 580-47473-16 MSD — **Client Sample ID: TP-12 8'**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182582 — **Prep Batch: 182471**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	2.4		45.0	54.8		mg/Kg	☼	116	80 - 120	8	20

Lab Sample ID: 580-47473-16 DU — **Client Sample ID: TP-12 8'**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182582 — **Prep Batch: 182471**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Lead	2.4		2.58		mg/Kg	☼	8	20

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-182737/3 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182737

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		2000	44	mg/Kg			02/18/15 15:01	1

Lab Sample ID: LCS 580-182737/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182737

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	2850	3220		mg/Kg		113	27.8 - 170

Lab Sample ID: LCSD 580-182737/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182737

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	2850	3240		mg/Kg		114	27.8 - 170	1	35

Lab Sample ID: 580-47473-4 MS — **Client Sample ID: TP-4 7'**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182737

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	2100		119000	122000		mg/Kg		101	50 - 140

Lab Sample ID: 580-47473-4 MSD — **Client Sample ID: TP-4 7'**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182737

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	2100		120000	122000		mg/Kg		100	50 - 140	0	35

Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 580-47473-4 DU
Matrix: Solid
Analysis Batch: 182737

Client Sample ID: TP-4 7'
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon	2100			1860	J	mg/Kg				10	50

Client Sample ID: TP-1 7'

Lab Sample ID: 580-47473-1

Date Collected: 02/10/15 11:00

Matrix: Solid

Date Received: 02/12/15 09:55

Percent Solids: 86.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 13:40	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 15:24	AHP	TAL SEA
Total/NA	Prep	5035	RA		182632	02/17/15 13:51	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx	RA	1	182639	02/17/15 16:09	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 13:00	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 16:55	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-2 8'

Lab Sample ID: 580-47473-2

Date Collected: 02/10/15 11:25

Matrix: Solid

Date Received: 02/12/15 09:55

Percent Solids: 68.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 14:06	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 16:30	AHP	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/13/15 19:26	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 13:33	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 16:59	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-3 8'

Lab Sample ID: 580-47473-3

Date Collected: 02/10/15 11:35

Matrix: Solid

Date Received: 02/12/15 09:55

Percent Solids: 71.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 20:52	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 16:52	AHP	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/13/15 19:59	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 13:49	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA

Client Sample ID: TP-3 8'

Lab Sample ID: 580-47473-3

Date Collected: 02/10/15 11:35
Matrix: Solid
Date Received: 02/12/15 09:55
Percent Solids: 71.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6020A		10	182582	02/13/15 17:02	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-4 7'

Lab Sample ID: 580-47473-4

Date Collected: 02/10/15 12:04
Matrix: Solid
Date Received: 02/12/15 09:55
Percent Solids: 76.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 18:20	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 17:14	AHP	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/13/15 20:32	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 14:05	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:06	FCW	TAL SEA
Total/NA	Analysis	9060		1	182737	02/18/15 15:01	LKC	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-5 6'

Lab Sample ID: 580-47473-5

Date Collected: 02/10/15 12:35
Matrix: Solid
Date Received: 02/12/15 09:55
Percent Solids: 69.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 14:58	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 17:35	AHP	TAL SEA
Total/NA	Prep	5035	RA		182632	02/17/15 13:51	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx	RA	1	182639	02/17/15 16:39	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 14:21	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:10	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-6 6' — **Lab Sample ID: 580-47473-6**
Date Collected: 02/10/15 12:57 — **Matrix: Solid**
Date Received: 02/12/15 09:55 — **Percent Solids: 69.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 19:11	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 17:57	AHP	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/13/15 22:11	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 14:37	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:14	FCW	TAL SEA
Total/NA	Analysis	9060		1	182737	02/18/15 15:01	LKC	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-6 6' D — **Lab Sample ID: 580-47473-7**
Date Collected: 02/10/15 13:00 — **Matrix: Solid**
Date Received: 02/12/15 09:55 — **Percent Solids: 66.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 19:36	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 18:19	AHP	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/13/15 22:45	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 14:54	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:17	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-8 5' — **Lab Sample ID: 580-47473-8**
Date Collected: 02/10/15 13:30 — **Matrix: Solid**
Date Received: 02/12/15 09:55 — **Percent Solids: 74.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 15:23	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 18:40	AHP	TAL SEA
Total/NA	Prep	5035	RA		182632	02/17/15 13:51	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx	RA	1	182639	02/17/15 18:43	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 15:10	JJP	TAL SEA

Client Sample ID: TP-8 5'

Lab Sample ID: 580-47473-8

Date Collected: 02/10/15 13:30
Matrix: Solid
Date Received: 02/12/15 09:55
Percent Solids: 74.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:21	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-9 5'

Lab Sample ID: 580-47473-9

Date Collected: 02/10/15 13:50
Matrix: Solid
Date Received: 02/12/15 09:55
Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 15:48	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182701	02/18/15 11:48	AHP	TAL SEA
Total/NA	Prep	5035	RA		182632	02/17/15 13:51	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx	RA	1	182639	02/17/15 17:42	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 15:26	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:25	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-10 6'

Lab Sample ID: 580-47473-10

Date Collected: 02/10/15 14:30
Matrix: Solid
Date Received: 02/12/15 09:55
Percent Solids: 74.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 20:02	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 19:24	AHP	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/14/15 00:24	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 15:42	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:44	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-13 7'

Lab Sample ID: 580-47473-11

Date Collected: 02/10/15 15:43

Matrix: Solid

Date Received: 02/12/15 09:55

Percent Solids: 75.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 16:14	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 19:46	AHP	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/14/15 00:57	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:52	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 15:58	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:48	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: TP-16 7'

Lab Sample ID: 580-47473-12

Date Collected: 02/10/15 16:30

Matrix: Solid

Date Received: 02/12/15 09:55

Percent Solids: 75.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035	RA		182696	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C	RA	1	182694	02/18/15 13:22	SOC	TAL SEA
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 18:46	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 20:07	AHP	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/14/15 01:30	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:54	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 16:31	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:52	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: Trip Blank

Lab Sample ID: 580-47473-15

Date Collected: 02/10/15 00:00

Matrix: Solid

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 13:15	CJ	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/13/15 17:48	TL1	TAL SEA

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Client Sample ID: TP-12 8'
Date Collected: 02/10/15 15:20
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-16
Matrix: Solid
Percent Solids: 80.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182696	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182694	02/18/15 12:56	SOC	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:34	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 21:12	AHP	TAL SEA
Total/NA	Prep	5035			182499	02/13/15 13:00	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182502	02/14/15 03:09	TL1	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:54	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 17:19	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 16:24	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Laboratory References:

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

Certification Summary

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-1

Laboratory: TestAmerica Seattle

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-04-15
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	11-06-15
US Fish & Wildlife	Federal		LE192332-0	02-28-16
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: KVFR

TestAmerica Job ID: 580-47473-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-47473-1	TP-1 7'	Solid	02/10/15 11:00	02/12/15 09:55
580-47473-2	TP-2 8'	Solid	02/10/15 11:25	02/12/15 09:55
580-47473-3	TP-3 8'	Solid	02/10/15 11:35	02/12/15 09:55
580-47473-4	TP-4 7'	Solid	02/10/15 12:04	02/12/15 09:55
580-47473-5	TP-5 6'	Solid	02/10/15 12:35	02/12/15 09:55
580-47473-6	TP-6 6'	Solid	02/10/15 12:57	02/12/15 09:55
580-47473-7	TP-6 6' D	Solid	02/10/15 13:00	02/12/15 09:55
580-47473-8	TP-8 5'	Solid	02/10/15 13:30	02/12/15 09:55
580-47473-9	TP-9 5'	Solid	02/10/15 13:50	02/12/15 09:55
580-47473-10	TP-10 6'	Solid	02/10/15 14:30	02/12/15 09:55
580-47473-11	TP-13 7'	Solid	02/10/15 15:43	02/12/15 09:55
580-47473-12	TP-16 7'	Solid	02/10/15 16:30	02/12/15 09:55
580-47473-15	Trip Blank	Solid	02/10/15 00:00	02/12/15 09:55
580-47473-16	TP-12 8'	Solid	02/10/15 15:20	02/12/15 09:55

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

47473

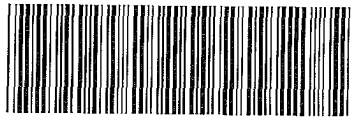
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

Client Contact	Project Manager: JOHN MEANS	Site Contact:	Date: 2/11/15	COC No:
TerraGraphics	Tel/Fax:	Lab Contact: DAVID BURK	Carrier:	1 of 2 COCs
988 S longmont ave	Analysis Turnaround Time			Sampler:
boise idaho 83706	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone	TAT if different from Below 3-DAY			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: KVFR	☐ 1 week			Job / SDG No.:
Site:	☐ 2 days			
PO# 15006	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH-dx	cPAHs	LEAD - TOTAL	EPH - DRO	METALS (Cd, Cr, Ni, Zn)	HVOCs	TOTAL ORGANIC CHLORINE	TPH-gx	BTEX/MTBE, EDC	Sample Specific Notes:
TP-1 7'	2/10/15	1100	G	SL	4			X	X	X					X	X	
-2 TP-2 8'	2/10/15	1125	G	SL	4			X	X	X					X	X	
TP-3 8'	2/10/15	1135	G	SL	4			X	X	X					X	X	
-4 TP-4 7'	2/10/15	1204	G	SL	4			X	X	X				X	X	X	
TP-5 6'	2/10/15	1235	G	SL	4			X	X	X					X	X	
-6 TP-6 6'	2/10/15	1257	G	SL	4			X	X	X				X	X	X	
TP-66'D	2/10/15	1300	G	SL	4			X	X	X					X	X	
-8 TP-8 5'	2/10/15	1330	G	SL	4			X	X	X					X	X	
TP-9 5'	2/10/15	1350	G	SL	4			X	X	X					X	X	
-10 TP-10 6'	2/10/15	1430	G	SL	4			X	X	X					X	X	
TP-13 7'	2/10/15	1543	G	SL	4			X	X	X					X	X	
-12 TP-16 7'	2/10/15	1630	G	SL	4			X	X	X					X	X	



Cooler/TB Dig/IR cor 2.1 unc 1.9
Cooler Dsc Labeled @Lab
Wet/Packs Packing Bubble
Fed Ex 5.0 w/c.s.

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
			D Vance	TA Sea	02/12/15 0955
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Page 50 of 53

2/11/2015

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

47473

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: JOHN MEANS	Site Contact:	Date: 2/11/15	COC No:
TerraGraphics	Tel/Fax:	Lab Contact: DAVID BORK	Carrier:	1 of 2 COCs
988 S longmont ave	Analysis Turnaround Time			Sampler:
boise idaho 83706	☐CALENDAR DAYS ☐WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone	TAT if different from Below 3-DAY			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: KVFR	☐ 1 week			Job / SDG No.:
Site:	☐ 2 days			
PO# 15006	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH-dx	cPAHs	LEAD - TOTAL	EPH-DRO	METALS (Cd, Cr, Ni, Zn)	HVOCs	TOTAL OXY COMPOUNDS	TPH-gx	BTEX/MTBE EDC	Sample Specific Notes:
-1 TP-1 7'	2/10/15	1100	G	SL	4			X	X	X					X	X	
TP-2 8'	2/10/15	1125	G	SL	4			X	X	X					X	X	
-3 TP-3 8'	2/10/15	1135	G	SL	4			X	X	X					X	X	
TP-4 7'	2/10/15	1204	G	SL	4			X	X	X				X	X	X	
-5 TP-5 6'	2/10/15	1235	G	SL	4			X	X	X					X	X	
TP-6 6'	2/10/15	1257	G	SL	4			X	X	X				X	X	X	
-7 TP-66'D	2/10/15	1300	G	SL	4			X	X	X					X	X	
TP-8 5'	2/10/15	1330	G	SL	4			X	X	X					X	X	
-9 TP-9 5'	2/10/15	1350	G	SL	4			X	X	X					X	X	
TP-10 6'	2/10/15	1430	G	SL	4			X	X	X					X	X	
-11 TP-13 7'	2/10/15	1543	G	SL	4			X	X	X					X	X	
TP-16 7'	2/10/15	1630	G	SL	4			X	X	X					X	X	

Cooler/TB Dig/IR cor 2.5 unc 2.3 (Not)
Cooler Dsc La Porn Blu @Lab 0955
Wet/Packs Packing Bubble
Fed Ex S.C. w/c.s.

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☐Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐Return to Client ☒Disposal by Lab ☐Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____			
Relinquished by:	Company:	Date/Time:	Received by: Vance	Company: TA Sea	Date/Time: 02/12/15 0955
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

47473

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: JOHN MEANS	Site Contact:	Date: 2/11/15	COC No:
TerraGraphics	Tel/Fax:	Lab Contact: DAVID BURK	Carrier:	2 of 2 COCs
988 S longmont ave	Analysis Turnaround Time			Sampler:
boise idaho 83706	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone	TAT if different from Below ~~3 - DAY~~			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks STANDARD			Lab Sampling:
Project Name: KUFR	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# 15006	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH-dx	cPAHs	LEAD - TOTAL	EDB - DBCP	METALS (Cd, Cr, Ni, Zn)	HVOCs	TPH-gx	BTEXN, MTBE, EDC	Sample Specific Notes:
-13 C-C'	2/11/15	1030	G	SL	8			X	X	X	X	X	X	X	X	STANDARD TAT
-14 D-D'	2/11/15	1035	G	SL	8			X	X	X	X	X	X	X	X	STANDARD TAT
-15 TRIP BLANK														X	X	

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

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☐ Return to Client ☒ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____	Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
			D Vance	TA Sea	2/12/15 0955
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Page 52 of 53

2/18/2015

Login Sample Receipt Checklist

Client: TerraGraphics Inc

Job Number: 580-47473-1

Login Number: 47473

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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?	False	no
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	

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: 580-47473-2
Client Project/Site: KVFR

For:
TerraGraphics Inc
TerraGraphics Environmental Engineering
988 South Longmont Ave
Suite 200
Boise, Idaho 83706

Attn: John Means

David D Burk

Authorized for release by:
2/27/2015 2:52:04 PM

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

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

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

Table of Contents

Case Narrative

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-2

Job ID: 580-47473-2

Laboratory: TestAmerica Seattle

Narrative

Receipt

The samples were received on 2/12/2015 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.1º C and 2.5º C.

Except:

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): The sample added to the bottom of the COC and placed on hold pending client notification. The client instructed to run this sample as a 3 day Rush tat.TP-12 8' (580-47473-16)

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. C-C' (580-47473-13), D-D' (580-47473-14), TP-1 7' (580-47473-1), TP-10 6' (580-47473-10), TP-12 8' (580-47473-16), TP-13 7' (580-47473-11), TP-16 7' (580-47473-12), TP-2 8' (580-47473-2), TP-3 8' (580-47473-3), TP-4 7' (580-47473-4), TP-5 6' (580-47473-5), TP-6 6' (580-47473-6), TP-6 6' D (580-47473-7), TP-8 5' (580-47473-8), TP-9 5' (580-47473-9), Trip Blank (580-47473-15).

The sitr bar vials for 8260 for the following samples C-C' (580-47473-13), D-D' (580-47473-14), TP-1 7' (580-47473-1), TP-10 6' (580-47473-10), TP-12 8' (580-47473-16), TP-13 7' (580-47473-11), TP-16 7' (580-47473-12), TP-2 8' (580-47473-2), TP-3 8' (580-47473-3), TP-4 7' (580-47473-4), TP-5 6' (580-47473-5), TP-6 6' (580-47473-6), TP-6 6' D (580-47473-7), TP-8 5' (580-47473-8), TP-9 5' (580-47473-9), Trip Blank (580-47473-15)were frozen immediately upon arrival to the laboratory.

GC/MS VOA

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 182579 recovered above the upper control limit for Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: C-C' (580-47473-13), D-D' (580-47473-14).

Method(s) 8260C: The continuing calibration verification (CCV) analyzed in batch 182579 was outside the method criteria for the following analyte(s): chloroethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method(s) 8260C: The following analyte(s) recovered outside control limits for the LCSD associated with batch 182579: 1,1,2,2-tetrachloroethane. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method(s) NWTPH-Gx: The method blank for batch 182502 contained Gasoline 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) NWTPH-Gx: The method blank for batch 182639 contained Gasoline 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.

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

GC/MS Semi VOA

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

GC Semi VOA

Method(s) NWTPH-Dx: In analysis batch 182566, for the following sample(s) from preparation batch 182463: The following sample(s) contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: ST-CB-08-20150210-S (580-47459-1).

Method(s) NWTPH-Dx: In analysis batch 182566, for the following sample(s) from preparation batch 182463: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision were outside control limits. The matrix spike was spilled: laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Job ID: 580-47473-2 (Continued)

Laboratory: TestAmerica Seattle (Continued)

Method(s) NWTPH-Dx: Surrogate recovery for the following sample(s) was outside control limits: (580-47459-1 MS). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) NWTPH-Dx: The following sample(s) contained a hydrocarbon pattern in the motor oil range; however, the elution pattern was /later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: C-C' (580-47473-13), D-D' (580-47473-14).

Method(s) NWTPH/EPH: In analysis batch 183163, the laboratory control sample and laboratory control sample duplicate (LCS/LCSD) for preparation batch 183135 recovered outside control limits for the following analytes: C8-C10 Aliphatics and C10-C12 Aromatics. The associated samples were re-prepared and/or re-analyzed outside holding time. Both sets of data have been reported.

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) 3550B: The following samples from preparation batch 183258 were re-prepared outside of preparation holding time due to low failing LCS/LCSD recoveries for the C8-C10 Aliphatic range in the original, in-hold batch : C-C' (580-47473-13), D-D' (580-47473-14).

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
*	LCS or LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

GC/MS Semi VOA

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

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
Y	The chromatographic response resembles a typical fuel pattern.
*	LCS or LCSD exceeds the control limits
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time

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 Sample ID: C-C'
Date Collected: 02/11/15 10:30
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-13
Matrix: Solid
Percent Solids: 80.2

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
1,1,2,2-Tetrachloroethane	ND	*	2.2	1.0	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
1,1,2-Trichloroethane	ND		2.2	0.56	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
1,1-Dichloroethane	ND		1.1	0.45	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
1,1-Dichloroethene	ND		5.6	0.22	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
1,2-Dichlorobenzene	ND		2.2	0.67	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
EDC	ND		1.1	0.45	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
1,2-Dichloropropane	ND		1.1	0.45	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
1,3-Dichlorobenzene	ND		2.2	0.56	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
1,4-Dichlorobenzene	ND		1.1	0.22	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Benzene	**0.44**	**J**	1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Bromodichloromethane	ND		1.1	0.45	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Bromoform	ND		1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Bromomethane	ND		1.1	0.45	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Carbon tetrachloride	ND		1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Chlorobenzene	ND		1.1	0.45	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Chloroethane	ND		1.1	0.22	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Chloroform	ND		1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Chloromethane	ND		1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
cis-1,2-Dichloroethene	ND		1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
cis-1,3-Dichloropropene	ND		1.1	0.22	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Dibromochloromethane	ND		2.2	0.56	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
EDB	ND		1.1	0.22	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Ethylbenzene	ND		1.1	0.45	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Methyl tert-butyl ether	ND		1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Methylene Chloride	**3.5**	**J**	17	3.4	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
m-Xylene & p-Xylene	**0.67**	**J**	2.2	0.22	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Naphthalene	**1.1**	**J**	5.6	0.56	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
o-Xylene	**0.84**	**J**	2.2	0.56	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Tetrachloroethene	ND		1.1	0.45	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Toluene	**0.74**	**J**	2.2	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
trans-1,2-Dichloroethene	ND		1.1	0.45	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
trans-1,3-Dichloropropene	ND		1.1	0.22	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Trichloroethene	ND		1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Trichlorofluoromethane	ND		1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Vinyl chloride	ND	^	1.1	0.34	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1
Xylenes, Total	**1.5**	**J**	2.2	0.56	ug/Kg	☼	02/12/15 11:30	02/17/15 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*115*		*80 - 120*	*02/12/15 11:30*	*02/17/15 16:39*	*1*
4-Bromofluorobenzene (Surr)	*78*		*70 - 120*	*02/12/15 11:30*	*02/17/15 16:39*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 132*	*02/12/15 11:30*	*02/17/15 16:39*	*1*
Trifluorotoluene (Surr)	*102*		*65 - 140*	*02/12/15 11:30*	*02/17/15 16:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 136*	*02/12/15 11:30*	*02/17/15 16:39*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	**0.0028**	**J**	0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 20:29	1
Chrysene	**0.0073**		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 20:29	1
Benzo[b]fluoranthene	**0.0063**		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 20:29	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-2

Client Sample ID: C-C'
Date Collected: 02/11/15 10:30
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-13
Matrix: Solid
Percent Solids: 80.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	0.0025	J	0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 20:29	1
Benzo[a]pyrene	0.0035	J	0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 20:29	1
Indeno[1,2,3-cd]pyrene	0.0045	J	0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 20:29	1
Dibenz(a,h)anthracene	ND		0.0061	0.0018	mg/Kg	☼	02/13/15 09:20	02/17/15 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*92*		*42 - 151*	*02/13/15 09:20*	*02/17/15 20:29*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		6.0	0.75	mg/Kg	☼	02/17/15 13:51	02/17/15 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*50 - 150*	*02/17/15 13:51*	*02/17/15 18:12*	*1*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8-C10 Aliphatics	0.19	J B *	6.2	0.034	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1
C10-C12 Aliphatics	0.56	J	6.2	0.12	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1
C12-C16 Aliphatics	2.1	J	6.2	1.2	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1
C16-C21 Aliphatics	22		6.2	1.2	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1
C21-C34 Aliphatics	420		6.2	1.2	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1
C8-C10 Aromatics	ND		6.2	1.2	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1
C10-C12 Aromatics	0.30	J *	6.2	0.089	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1
C12-C16 Aromatics	ND		6.2	1.2	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1
C16-C21 Aromatics	7.2		6.2	1.2	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1
C21-C34 Aromatics	23		6.2	1.2	mg/Kg	☼	02/25/15 08:00	02/25/15 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*68*		*60 - 140*	*02/25/15 08:00*	*02/25/15 18:19*	*1*
1-Chlorooctadecane	*67*		*60 - 140*	*02/25/15 08:00*	*02/25/15 18:19*	*1*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8-C10 Aliphatics	0.081	J H	6.1	0.033	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1
C10-C12 Aliphatics	0.49	J H	6.1	0.12	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1
C12-C16 Aliphatics	2.1	J H	6.1	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1
C16-C21 Aliphatics	15	H	6.1	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1
C21-C34 Aliphatics	230	H	6.1	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1
C8-C10 Aromatics	ND	H	6.1	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1
C10-C12 Aromatics	0.22	J H	6.1	0.088	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1
C12-C16 Aromatics	ND	H	6.1	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1
C16-C21 Aromatics	5.8	J H	6.1	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1
C21-C34 Aromatics	32	H	6.1	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*94*		*60 - 140*	*02/26/15 09:37*	*02/27/15 10:23*	*1*
1-Chlorooctadecane	*100*		*60 - 140*	*02/26/15 09:37*	*02/27/15 10:23*	*1*

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-2

Client Sample ID: C-C'
Date Collected: 02/11/15 10:30
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-13
Matrix: Solid
Percent Solids: 80.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	21	J	30	6.8	mg/Kg	☼	02/13/15 10:54	02/17/15 16:47	1
Motor Oil (>C24-C36)	66	Y	60	11	mg/Kg	☼	02/13/15 10:54	02/17/15 16:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*71*		*50 - 150*	*02/13/15 10:54*	*02/17/15 16:47*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	10		0.49	0.047	mg/Kg	☼	02/13/15 11:11	02/13/15 17:55	10
Cadmium	0.22		0.19	0.018	mg/Kg	☼	02/13/15 11:11	02/13/15 17:55	10
Chromium	25		0.49	0.061	mg/Kg	☼	02/13/15 11:11	02/13/15 17:55	10
Nickel	20		0.49	0.079	mg/Kg	☼	02/13/15 11:11	02/13/15 17:55	10
Zinc	83		4.9	1.1	mg/Kg	☼	02/13/15 11:11	02/13/15 17:55	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	20		0.10	0.10	%			02/14/15 18:05	1

Client Sample ID: D-D'
Date Collected: 02/11/15 10:35
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-14
Matrix: Solid
Percent Solids: 78.8

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
1,1,2,2-Tetrachloroethane	ND	*	2.3	1.0	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
1,1,2-Trichloroethane	ND		2.3	0.58	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
1,1-Dichloroethane	ND		1.2	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
1,1-Dichloroethene	ND		5.8	0.23	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
1,2-Dichlorobenzene	ND		2.3	0.69	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
EDC	ND		1.2	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
1,2-Dichloropropane	ND		1.2	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
1,3-Dichlorobenzene	ND		2.3	0.58	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
1,4-Dichlorobenzene	ND		1.2	0.23	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Benzene	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Bromodichloromethane	ND		1.2	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Bromoform	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Bromomethane	ND		1.2	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Carbon tetrachloride	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Chlorobenzene	ND		1.2	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Chloroethane	ND		1.2	0.23	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Chloroform	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Chloromethane	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
cis-1,2-Dichloroethene	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
cis-1,3-Dichloropropene	ND		1.2	0.23	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Dibromochloromethane	ND		2.3	0.58	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
EDB	ND		1.2	0.23	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Ethylbenzene	ND		1.2	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Methyl tert-butyl ether	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Methylene Chloride	ND		17	3.5	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
m-Xylene & p-Xylene	ND		2.3	0.23	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Naphthalene	ND		5.8	0.58	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
o-Xylene	ND		2.3	0.58	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Tetrachloroethene	ND		1.2	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Toluene	ND		2.3	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
trans-1,2-Dichloroethene	ND		1.2	0.46	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
trans-1,3-Dichloropropene	ND		1.2	0.23	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Trichloroethene	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Trichlorofluoromethane	ND		1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Vinyl chloride	ND	^	1.2	0.35	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1
Xylenes, Total	ND		2.3	0.58	ug/Kg	☼	02/12/15 11:30	02/17/15 17:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*114*		*80 - 120*	*02/12/15 11:30*	*02/17/15 17:04*	*1*
4-Bromofluorobenzene (Surr)	*81*		*70 - 120*	*02/12/15 11:30*	*02/17/15 17:04*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*02/12/15 11:30*	*02/17/15 17:04*	*1*
Trifluorotoluene (Surr)	*98*		*65 - 140*	*02/12/15 11:30*	*02/17/15 17:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 136*	*02/12/15 11:30*	*02/17/15 17:04*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	**0.0067**		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:51	1
Chrysene	**0.010**		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:51	1
Benzo[b]fluoranthene	**0.012**		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:51	1

Client Sample ID: D-D'
Date Collected: 02/11/15 10:35
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-14
Matrix: Solid
Percent Solids: 78.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	**0.0057**	**J**	0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:51	1
Benzo[a]pyrene	**0.0077**		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:51	1
Indeno[1,2,3-cd]pyrene	**0.011**		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:51	1
Dibenz(a,h)anthracene	ND		0.0062	0.0019	mg/Kg	☼	02/13/15 09:20	02/17/15 20:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*96*		*42 - 151*	*02/13/15 09:20*	*02/17/15 20:51*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		6.2	0.78	mg/Kg	☼	02/17/15 13:51	02/17/15 17:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*50 - 150*	*02/17/15 13:51*	*02/17/15 17:11*	*1*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8-C10 Aliphatics	**0.045**	**J B ***	6.3	0.034	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1
C10-C12 Aliphatics	ND		6.3	0.12	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1
C12-C16 Aliphatics	ND		6.3	1.3	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1
C16-C21 Aliphatics	ND		6.3	1.3	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1
C21-C34 Aliphatics	**7.8**		6.3	1.3	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1
C8-C10 Aromatics	ND		6.3	1.3	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1
C10-C12 Aromatics	ND	*	6.3	0.091	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1
C12-C16 Aromatics	ND		6.3	1.3	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1
C16-C21 Aromatics	ND		6.3	1.3	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1
C21-C34 Aromatics	**4.2**	**J**	6.3	1.3	mg/Kg	☼	02/25/15 08:00	02/25/15 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*61*		*60 - 140*	*02/25/15 08:00*	*02/25/15 18:45*	*1*
1-Chlorooctadecane	*65*		*60 - 140*	*02/25/15 08:00*	*02/25/15 18:45*	*1*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8-C10 Aliphatics	**0.054**	**J H**	6.2	0.034	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1
C10-C12 Aliphatics	ND	H	6.2	0.12	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1
C12-C16 Aliphatics	ND	H	6.2	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1
C16-C21 Aliphatics	**1.9**	**J H**	6.2	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1
C21-C34 Aliphatics	**14**	**H**	6.2	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1
C8-C10 Aromatics	ND	H	6.2	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1
C10-C12 Aromatics	ND	H	6.2	0.090	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1
C12-C16 Aromatics	ND	H	6.2	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1
C16-C21 Aromatics	ND	H	6.2	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1
C21-C34 Aromatics	**8.2**	**H**	6.2	1.2	mg/Kg	☼	02/26/15 09:37	02/27/15 10:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*100*		*60 - 140*	*02/26/15 09:37*	*02/27/15 10:48*	*1*
1-Chlorooctadecane	*110*		*60 - 140*	*02/26/15 09:37*	*02/27/15 10:48*	*1*

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-2

Client Sample ID: D-D'
Date Collected: 02/11/15 10:35
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47473-14
Matrix: Solid
Percent Solids: 78.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	17	J	31	7.0	mg/Kg	☼	02/13/15 10:54	02/17/15 17:03	1
Motor Oil (>C24-C36)	65	Y	62	11	mg/Kg	☼	02/13/15 10:54	02/17/15 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*71*		*50 - 150*	*02/13/15 10:54*	*02/17/15 17:03*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	9.8		0.51	0.049	mg/Kg	☼	02/13/15 11:11	02/13/15 17:59	10
Cadmium	0.20		0.20	0.019	mg/Kg	☼	02/13/15 11:11	02/13/15 17:59	10
Chromium	42		0.51	0.064	mg/Kg	☼	02/13/15 11:11	02/13/15 17:59	10
Nickel	58		0.51	0.082	mg/Kg	☼	02/13/15 11:11	02/13/15 17:59	10
Zinc	68		5.1	1.1	mg/Kg	☼	02/13/15 11:11	02/13/15 17:59	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	79		0.10	0.10	%			02/14/15 18:05	1
Percent Moisture	21		0.10	0.10	%			02/14/15 18:05	1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-182616/1-A
Matrix: Solid
Analysis Batch: 182579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 182616

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.90	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
1,1,2-Trichloroethane	ND		2.0	0.50	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
1,1-Dichloroethane	ND		1.0	0.40	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
1,1-Dichloroethene	ND		5.0	0.20	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
1,2-Dichlorobenzene	ND		2.0	0.60	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
EDC	ND		1.0	0.40	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
1,2-Dichloropropane	ND		1.0	0.40	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
1,3-Dichlorobenzene	ND		2.0	0.50	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Benzene	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Bromodichloromethane	ND		1.0	0.40	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Bromoform	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Bromomethane	ND		1.0	0.40	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Carbon tetrachloride	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Chlorobenzene	ND		1.0	0.40	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Chloroethane	ND		1.0	0.20	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Chloroform	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Chloromethane	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
cis-1,2-Dichloroethene	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Dibromochloromethane	ND		2.0	0.50	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
EDB	ND		1.0	0.20	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Ethylbenzene	ND		1.0	0.40	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Methyl tert-butyl ether	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Methylene Chloride	ND		15	3.0	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Naphthalene	ND		5.0	0.50	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
o-Xylene	ND		2.0	0.50	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Tetrachloroethene	ND		1.0	0.40	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Toluene	ND		2.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
trans-1,2-Dichloroethene	ND		1.0	0.40	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Trichloroethene	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Trichlorofluoromethane	ND		1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Vinyl chloride	ND	^	1.0	0.30	ug/Kg		02/17/15 12:27	02/17/15 09:58	1
Xylenes, Total	ND		2.0	0.50	ug/Kg		02/17/15 12:27	02/17/15 09:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 120*	*02/17/15 12:27*	*02/17/15 09:58*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 120*	*02/17/15 12:27*	*02/17/15 09:58*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*02/17/15 12:27*	*02/17/15 09:58*	*1*
Trifluorotoluene (Surr)	*97*		*65 - 140*	*02/17/15 12:27*	*02/17/15 09:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*	*02/17/15 12:27*	*02/17/15 09:58*	*1*

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

Lab Sample ID: LCS 580-182616/2-A
Matrix: Solid
Analysis Batch: 182579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 182616

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	11.3		ug/Kg		113	63 - 135
1,1,2,2-Tetrachloroethane	10.0	12.4		ug/Kg		124	73 - 125
1,1,2-Trichloroethane	10.0	11.2		ug/Kg		112	77 - 124
1,1-Dichloroethane	10.0	11.9		ug/Kg		119	70 - 128
1,1-Dichloroethene	10.0	11.3		ug/Kg		113	70 - 133
1,2-Dichlorobenzene	10.0	10.9		ug/Kg		109	79 - 117
EDC	10.0	10.6		ug/Kg		106	71 - 128
1,2-Dichloropropane	10.0	11.3		ug/Kg		113	76 - 161
1,3-Dichlorobenzene	10.0	10.9		ug/Kg		109	79 - 119
1,4-Dichlorobenzene	10.0	10.9		ug/Kg		109	79 - 117
Benzene	10.0	11.2		ug/Kg		112	70 - 128
Bromodichloromethane	10.0	11.3		ug/Kg		113	58 - 133
Bromoform	10.0	10.8		ug/Kg		108	50 - 124
Bromomethane	10.0	12.2		ug/Kg		122	57 - 148
Carbon tetrachloride	10.0	11.5		ug/Kg		115	59 - 145
Chlorobenzene	10.0	10.8		ug/Kg		108	75 - 120
Chloroethane	10.0	10.9		ug/Kg		109	48 - 167
Chloroform	10.0	11.5		ug/Kg		115	78 - 125
Chloromethane	10.0	12.4		ug/Kg		124	55 - 136
cis-1,2-Dichloroethene	10.0	11.5		ug/Kg		115	70 - 130
cis-1,3-Dichloropropene	10.0	10.9		ug/Kg		109	69 - 129
Dibromochloromethane	10.0	11.2		ug/Kg		112	42 - 129
EDB	10.0	11.5		ug/Kg		115	69 - 126
Ethylbenzene	10.0	10.7		ug/Kg		107	78 - 126
Methyl tert-butyl ether	10.0	12.3		ug/Kg		123	65 - 125
Methylene Chloride	10.0	11.3	J	ug/Kg		113	57 - 146
m-Xylene & p-Xylene	10.0	10.8		ug/Kg		108	78 - 126
Naphthalene	10.0	11.9		ug/Kg		119	14 - 170
o-Xylene	10.0	10.7		ug/Kg		107	77 - 127
Tetrachloroethene	10.0	9.46		ug/Kg		95	56 - 155
Toluene	10.0	10.4		ug/Kg		104	75 - 126
trans-1,2-Dichloroethene	10.0	11.1		ug/Kg		111	76 - 131
trans-1,3-Dichloropropene	10.0	11.0		ug/Kg		110	72 - 129
Trichloroethene	10.0	11.0		ug/Kg		110	83 - 124
Trichlorofluoromethane	10.0	11.2		ug/Kg		112	47 - 165
Vinyl chloride	10.0	12.4	^	ug/Kg		124	67 - 131
Xylenes, Total	20.0	21.5		ug/Kg		108	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*70 - 120*
Dibromofluoromethane (Surr)	*103*		*75 - 132*
Trifluorotoluene (Surr)	*99*		*65 - 140*
1,2-Dichloroethane-d4 (Surr)	*106*		*71 - 136*

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

Lab Sample ID: LCSD 580-182616/3-A
Matrix: Solid
Analysis Batch: 182579

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 182616

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10.0	10.7		ug/Kg		107	63 - 135	5	20
1,1,2,2-Tetrachloroethane	10.0	12.9	*	ug/Kg		129	73 - 125	4	22
1,1,2-Trichloroethane	10.0	11.1		ug/Kg		111	77 - 124	1	18
1,1-Dichloroethane	10.0	11.1		ug/Kg		111	70 - 128	7	21
1,1-Dichloroethene	10.0	10.5		ug/Kg		105	70 - 133	7	23
1,2-Dichlorobenzene	10.0	11.3		ug/Kg		113	79 - 117	3	17
EDC	10.0	10.2		ug/Kg		102	71 - 128	4	18
1,2-Dichloropropane	10.0	11.7		ug/Kg		117	76 - 161	3	15
1,3-Dichlorobenzene	10.0	10.7		ug/Kg		107	79 - 119	2	17
1,4-Dichlorobenzene	10.0	10.9		ug/Kg		109	79 - 117	0	18
Benzene	10.0	11.0		ug/Kg		110	70 - 128	2	19
Bromodichloromethane	10.0	11.6		ug/Kg		116	58 - 133	2	19
Bromoform	10.0	10.6		ug/Kg		106	50 - 124	2	25
Bromomethane	10.0	13.3		ug/Kg		133	57 - 148	8	29
Carbon tetrachloride	10.0	10.6		ug/Kg		106	59 - 145	8	19
Chlorobenzene	10.0	10.4		ug/Kg		104	75 - 120	4	21
Chloroethane	10.0	12.9		ug/Kg		129	48 - 167	17	53
Chloroform	10.0	10.9		ug/Kg		109	78 - 125	5	17
Chloromethane	10.0	13.2		ug/Kg		132	55 - 136	6	26
cis-1,2-Dichloroethene	10.0	10.8		ug/Kg		108	70 - 130	6	19
cis-1,3-Dichloropropene	10.0	11.5		ug/Kg		115	69 - 129	6	19
Dibromochloromethane	10.0	10.9		ug/Kg		109	42 - 129	3	23
EDB	10.0	10.9		ug/Kg		109	69 - 126	5	21
Ethylbenzene	10.0	10.5		ug/Kg		105	78 - 126	2	23
Methyl tert-butyl ether	10.0	10.8		ug/Kg		108	65 - 125	13	30
Methylene Chloride	10.0	10.5	J	ug/Kg		105	57 - 146	7	21
m-Xylene & p-Xylene	10.0	10.4		ug/Kg		104	78 - 126	4	23
Naphthalene	10.0	12.3		ug/Kg		123	14 - 170	3	50
o-Xylene	10.0	10.4		ug/Kg		104	77 - 127	4	22
Tetrachloroethene	10.0	9.34		ug/Kg		93	56 - 155	1	27
Toluene	10.0	10.6		ug/Kg		106	75 - 126	1	19
trans-1,2-Dichloroethene	10.0	11.2		ug/Kg		112	76 - 131	0	18
trans-1,3-Dichloropropene	10.0	10.7		ug/Kg		107	72 - 129	3	20
Trichloroethene	10.0	10.5		ug/Kg		105	83 - 124	5	17
Trichlorofluoromethane	10.0	12.5		ug/Kg		125	47 - 165	12	54
Vinyl chloride	10.0	12.9	^	ug/Kg		129	67 - 131	4	22
Xylenes, Total	20.0	20.8		ug/Kg		104	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*70 - 120*
Dibromofluoromethane (Surr)	*101*		*75 - 132*
Trifluorotoluene (Surr)	*99*		*65 - 140*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 136*

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

Lab Sample ID: MB 580-182455/1-A
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 182455

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Chrysene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Benzo[b]fluoranthene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Benzo[k]fluoranthene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Benzo[a]pyrene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Indeno[1,2,3-cd]pyrene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1
Dibenz(a,h)anthracene	ND		0.0050	0.0015	mg/Kg		02/13/15 09:19	02/17/15 14:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*93*		*42 - 151*	*02/13/15 09:19*	*02/17/15 14:19*	*1*

Lab Sample ID: LCS 580-182455/2-A
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 182455

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[a]anthracene	1.00	0.842		mg/Kg		84	76 - 119
Chrysene	1.00	0.892		mg/Kg		89	75 - 114
Benzo[b]fluoranthene	1.00	0.855		mg/Kg		86	63 - 132
Benzo[k]fluoranthene	1.00	0.736		mg/Kg		74	63 - 119
Benzo[a]pyrene	1.00	0.822		mg/Kg		82	72 - 117
Indeno[1,2,3-cd]pyrene	1.00	0.829		mg/Kg		83	56 - 127
Dibenz(a,h)anthracene	1.00	0.843		mg/Kg		84	56 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*92*		*42 - 151*

Lab Sample ID: LCSD 580-182455/3-A
Matrix: Solid
Analysis Batch: 182599

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 182455

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]anthracene	1.00	0.756		mg/Kg		76	76 - 119	11	27
Chrysene	1.00	0.810		mg/Kg		81	75 - 114	10	26
Benzo[b]fluoranthene	1.00	0.773		mg/Kg		77	63 - 132	10	30
Benzo[k]fluoranthene	1.00	0.682		mg/Kg		68	63 - 119	8	30
Benzo[a]pyrene	1.00	0.752		mg/Kg		75	72 - 117	9	30
Indeno[1,2,3-cd]pyrene	1.00	0.741		mg/Kg		74	56 - 127	11	29
Dibenz(a,h)anthracene	1.00	0.773		mg/Kg		77	56 - 134	9	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*86*		*42 - 151*

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

Lab Sample ID: MB 580-182632/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182639 — **Prep Batch: 182632**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.763	J	4.0	0.50	mg/Kg		02/17/15 13:51	02/17/15 14:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*50 - 150*	*02/17/15 13:51*	*02/17/15 14:36*	*1*

Lab Sample ID: LCS 580-182632/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182639 — **Prep Batch: 182632**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline			40.0	43.0		mg/Kg		108	68 - 120		

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

Lab Sample ID: LCSD 580-182632/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182639 — **Prep Batch: 182632**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			40.0	43.7		mg/Kg		109	68 - 120	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*116*		*50 - 150*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 580-183135/1-B — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 183163 — **Prep Batch: 183135**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8-C10 Aliphatics	0.133	J	5.0	0.027	mg/Kg		02/25/15 08:00	02/25/15 15:44	1
C10-C12 Aliphatics	ND		5.0	0.095	mg/Kg		02/25/15 08:00	02/25/15 15:44	1
C12-C16 Aliphatics	ND		5.0	1.0	mg/Kg		02/25/15 08:00	02/25/15 15:44	1
C16-C21 Aliphatics	ND		5.0	1.0	mg/Kg		02/25/15 08:00	02/25/15 15:44	1
C21-C34 Aliphatics	ND		5.0	1.0	mg/Kg		02/25/15 08:00	02/25/15 15:44	1
C8-C10 Aromatics	ND		5.0	1.0	mg/Kg		02/25/15 08:00	02/25/15 15:44	1
C10-C12 Aromatics	ND		5.0	0.072	mg/Kg		02/25/15 08:00	02/25/15 15:44	1
C12-C16 Aromatics	ND		5.0	1.0	mg/Kg		02/25/15 08:00	02/25/15 15:44	1
C16-C21 Aromatics	ND		5.0	1.0	mg/Kg		02/25/15 08:00	02/25/15 15:44	1
C21-C34 Aromatics	ND		5.0	1.0	mg/Kg		02/25/15 08:00	02/25/15 15:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*71*		*60 - 140*	*02/25/15 08:00*	*02/25/15 15:44*	*1*
1-Chlorooctadecane	*83*		*60 - 140*	*02/25/15 08:00*	*02/25/15 15:44*	*1*

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 580-183135/2-B
Matrix: Solid
Analysis Batch: 183163

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 183135

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C8-C10 Aliphatics	20.1	7.36	*	mg/Kg		37	50 - 150
C10-C12 Aliphatics	6.67	4.65	J	mg/Kg		70	70 - 130
C12-C16 Aliphatics	13.4	12.1		mg/Kg		90	70 - 130
C16-C21 Aliphatics	20.0	21.2		mg/Kg		106	70 - 130
C21-C34 Aliphatics	40.1	49.9		mg/Kg		125	70 - 130
C8-C10 Aromatics	6.69	4.44	J	mg/Kg		66	50 - 150
C10-C12 Aromatics	6.70	4.88	J	mg/Kg		73	70 - 130
C12-C16 Aromatics	20.1	18.3		mg/Kg		91	70 - 130
C16-C21 Aromatics	33.4	38.9		mg/Kg		116	70 - 130
C21-C34 Aromatics	53.5	66.7		mg/Kg		125	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*103*		*60 - 140*
1-Chlorooctadecane	*98*		*60 - 140*

Lab Sample ID: LCSD 580-183135/3-B
Matrix: Solid
Analysis Batch: 183163

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 183135

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C8-C10 Aliphatics	20.1	7.10	*	mg/Kg		35	50 - 150	4	25
C10-C12 Aliphatics	6.67	4.95	J	mg/Kg		74	70 - 130	6	25
C12-C16 Aliphatics	13.4	12.4		mg/Kg		93	70 - 130	3	25
C16-C21 Aliphatics	20.0	21.3		mg/Kg		106	70 - 130	0	25
C21-C34 Aliphatics	40.1	50.6		mg/Kg		126	70 - 130	1	25
C8-C10 Aromatics	6.69	4.19	J	mg/Kg		63	50 - 150	6	25
C10-C12 Aromatics	6.70	4.56	J *	mg/Kg		68	70 - 130	7	25
C12-C16 Aromatics	20.1	16.7		mg/Kg		83	70 - 130	10	25
C16-C21 Aromatics	33.4	33.4		mg/Kg		100	70 - 130	15	25
C21-C34 Aromatics	53.5	58.2		mg/Kg		109	70 - 130	14	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*99*		*60 - 140*
1-Chlorooctadecane	*102*		*60 - 140*

Lab Sample ID: MB 580-183258/1-B
Matrix: Solid
Analysis Batch: 183321

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 183258

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8-C10 Aliphatics	ND		5.0	0.027	mg/Kg		02/26/15 09:37	02/27/15 07:23	1
C10-C12 Aliphatics	ND		5.0	0.095	mg/Kg		02/26/15 09:37	02/27/15 07:23	1
C12-C16 Aliphatics	ND		5.0	1.0	mg/Kg		02/26/15 09:37	02/27/15 07:23	1
C16-C21 Aliphatics	ND		5.0	1.0	mg/Kg		02/26/15 09:37	02/27/15 07:23	1
C21-C34 Aliphatics	ND		5.0	1.0	mg/Kg		02/26/15 09:37	02/27/15 07:23	1
C8-C10 Aromatics	ND		5.0	1.0	mg/Kg		02/26/15 09:37	02/27/15 07:23	1
C10-C12 Aromatics	ND		5.0	0.072	mg/Kg		02/26/15 09:37	02/27/15 07:23	1

Method: NWTPH/EPH - Northwest - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 580-183258/1-B
Matrix: Solid
Analysis Batch: 183321

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 183258

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C12-C16 Aromatics	ND		5.0	1.0	mg/Kg		02/26/15 09:37	02/27/15 07:23	1
C16-C21 Aromatics	ND		5.0	1.0	mg/Kg		02/26/15 09:37	02/27/15 07:23	1
C21-C34 Aromatics	ND		5.0	1.0	mg/Kg		02/26/15 09:37	02/27/15 07:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*103*		*60 - 140*	*02/26/15 09:37*	*02/27/15 07:23*	*1*
1-Chlorooctadecane	*112*		*60 - 140*	*02/26/15 09:37*	*02/27/15 07:23*	*1*

Lab Sample ID: LCS 580-183258/2-B
Matrix: Solid
Analysis Batch: 183321

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 183258

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C8-C10 Aliphatics	20.1	12.1		mg/Kg		60	50 - 150
C10-C12 Aliphatics	6.67	5.84		mg/Kg		88	70 - 130
C12-C16 Aliphatics	13.4	13.2		mg/Kg		99	70 - 130
C16-C21 Aliphatics	20.0	21.4		mg/Kg		107	70 - 130
C21-C34 Aliphatics	40.1	49.5		mg/Kg		124	70 - 130
C8-C10 Aromatics	6.69	6.44		mg/Kg		96	50 - 150
C10-C12 Aromatics	6.70	6.11		mg/Kg		91	70 - 130
C12-C16 Aromatics	20.1	20.5		mg/Kg		102	70 - 130
C16-C21 Aromatics	33.4	39.1		mg/Kg		117	70 - 130
C21-C34 Aromatics	53.5	64.4		mg/Kg		121	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*107*		*60 - 140*
1-Chlorooctadecane	*101*		*60 - 140*

Lab Sample ID: LCSD 580-183258/3-B
Matrix: Solid
Analysis Batch: 183321

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 183258

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C8-C10 Aliphatics	20.1	12.8		mg/Kg		64	50 - 150	6	25
C10-C12 Aliphatics	6.67	6.00		mg/Kg		90	70 - 130	3	25
C12-C16 Aliphatics	13.4	13.8		mg/Kg		103	70 - 130	4	25
C16-C21 Aliphatics	20.0	22.2		mg/Kg		111	70 - 130	4	25
C21-C34 Aliphatics	40.1	51.7		mg/Kg		129	70 - 130	4	25
C8-C10 Aromatics	6.69	6.24		mg/Kg		93	50 - 150	3	25
C10-C12 Aromatics	6.70	5.88		mg/Kg		88	70 - 130	4	25
C12-C16 Aromatics	20.1	19.9		mg/Kg		99	70 - 130	3	25
C16-C21 Aromatics	33.4	38.0		mg/Kg		114	70 - 130	3	25
C21-C34 Aromatics	53.5	62.7		mg/Kg		117	70 - 130	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*104*		*60 - 140*
1-Chlorooctadecane	*108*		*60 - 140*

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

Lab Sample ID: MB 580-182463/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182566 — **Prep Batch: 182463**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		25	5.7	mg/Kg		02/13/15 10:52	02/17/15 10:35	1
Motor Oil (>C24-C36)	ND		50	9.1	mg/Kg		02/13/15 10:52	02/17/15 10:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*56*		*50 - 150*	*02/13/15 10:52*	*02/17/15 10:35*	*1*

Lab Sample ID: LCSD 580-182463/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182566 — **Prep Batch: 182463**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			500	364		mg/Kg		73	70 - 125	4	16
Motor Oil (>C24-C36)			502	401		mg/Kg		80	64 - 127	6	17

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*56*		*50 - 150*

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-182471/19-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182582 — **Prep Batch: 182471**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.50	0.048	mg/Kg		02/13/15 11:11	02/13/15 16:09	10
Cadmium	ND		0.20	0.019	mg/Kg		02/13/15 11:11	02/13/15 16:09	10
Chromium	ND		0.50	0.063	mg/Kg		02/13/15 11:11	02/13/15 16:09	10
Nickel	ND		0.50	0.081	mg/Kg		02/13/15 11:11	02/13/15 16:09	10
Zinc	ND		5.0	1.1	mg/Kg		02/13/15 11:11	02/13/15 16:09	10

Lab Sample ID: LCS 580-182471/20-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182582 — **Prep Batch: 182471**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead			50.0	52.9		mg/Kg		106	80 - 120
Cadmium			5.00	5.04		mg/Kg		101	80 - 120
Chromium			20.0	20.3		mg/Kg		101	80 - 120
Nickel			50.0	50.3		mg/Kg		101	80 - 120
Zinc			200	198		mg/Kg		99	80 - 120

Lab Sample ID: LCSD 580-182471/21-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 182582 — **Prep Batch: 182471**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead			50.0	51.8		mg/Kg		104	80 - 120	2	20
Cadmium			5.00	5.04		mg/Kg		101	80 - 120	0	20

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-182471/21-A
Matrix: Solid
Analysis Batch: 182582

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 182471

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium			20.0	19.8		mg/Kg		99	80 - 120	2	20
Nickel			50.0	48.9		mg/Kg		98	80 - 120	3	20
Zinc			200	196		mg/Kg		98	80 - 120	1	20

Client Sample ID: C-C' — **Lab Sample ID: 580-47473-13**
Date Collected: 02/11/15 10:30 — **Matrix: Solid**
Date Received: 02/12/15 09:55 — **Percent Solids: 80.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 16:39	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 20:29	AHP	TAL SEA
Total/NA	Prep	5035			182632	02/17/15 13:51	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182639	02/17/15 18:12	TL1	TAL SEA
Total/NA	Prep	3550B			183135	02/25/15 08:00	JJP	TAL SEA
Total/NA	Fraction	EPH Frac			183208	02/25/15 14:19	ALC	TAL SEA
Total/NA	Analysis	NWTPH/EPH		1	183163	02/25/15 18:19	EKK	TAL SEA
Total/NA	Prep	3550B	RE		183258	02/26/15 09:37	EKK	TAL SEA
Total/NA	Fraction	EPH Frac	RE		183298	02/26/15 13:35	ALC	TAL SEA
Total/NA	Analysis	NWTPH/EPH	RE	1	183321	02/27/15 10:23	EKK	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:54	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 16:47	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:55	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Client Sample ID: D-D' — **Lab Sample ID: 580-47473-14**
Date Collected: 02/11/15 10:35 — **Matrix: Solid**
Date Received: 02/12/15 09:55 — **Percent Solids: 78.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			182616	02/12/15 11:30	SOC	TAL SEA
Total/NA	Analysis	8260C		1	182579	02/17/15 17:04	CJ	TAL SEA
Total/NA	Prep	3550B			182455	02/13/15 09:20	RMB	TAL SEA
Total/NA	Analysis	8270D SIM		1	182599	02/17/15 20:51	AHP	TAL SEA
Total/NA	Prep	5035			182632	02/17/15 13:51	IWH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182639	02/17/15 17:11	TL1	TAL SEA
Total/NA	Prep	3550B			183135	02/25/15 08:00	JJP	TAL SEA
Total/NA	Fraction	EPH Frac			183208	02/25/15 14:19	ALC	TAL SEA
Total/NA	Analysis	NWTPH/EPH		1	183163	02/25/15 18:45	EKK	TAL SEA
Total/NA	Prep	3550B	RE		183258	02/26/15 09:37	EKK	TAL SEA
Total/NA	Fraction	EPH Frac	RE		183298	02/26/15 13:35	ALC	TAL SEA
Total/NA	Analysis	NWTPH/EPH	RE	1	183321	02/27/15 10:48	EKK	TAL SEA
Total/NA	Prep	3546			182463	02/13/15 10:54	JJP	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182566	02/17/15 17:03	JJP	TAL SEA
Total/NA	Prep	3050B			182471	02/13/15 11:11	PAB	TAL SEA
Total/NA	Analysis	6020A		10	182582	02/13/15 17:59	FCW	TAL SEA
Total/NA	Analysis	D 2216		1	182552	02/14/15 18:05	ERZ	TAL SEA

Laboratory References:

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

Certification Summary

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-2

Laboratory: TestAmerica Seattle

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-04-15
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	11-06-15
US Fish & Wildlife	Federal		LE192332-0	02-28-16
USDA	Federal		P330-11-00222	04-08-17
Washington	State Program	10	C553	02-17-16 *

* Certification renewal pending - certification considered valid.

Sample Summary

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47473-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-47473-13	C-C'	Solid	02/11/15 10:30	02/12/15 09:55
580-47473-14	D-D'	Solid	02/11/15 10:35	02/12/15 09:55

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

47473

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

Client Contact	Project Manager: JOHN MEANS	Site Contact:	Date: 2/11/15	COC No:
TerraGraphics	Tel/Fax:	Lab Contact: DAVID BURK	Carrier:	1 of 2 COCs
988 S longmont ave	Analysis Turnaround Time			Sampler:
boise idaho 83706	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone	TAT if different from Below 3-DAY			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: KVFR	☐ 1 week			Job / SDG No.:
Site:	☐ 2 days			
PO# 15006	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH-dx	cPAHs	LEAD - TOTAL	EPH - DRO	METALS (Cd, Cr, Ni, Zn)	HVOCs	TOTAL ORGANIC CHLORINE	TPH-gx	BTEX, MTBE, EDC	Sample Specific Notes:
TP-1 7'	2/10/15	1100	G	SL	4			X	X	X					X	X	
-2 TP-2 8'	2/10/15	1125	G	SL	4			X	X	X					X	X	
TP-3 8'	2/10/15	1135	G	SL	4			X	X	X					X	X	
-4 TP-4 7'	2/10/15	1204	G	SL	4			X	X	X				X	X	X	
TP-5 6'	2/10/15	1235	G	SL	4			X	X	X					X	X	
-6 TP-6 6'	2/10/15	1257	G	SL	4			X	X	X				X	X	X	
TP-66'D	2/10/15	1300	G	SL	4			X	X	X					X	X	
-8 TP-8 5'	2/10/15	1330	G	SL	4			X	X	X					X	X	
TP-9 5'	2/10/15	1350	G	SL	4			X	X	X					X	X	
-10 TP-10 6'	2/10/15	1430	G	SL	4			X	X	X					X	X	
TP-13 7'	2/10/15	1543	G	SL	4			X	X	X					X	X	
-12 TP-16 7'	2/10/15	1630	G	SL	4			X	X	X					X	X	

580-47473 Chain of Custody

Cooler/TB Dig/IR cor 2.1 unc 1.9
Cooler Dsc Lab Blank @Lab
Wet/Packs Packing Bubble
Fed Ex 5.0 w/c.s.

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____	Therm ID No.:_____

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:			Received by:	TA Sea	02/12/15 0955
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

47473

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: JOHN MEANS	Site Contact:	Date: 2/11/15	COC No:
TerraGraphics	Tel/Fax:	Lab Contact: DAVID BORK	Carrier:	1 of 2 COCs
988 S longmont ave	Analysis Turnaround Time			Sampler:
boise idaho 83706	☐CALENDAR DAYS ☐WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone	TAT if different from Below 3-DAY			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: KVFR	☐ 1 week			Job / SDG No.:
Site:	☐ 2 days			
PO# 15006	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH-dx	cPAHs	LEAD - TOTAL	EPH-DRO	METALS (Cd, Cr, Ni, Zn)	HVOCs	TOTAL OXY COMPOUNDS	TPH-gx	BTEX/MTBE EDC	Sample Specific Notes:
-1 TP-1 7'	2/10/15	1100	G	SL	4			X	X	X					X	X	
TP-2 8'	2/10/15	1125	G	SL	4			X	X	X					X	X	
-3 TP-3 8'	2/10/15	1135	G	SL	4			X	X	X					X	X	
TP-4 7'	2/10/15	1204	G	SL	4			X	X	X				X	X	X	
-5 TP-5 6'	2/10/15	1235	G	SL	4			X	X	X					X	X	
TP-6 6'	2/10/15	1257	G	SL	4			X	X	X				X	X	X	
-7 TP-66'D	2/10/15	1300	G	SL	4			X	X	X					X	X	
TP-8 5'	2/10/15	1330	G	SL	4			X	X	X					X	X	
-9 TP-9 5'	2/10/15	1350	G	SL	4			X	X	X					X	X	
TP-10 6'	2/10/15	1430	G	SL	4			X	X	X					X	X	
-11 TP-13 7'	2/10/15	1543	G	SL	4			X	X	X					X	X	
TP-16 7'	2/10/15	1630	G	SL	4			X	X	X					X	X	

Cooler/TB Dig/IR cor 2.5 unc 2.3 (Not)
Cooler Dsc La Porn Blu @Lab 0955
Wet/Packs Packing Bubble
Fed Ex S.C. w/c.s.

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☐Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐Return to Client ☒Disposal by Lab ☐Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____			
Relinquished by:	Company:	Date/Time:	Received by: D Vance	Company: TA Sea	Date/Time: 02/12/15 0955
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

47473

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: JOHN MEANS	Site Contact:	Date: 2/11/15	COC No:
TerraGraphics	Tel/Fax:	Lab Contact: DAVID BURK	Carrier:	2 of 2 COCs
988 S longmont ave	Analysis Turnaround Time			Sampler:
boise idaho 83706	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone	TAT if different from Below ~~3 - DAY~~			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks STANDARD			Lab Sampling:
Project Name: KUFR	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# 15006	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH-dx	cPAHs	LEAD - TOTAL	EDB - DCP	METALS (Cd, Cr, Ni, Zn)	HVOCs	TPH-gx	BTEXN, MTBE, EDC	Sample Specific Notes:
-13 C-C'	2/11/15	1030	G	SL	8			X	X	X	X	X	X	X	X	STANDARD TAT
-14 D-D'	2/11/15	1035	G	SL	8			X	X	X	X	X	X	X	X	STANDARD TAT
-15 TRIP BLANK														X	X	

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☐Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐Return to Client ☒Disposal by Lab ☐Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
			D Vance	TA Sea	2/12/15 0955
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Page 26 of 27

2/12/2015

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Login Sample Receipt Checklist

Client: TerraGraphics Inc

Job Number: 580-47473-2

Login Number: 47473

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

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?	False	no
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	

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: 580-47482-1
Client Project/Site: KVFR

For:
TerraGraphics Inc
TerraGraphics Environmental Engineering
988 South Longmont Ave
Suite 200
Boise, Idaho 83706

Attn: Mike Procsal

David D Burk

Authorized for release by:
3/17/2015 9:29:44 AM

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

Table of Contents

Job ID: 580-47482-1

Laboratory: TestAmerica Seattle

Narrative

Receipt

The samples were received on 2/12/2015 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.0º C, 0.7º C, 1.0º C and 1.9º C.

GC/MS VOA

Method(s) NWTPH-Gx: The method blank for batch 182640 contained gasoline above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

GC Semi VOA

Method(s) 8011: The continuing calibration verification (CCV) associated with analytical batch batch 183059 recovered above the upper control limit for EDB, DBCP and 1,2-dibromopropane surrogate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCB 580-183059/13), (CCB 580-183059/16), (CCV 580-183059/12), (CCV 580-183059/15), (CCVRT 580-183059/1), (LCS 580-183140/2-A), (LCSD 580-183140/3-A), (MB 580-183140/1-A), MW-1 (580-47482-1), MW-2 (580-47482-2), MW-2 DUP (580-47482-3), MW-3 (580-47482-4), MW-4 (580-47482-5), MW-5 (580-47482-6), MW-6 (580-47482-7), MW-7 (580-47482-8).

Method(s) 8011: Surrogate recovery for the following sample(s) was outside the upper control limit: MW-1 (580-47482-1), MW-2 (580-47482-2), MW-2 DUP (580-47482-3), MW-3 (580-47482-4), MW-4 (580-47482-5), MW-5 (580-47482-6), MW-6 (580-47482-7), MW-7 (580-47482-8). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8011: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for prep batch 183140 recovered outside control limits for EDB, DBCP and 1,2-dibromopropane surrogate. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) NWTPH-Dx: In analysis batch 182753, for the following sample(s) from preparation batch 182738: The following sample(s) contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: MW-2 (580-47482-2), MW-2 DUP (580-47482-3).

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

Method(s) 9056A: Reanalysis of the following samples was performed outside of the analytical holding time. : MW-1 (580-47482-1), MW-2 (580-47482-2), MW-2 DUP (580-47482-3), MW-3 (580-47482-4), MW-4 (580-47482-5), MW-5 (580-47482-6), MW-6 (580-47482-7), MW-7 (580-47482-8).

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

Organic Prep

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

Qualifiers

GC/MS VOA

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

GC 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 Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
X	Surrogate is outside control limits
Y	The chromatographic response resembles a typical fuel pattern.

Metals

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

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

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 Sample ID: MW-1
Date Collected: 02/11/15 12:15
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	ND		0.50	0.050	ug/L			02/17/15 14:37	1
o-Xylene	ND		0.50	0.060	ug/L			02/17/15 14:37	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 14:37	1
Toluene	ND		0.20	0.025	ug/L			02/17/15 14:37	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 14:37	1
EDC	ND		0.20	0.025	ug/L			02/17/15 14:37	1
Ethylbenzene	ND		0.20	0.030	ug/L			02/17/15 14:37	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 14:37	1
Xylenes, Total	ND		0.50	0.060	ug/L			02/17/15 14:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*75 - 120*		*02/17/15 14:37*	*1*
Trifluorotoluene (Surr)	*93*		*80 - 127*		*02/17/15 14:37*	*1*
Toluene-d8 (Surr)	*95*		*75 - 125*		*02/17/15 14:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 128*		*02/17/15 14:37*	*1*
Dibromofluoromethane (Surr)	*97*		*85 - 115*		*02/17/15 14:37*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**0.033**	**J B**	0.10	0.027	mg/L			02/17/15 17:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*50 - 150*		*02/17/15 17:07*	*1*
Trifluorotoluene (Surr)	*110*		*50 - 150*		*02/17/15 17:07*	*1*

Method: 8011 - EDB and DBCP in Water by Microextraction

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND	* ^	0.010	0.0020	ug/L		02/24/15 16:45	02/24/15 18:26	1
1,2-Dibromo-3-Chloropropane	ND	* ^	0.010	0.0030	ug/L		02/24/15 16:45	02/24/15 18:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*180*	*X ^*	*70 - 130*	*02/24/15 16:45*	*02/24/15 18:26*	*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)	**0.022**	**J**	0.12	0.014	mg/L		02/18/15 15:40	02/19/15 10:56	1
Motor Oil (>C24-C36)	**0.010**	**J**	0.24	0.0094	mg/L		02/18/15 15:40	02/19/15 10:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*02/18/15 15:40*	*02/19/15 10:56*	*1*

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0020	0.00017	mg/L		02/17/15 16:56	02/18/15 18:44	5
Manganese	**4.0**	**J**	10	1.8	ug/L		02/17/15 16:56	02/18/15 18:44	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**12000**	**H**	1200	400	ug/L			03/16/15 15:01	1
Alkalinity	**170**		5.0	5.0	mg/L			02/18/15 13:01	1
Bicarbonate Alkalinity as CaCO3	**170**		5.0	5.0	mg/L			02/18/15 13:01	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: MW-1
Date Collected: 02/11/15 12:15
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-1
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Total Suspended Solids	ND		3000	3000	ug/L			02/17/15 11:01	1

Client Sample ID: MW-2
Date Collected: 02/11/15 09:50
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	0.098	J	0.50	0.050	ug/L			02/17/15 15:05	1
o-Xylene	ND		0.50	0.060	ug/L			02/17/15 15:05	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 15:05	1
Toluene	0.038	J	0.20	0.025	ug/L			02/17/15 15:05	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 15:05	1
EDC	ND		0.20	0.025	ug/L			02/17/15 15:05	1
Ethylbenzene	ND		0.20	0.030	ug/L			02/17/15 15:05	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 15:05	1
Xylenes, Total	0.098	J	0.50	0.060	ug/L			02/17/15 15:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*75 - 120*		*02/17/15 15:05*	*1*
Trifluorotoluene (Surr)	*97*		*80 - 127*		*02/17/15 15:05*	*1*
Toluene-d8 (Surr)	*97*		*75 - 125*		*02/17/15 15:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 128*		*02/17/15 15:05*	*1*
Dibromofluoromethane (Surr)	*100*		*85 - 115*		*02/17/15 15:05*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.030	J B	0.10	0.027	mg/L			02/17/15 17:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*50 - 150*		*02/17/15 17:40*	*1*
Trifluorotoluene (Surr)	*106*		*50 - 150*		*02/17/15 17:40*	*1*

Method: 8011 - EDB and DBCP in Water by Microextraction

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND	* ^	0.010	0.0020	ug/L		02/24/15 16:45	02/24/15 18:52	1
1,2-Dibromo-3-Chloropropane	ND	* ^	0.010	0.0030	ug/L		02/24/15 16:45	02/24/15 18:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*232*	*X ^*	*70 - 130*	*02/24/15 16:45*	*02/24/15 18:52*	*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)	0.19	Y	0.13	0.015	mg/L		02/18/15 15:40	02/19/15 11:15	1
Motor Oil (>C24-C36)	0.12	J	0.26	0.010	mg/L		02/18/15 15:40	02/19/15 11:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*78*		*50 - 150*	*02/18/15 15:40*	*02/19/15 11:15*	*1*

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0020	0.00017	mg/L		02/17/15 16:56	02/18/15 18:48	5
Manganese	140		10	1.8	ug/L		02/17/15 16:56	02/18/15 18:48	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7900	H	1200	400	ug/L			03/16/15 15:15	1
Alkalinity	150		5.0	5.0	mg/L			02/18/15 13:01	1
Bicarbonate Alkalinity as CaCO3	150		5.0	5.0	mg/L			02/18/15 13:01	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: MW-2
Date Collected: 02/11/15 09:50
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-2
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Total Suspended Solids	ND		3000	3000	ug/L			02/17/15 11:01	1

Client Sample ID: MW-2 DUP
Date Collected: 02/11/15 09:55
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	0.099	J	0.50	0.050	ug/L			02/17/15 15:32	1
o-Xylene	0.089	J	0.50	0.060	ug/L			02/17/15 15:32	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 15:32	1
Toluene	0.036	J	0.20	0.025	ug/L			02/17/15 15:32	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 15:32	1
EDC	ND		0.20	0.025	ug/L			02/17/15 15:32	1
Ethylbenzene	0.055	J	0.20	0.030	ug/L			02/17/15 15:32	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 15:32	1
Xylenes, Total	0.19	J	0.50	0.060	ug/L			02/17/15 15:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*02/17/15 15:32*	*1*
Trifluorotoluene (Surr)	*101*		*80 - 127*		*02/17/15 15:32*	*1*
Toluene-d8 (Surr)	*97*		*75 - 125*		*02/17/15 15:32*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 128*		*02/17/15 15:32*	*1*
Dibromofluoromethane (Surr)	*98*		*85 - 115*		*02/17/15 15:32*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.10	0.027	mg/L			02/17/15 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*50 - 150*		*02/17/15 18:12*	*1*
Trifluorotoluene (Surr)	*108*		*50 - 150*		*02/17/15 18:12*	*1*

Method: 8011 - EDB and DBCP in Water by Microextraction

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND	* ^	0.010	0.0020	ug/L		02/24/15 16:45	02/24/15 19:17	1
1,2-Dibromo-3-Chloropropane	ND	* ^	0.010	0.0030	ug/L		02/24/15 16:45	02/24/15 19:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*212*	*X ^*	*70 - 130*	*02/24/15 16:45*	*02/24/15 19:17*	*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)	0.19	Y	0.12	0.014	mg/L		02/18/15 15:40	02/19/15 11:34	1
Motor Oil (>C24-C36)	0.13	J	0.24	0.0095	mg/L		02/18/15 15:40	02/19/15 11:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*74*		*50 - 150*	*02/18/15 15:40*	*02/19/15 11:34*	*1*

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0020	0.00017	mg/L		02/17/15 16:56	02/18/15 18:51	5
Manganese	150		10	1.8	ug/L		02/17/15 16:56	02/18/15 18:51	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7800	H	1200	400	ug/L			03/16/15 15:29	1
Alkalinity	140		5.0	5.0	mg/L			02/18/15 13:01	1
Bicarbonate Alkalinity as CaCO3	140		5.0	5.0	mg/L			02/18/15 13:01	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: MW-2 DUP
Date Collected: 02/11/15 09:55
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-3
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Total Suspended Solids	ND		3000	3000	ug/L			02/17/15 11:01	1

Client Sample ID: MW-3

Date Collected: 02/11/15 10:55
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	**0.096**	**J**	0.50	0.050	ug/L			02/17/15 16:00	1
o-Xylene	ND		0.50	0.060	ug/L			02/17/15 16:00	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 16:00	1
Toluene	**0.026**	**J**	0.20	0.025	ug/L			02/17/15 16:00	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 16:00	1
EDC	ND		0.20	0.025	ug/L			02/17/15 16:00	1
Ethylbenzene	**0.056**	**J**	0.20	0.030	ug/L			02/17/15 16:00	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 16:00	1
Xylenes, Total	**0.096**	**J**	0.50	0.060	ug/L			02/17/15 16:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*02/17/15 16:00*	*1*
Trifluorotoluene (Surr)	*100*		*80 - 127*		*02/17/15 16:00*	*1*
Toluene-d8 (Surr)	*98*		*75 - 125*		*02/17/15 16:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 128*		*02/17/15 16:00*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*02/17/15 16:00*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.10	0.027	mg/L			02/17/15 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*		*02/17/15 18:46*	*1*
Trifluorotoluene (Surr)	*108*		*50 - 150*		*02/17/15 18:46*	*1*

Method: 8011 - EDB and DBCP in Water by Microextraction

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND	* ^	0.010	0.0020	ug/L		02/24/15 16:45	02/24/15 19:43	1
1,2-Dibromo-3-Chloropropane	ND	* ^	0.010	0.0030	ug/L		02/24/15 16:45	02/24/15 19:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*244*	*X ^*	*70 - 130*	*02/24/15 16:45*	*02/24/15 19:43*	*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)	**0.037**	**J**	0.12	0.014	mg/L		02/18/15 15:40	02/19/15 11:53	1
Motor Oil (>C24-C36)	**0.037**	**J**	0.24	0.0095	mg/L		02/18/15 15:40	02/19/15 11:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*50 - 150*	*02/18/15 15:40*	*02/19/15 11:53*	*1*

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0020	0.00017	mg/L		02/17/15 16:56	02/18/15 18:55	5
Manganese	**2.9**	**J**	10	1.8	ug/L		02/17/15 16:56	02/18/15 18:55	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**9700**	**H**	1200	400	ug/L			03/16/15 15:44	1
Alkalinity	**150**		5.0	5.0	mg/L			02/18/15 13:01	1
Bicarbonate Alkalinity as CaCO3	**150**		5.0	5.0	mg/L			02/18/15 13:01	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: MW-3
Date Collected: 02/11/15 10:55
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-4
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Total Suspended Solids	**20000**		3000	3000	ug/L			02/17/15 11:01	1

Client Sample ID: MW-4
Date Collected: 02/10/15 16:50
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	ND		0.50	0.050	ug/L			02/17/15 16:27	1
o-Xylene	ND		0.50	0.060	ug/L			02/17/15 16:27	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 16:27	1
Toluene	ND		0.20	0.025	ug/L			02/17/15 16:27	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 16:27	1
EDC	ND		0.20	0.025	ug/L			02/17/15 16:27	1
Ethylbenzene	ND		0.20	0.030	ug/L			02/17/15 16:27	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 16:27	1
Xylenes, Total	ND		0.50	0.060	ug/L			02/17/15 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*02/17/15 16:27*	*1*
Trifluorotoluene (Surr)	*97*		*80 - 127*		*02/17/15 16:27*	*1*
Toluene-d8 (Surr)	*96*		*75 - 125*		*02/17/15 16:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 128*		*02/17/15 16:27*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*02/17/15 16:27*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.10	0.027	mg/L			02/17/15 19:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*50 - 150*		*02/17/15 19:18*	*1*
Trifluorotoluene (Surr)	*107*		*50 - 150*		*02/17/15 19:18*	*1*

Method: 8011 - EDB and DBCP in Water by Microextraction

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND	* ^	0.010	0.0020	ug/L		02/24/15 16:45	02/24/15 20:08	1
1,2-Dibromo-3-Chloropropane	ND	* ^	0.010	0.0030	ug/L		02/24/15 16:45	02/24/15 20:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*222*	*X ^*	*70 - 130*	*02/24/15 16:45*	*02/24/15 20:08*	*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)	**0.037**	**J**	0.13	0.015	mg/L		02/18/15 15:40	02/19/15 12:11	1
Motor Oil (>C24-C36)	**0.042**	**J**	0.25	0.0099	mg/L		02/18/15 15:40	02/19/15 12:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*02/18/15 15:40*	*02/19/15 12:11*	*1*

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0020	0.00017	mg/L		02/17/15 16:56	02/18/15 19:11	5
Manganese	**83**		10	1.8	ug/L		02/17/15 16:56	02/18/15 19:11	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**11000**	**H**	1200	400	ug/L			03/16/15 15:58	1
Alkalinity	**160**		5.0	5.0	mg/L			02/18/15 13:01	1
Bicarbonate Alkalinity as CaCO3	**160**		5.0	5.0	mg/L			02/18/15 13:01	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: MW-4
Date Collected: 02/10/15 16:50
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-5
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Total Suspended Solids	ND		3000	3000	ug/L			02/17/15 11:01	1

Client Sample ID: MW-5
Date Collected: 02/10/15 15:25
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	ND		0.50	0.050	ug/L			02/17/15 16:55	1
o-Xylene	ND		0.50	0.060	ug/L			02/17/15 16:55	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 16:55	1
Toluene	**0.032**	**J**	0.20	0.025	ug/L			02/17/15 16:55	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 16:55	1
EDC	ND		0.20	0.025	ug/L			02/17/15 16:55	1
Ethylbenzene	ND		0.20	0.030	ug/L			02/17/15 16:55	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 16:55	1
Xylenes, Total	ND		0.50	0.060	ug/L			02/17/15 16:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*75 - 120*		*02/17/15 16:55*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 127*		*02/17/15 16:55*	*1*
Toluene-d8 (Surr)	*96*		*75 - 125*		*02/17/15 16:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 128*		*02/17/15 16:55*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*02/17/15 16:55*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.10	0.027	mg/L			02/17/15 19:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*50 - 150*		*02/17/15 19:52*	*1*
Trifluorotoluene (Surr)	*105*		*50 - 150*		*02/17/15 19:52*	*1*

Method: 8011 - EDB and DBCP in Water by Microextraction

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND	* ^	0.010	0.0020	ug/L		02/24/15 16:45	02/24/15 20:34	1
1,2-Dibromo-3-Chloropropane	ND	* ^	0.010	0.0030	ug/L		02/24/15 16:45	02/24/15 20:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*206*	*X ^*	*70 - 130*	*02/24/15 16:45*	*02/24/15 20:34*	*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)	**0.030**	**J**	0.12	0.014	mg/L		02/18/15 15:40	02/19/15 12:30	1
Motor Oil (>C24-C36)	**0.065**	**J**	0.24	0.0096	mg/L		02/18/15 15:40	02/19/15 12:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*91*		*50 - 150*	*02/18/15 15:40*	*02/19/15 12:30*	*1*

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0020	0.00017	mg/L		02/17/15 16:56	02/18/15 19:15	5
Manganese	**170**		10	1.8	ug/L		02/17/15 16:56	02/18/15 19:15	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**4600**	**H**	1200	400	ug/L			03/16/15 16:13	1
Alkalinity	**150**		5.0	5.0	mg/L			02/18/15 13:01	1
Bicarbonate Alkalinity as CaCO3	**150**		5.0	5.0	mg/L			02/18/15 13:01	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: MW-5
Date Collected: 02/10/15 15:25
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-6
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Total Suspended Solids	ND		3000	3000	ug/L			02/17/15 11:01	1

Client Sample ID: MW-6
Date Collected: 02/10/15 12:25
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	0.091	J	0.50	0.050	ug/L			02/17/15 17:22	1
o-Xylene	ND		0.50	0.060	ug/L			02/17/15 17:22	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 17:22	1
Toluene	0.047	J	0.20	0.025	ug/L			02/17/15 17:22	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 17:22	1
EDC	0.038	J	0.20	0.025	ug/L			02/17/15 17:22	1
Ethylbenzene	ND		0.20	0.030	ug/L			02/17/15 17:22	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 17:22	1
Xylenes, Total	0.091	J	0.50	0.060	ug/L			02/17/15 17:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*02/17/15 17:22*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 127*		*02/17/15 17:22*	*1*
Toluene-d8 (Surr)	*94*		*75 - 125*		*02/17/15 17:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 128*		*02/17/15 17:22*	*1*
Dibromofluoromethane (Surr)	*100*		*85 - 115*		*02/17/15 17:22*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.10	0.027	mg/L			02/17/15 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*50 - 150*		*02/17/15 20:57*	*1*
Trifluorotoluene (Surr)	*109*		*50 - 150*		*02/17/15 20:57*	*1*

Method: 8011 - EDB and DBCP in Water by Microextraction

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND	* ^	0.010	0.0020	ug/L		02/24/15 16:45	02/24/15 20:59	1
1,2-Dibromo-3-Chloropropane	ND	* ^	0.010	0.0030	ug/L		02/24/15 16:45	02/24/15 20:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*212*	*X ^*	*70 - 130*	*02/24/15 16:45*	*02/24/15 20:59*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	0.064	J	0.12	0.014	mg/L		02/18/15 15:40	02/19/15 12:49	1
Motor Oil (>C24-C36)	0.20	J	0.25	0.0097	mg/L		02/18/15 15:40	02/19/15 12:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*93*		*50 - 150*	*02/18/15 15:40*	*02/19/15 12:49*	*1*

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0020	0.00017	mg/L		02/17/15 16:56	02/18/15 19:19	5
Manganese	310		10	1.8	ug/L		02/17/15 16:56	02/18/15 19:19	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5300	H	1200	400	ug/L			03/16/15 16:27	1
Alkalinity	58		5.0	5.0	mg/L			02/18/15 13:01	1
Bicarbonate Alkalinity as CaCO3	58		5.0	5.0	mg/L			02/18/15 13:01	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: MW-6
Date Collected: 02/10/15 12:25
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-7
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Total Suspended Solids	ND		3000	3000	ug/L			02/17/15 11:02	1

Client Sample ID: MW-7
Date Collected: 02/10/15 13:45
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-8
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	ND		0.50	0.050	ug/L			02/17/15 17:50	1
o-Xylene	ND		0.50	0.060	ug/L			02/17/15 17:50	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 17:50	1
Toluene	**0.026**	**J**	0.20	0.025	ug/L			02/17/15 17:50	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 17:50	1
EDC	ND		0.20	0.025	ug/L			02/17/15 17:50	1
Ethylbenzene	**0.054**	**J**	0.20	0.030	ug/L			02/17/15 17:50	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 17:50	1
Xylenes, Total	ND		0.50	0.060	ug/L			02/17/15 17:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*75 - 120*		*02/17/15 17:50*	*1*
Trifluorotoluene (Surr)	*95*		*80 - 127*		*02/17/15 17:50*	*1*
Toluene-d8 (Surr)	*94*		*75 - 125*		*02/17/15 17:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 128*		*02/17/15 17:50*	*1*
Dibromofluoromethane (Surr)	*101*		*85 - 115*		*02/17/15 17:50*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.10	0.027	mg/L			02/17/15 21:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*50 - 150*		*02/17/15 21:30*	*1*
Trifluorotoluene (Surr)	*107*		*50 - 150*		*02/17/15 21:30*	*1*

Method: 8011 - EDB and DBCP in Water by Microextraction

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND	* ^	0.010	0.0020	ug/L		02/24/15 16:45	02/24/15 22:15	1
1,2-Dibromo-3-Chloropropane	ND	* ^	0.010	0.0030	ug/L		02/24/15 16:45	02/24/15 22:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*202*	*X ^*	*70 - 130*	*02/24/15 16:45*	*02/24/15 22:15*	*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)	**0.031**	**J**	0.13	0.015	mg/L		02/18/15 15:40	02/19/15 13:27	1
Motor Oil (>C24-C36)	**0.064**	**J**	0.25	0.0098	mg/L		02/18/15 15:40	02/19/15 13:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*92*		*50 - 150*	*02/18/15 15:40*	*02/19/15 13:27*	*1*

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.00032**	**J**	0.0020	0.00017	mg/L		02/17/15 16:56	02/18/15 19:23	5
Manganese	**18**		10	1.8	ug/L		02/17/15 16:56	02/18/15 19:23	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**3900**	**H**	1200	400	ug/L			03/16/15 16:42	1
Alkalinity	**160**		5.0	5.0	mg/L			02/18/15 13:01	1
Bicarbonate Alkalinity as CaCO3	**160**		5.0	5.0	mg/L			02/18/15 13:01	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: MW-7
Date Collected: 02/10/15 13:45
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-8
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Hydroxide Alkalinity as CaCO3	ND		5.0	5.0	mg/L			02/18/15 13:01	1
Total Suspended Solids	ND		3000	3000	ug/L			02/17/15 11:02	1

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: TB
Date Collected: 02/10/15 00:00
Date Received: 02/12/15 09:55

Lab Sample ID: 580-47482-9
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	ND		0.50	0.050	ug/L			02/17/15 14:09	1
o-Xylene	ND		0.50	0.060	ug/L			02/17/15 14:09	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 14:09	1
Toluene	ND		0.20	0.025	ug/L			02/17/15 14:09	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 14:09	1
EDC	**0.038**	**J**	0.20	0.025	ug/L			02/17/15 14:09	1
Ethylbenzene	ND		0.20	0.030	ug/L			02/17/15 14:09	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 14:09	1
Xylenes, Total	ND		0.50	0.060	ug/L			02/17/15 14:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*75 - 120*		*02/17/15 14:09*	*1*
Trifluorotoluene (Surr)	*96*		*80 - 127*		*02/17/15 14:09*	*1*
Toluene-d8 (Surr)	*95*		*75 - 125*		*02/17/15 14:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 128*		*02/17/15 14:09*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*02/17/15 14:09*	*1*

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

Lab Sample ID: MB 580-182580/5
Matrix: Water
Analysis Batch: 182580

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	ND		0.50	0.050	ug/L			02/17/15 10:22	1
o-Xylene	ND		0.50	0.060	ug/L			02/17/15 10:22	1
Benzene	ND		0.20	0.025	ug/L			02/17/15 10:22	1
Toluene	ND		0.20	0.025	ug/L			02/17/15 10:22	1
Naphthalene	ND		0.50	0.10	ug/L			02/17/15 10:22	1
EDC	ND		0.20	0.025	ug/L			02/17/15 10:22	1
Ethylbenzene	ND		0.20	0.030	ug/L			02/17/15 10:22	1
Methyl tert-butyl ether	ND		0.20	0.025	ug/L			02/17/15 10:22	1
Xylenes, Total	ND		0.50	0.060	ug/L			02/17/15 10:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*75 - 120*		*02/17/15 10:22*	*1*
Trifluorotoluene (Surr)	*98*		*80 - 127*		*02/17/15 10:22*	*1*
Toluene-d8 (Surr)	*95*		*75 - 125*		*02/17/15 10:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 128*		*02/17/15 10:22*	*1*
Dibromofluoromethane (Surr)	*100*		*85 - 115*		*02/17/15 10:22*	*1*

Lab Sample ID: LCS 580-182580/14
Matrix: Water
Analysis Batch: 182580

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
m-Xylene & p-Xylene	5.00	4.85		ug/L		97	80 - 130
o-Xylene	5.00	5.23		ug/L		105	80 - 120
Benzene	5.00	5.80		ug/L		116	80 - 120
Toluene	5.00	5.46		ug/L		109	80 - 120
Naphthalene	5.00	3.79		ug/L		76	45 - 130
EDC	5.00	5.18		ug/L		104	80 - 140
Ethylbenzene	5.00	5.11		ug/L		102	80 - 125
Methyl tert-butyl ether	5.00	4.02		ug/L		80	75 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*
Trifluorotoluene (Surr)	*93*		*80 - 127*
Toluene-d8 (Surr)	*99*		*75 - 125*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 128*
Dibromofluoromethane (Surr)	*97*		*85 - 115*

Lab Sample ID: LCSD 580-182580/15
Matrix: Water
Analysis Batch: 182580

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
m-Xylene & p-Xylene	5.00	4.74		ug/L		95	80 - 130	2	20
o-Xylene	5.00	5.12		ug/L		102	80 - 120	2	20
Benzene	5.00	5.76		ug/L		115	80 - 120	1	20
Toluene	5.00	5.32		ug/L		106	80 - 120	3	20

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

Lab Sample ID: LCSD 580-182580/15
Matrix: Water
Analysis Batch: 182580

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			5.00	4.31		ug/L		86	45 - 130	13	20
EDC			5.00	5.40		ug/L		108	80 - 140	4	20
Ethylbenzene			5.00	4.99		ug/L		100	80 - 125	2	20
Methyl tert-butyl ether			5.00	4.27		ug/L		85	75 - 120	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*
Trifluorotoluene (Surr)	*94*		*80 - 127*
Toluene-d8 (Surr)	*97*		*75 - 125*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 128*
Dibromofluoromethane (Surr)	*99*		*85 - 115*

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

Lab Sample ID: MB 580-182640/4
Matrix: Water
Analysis Batch: 182640

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.0444	J	0.10	0.027	mg/L			02/17/15 14:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*50 - 150*		*02/17/15 14:54*	*1*
Trifluorotoluene (Surr)	*108*		*50 - 150*		*02/17/15 14:54*	*1*

Lab Sample ID: LCS 580-182640/5
Matrix: Water
Analysis Batch: 182640

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline			1.00	0.830		mg/L		83	79 - 110		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*50 - 150*
Trifluorotoluene (Surr)	*98*		*50 - 150*

Lab Sample ID: LCSD 580-182640/6
Matrix: Water
Analysis Batch: 182640

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			1.00	0.831		mg/L		83	79 - 110	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*50 - 150*
Trifluorotoluene (Surr)	*97*		*50 - 150*

Method: 8011 - EDB and DBCP in Water by Microextraction

Lab Sample ID: MB 580-183140/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 183059 — **Prep Batch: 183140**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND	^	0.010	0.0020	ug/L		02/24/15 16:45	02/24/15 17:10	1
1,2-Dibromo-3-Chloropropane	ND	^	0.010	0.0030	ug/L		02/24/15 16:45	02/24/15 17:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dibromopropane	*259*	*^ X*	*70 - 130*	*02/24/15 16:45*	*02/24/15 17:10*	*1*

Lab Sample ID: LCS 580-183140/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 183059 — **Prep Batch: 183140**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene Dibromide	0.0574	0.113	* ^	ug/L		198	70 - 130
1,2-Dibromo-3-Chloropropane	0.0573	0.160	* ^	ug/L		279	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dibromopropane	*185*	*X ^*	*70 - 130*

Lab Sample ID: LCSD 580-183140/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 183059 — **Prep Batch: 183140**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene Dibromide	0.0574	0.118	* ^	ug/L		206	70 - 130	4	20
1,2-Dibromo-3-Chloropropane	0.0573	0.173	* ^	ug/L		302	70 - 130	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dibromopropane	*192*	*X ^*	*70 - 130*

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

Lab Sample ID: MB 580-182738/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 182753 — **Prep Batch: 182738**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND		0.13	0.015	mg/L		02/18/15 15:40	02/19/15 10:00	1
Motor Oil (>C24-C36)	ND		0.25	0.0098	mg/L		02/18/15 15:40	02/19/15 10:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*50 - 150*	*02/18/15 15:40*	*02/19/15 10:00*	*1*

Lab Sample ID: LCS 580-182738/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 182753 — **Prep Batch: 182738**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
#2 Diesel (C10-C24)	0.500	0.435		mg/L		87	59 - 120

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

Lab Sample ID: LCS 580-182738/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 182753 — **Prep Batch: 182738**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Motor Oil (>C24-C36)			0.502	0.482		mg/L		96	71 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*83*		*50 - 150*

Lab Sample ID: LCSD 580-182738/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 182753 — **Prep Batch: 182738**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			0.500	0.423		mg/L		85	59 - 120	3	27
Motor Oil (>C24-C36)			0.502	0.471		mg/L		94	71 - 140	2	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*81*		*50 - 150*

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 580-182655/20-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 182767 — **Prep Batch: 182655**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0020	0.00017	mg/L		02/17/15 16:56	02/18/15 17:33	5
Manganese	ND		10	1.8	ug/L		02/17/15 16:56	02/18/15 17:33	5

Lab Sample ID: LCS 580-182655/21-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 182767 — **Prep Batch: 182655**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead			1.00	0.916		mg/L		92	80 - 120		
Manganese			1000	972		ug/L		97	80 - 120		

Lab Sample ID: LCSD 580-182655/22-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 182767 — **Prep Batch: 182655**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead			1.00	0.947		mg/L		95	80 - 120	3	20
Manganese			1000	992		ug/L		99	80 - 120	2	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 580-184511/1
Matrix: Water
Analysis Batch: 184511

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1200	400	ug/L			03/16/15 10:31	1

Lab Sample ID: LCS 580-184511/2
Matrix: Water
Analysis Batch: 184511

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			12000	11500		ug/L		96	90 - 110		

Lab Sample ID: LCSD 580-184511/3
Matrix: Water
Analysis Batch: 184511

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate			12000	11500		ug/L		96	90 - 110	0	15

Lab Sample ID: 580-47482-8 MS
Matrix: Water
Analysis Batch: 184511

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	3900	H	12000	15200		ug/L		95	90 - 110		

Method: SM 2320B - Alkalinity

Lab Sample ID: LCS 580-182743/2
Matrix: Water
Analysis Batch: 182743

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	101		mg/L		101	85 - 115		

Lab Sample ID: 580-47482-1 DU
Matrix: Water
Analysis Batch: 182743

Client Sample ID: MW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	170			191		mg/L				11	17
Bicarbonate Alkalinity as CaCO3	170			191		mg/L				11	20
Carbonate Alkalinity as CaCO3	ND			ND		mg/L				NC	20
Hydroxide Alkalinity as CaCO3	ND			ND		mg/L				NC	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-182559/1
Matrix: Water
Analysis Batch: 182559

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		1200	1200	ug/L			02/16/15 10:58	1

Lab Sample ID: LCS 580-182559/2
Matrix: Water
Analysis Batch: 182559

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			30000	26800		ug/L		89	70.6 - 120		

Lab Sample ID: 580-47482-8 DU
Matrix: Water
Analysis Batch: 182559

Client Sample ID: MW-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	ND			ND		ug/L				NC	20

Client Sample ID: MW-1

Lab Sample ID: 580-47482-1

Date Collected: 02/11/15 12:15

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	182580	02/17/15 14:37	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182640	02/17/15 17:07	CJ	TAL SEA
Total/NA	Prep	8011			183140	02/24/15 16:45	CGM	TAL SEA
Total/NA	Analysis	8011		1	183059	02/24/15 18:26	CGM	TAL SEA
Total/NA	Prep	3520C			182738	02/18/15 15:40	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182753	02/19/15 10:56	JJP	TAL SEA
Total Recoverable	Prep	3005A			182655	02/17/15 16:56	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	182767	02/18/15 18:44	FCW	TAL SEA
Total/NA	Analysis	9056A		1	184511	03/16/15 15:01	RSB	TAL SEA
Total/NA	Analysis	SM 2320B		1	182743	02/18/15 13:01	JLS	TAL SEA
Total/NA	Analysis	SM 2540D		1	182559	02/17/15 11:01	LKC	TAL SEA

Client Sample ID: MW-2

Lab Sample ID: 580-47482-2

Date Collected: 02/11/15 09:50

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	182580	02/17/15 15:05	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182640	02/17/15 17:40	CJ	TAL SEA
Total/NA	Prep	8011			183140	02/24/15 16:45	CGM	TAL SEA
Total/NA	Analysis	8011		1	183059	02/24/15 18:52	CGM	TAL SEA
Total/NA	Prep	3520C			182738	02/18/15 15:40	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182753	02/19/15 11:15	JJP	TAL SEA
Total Recoverable	Prep	3005A			182655	02/17/15 16:56	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	182767	02/18/15 18:48	FCW	TAL SEA
Total/NA	Analysis	9056A		1	184511	03/16/15 15:15	RSB	TAL SEA
Total/NA	Analysis	SM 2320B		1	182743	02/18/15 13:01	JLS	TAL SEA
Total/NA	Analysis	SM 2540D		1	182559	02/17/15 11:01	LKC	TAL SEA

Client Sample ID: MW-2 DUP

Lab Sample ID: 580-47482-3

Date Collected: 02/11/15 09:55

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	182580	02/17/15 15:32	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182640	02/17/15 18:12	CJ	TAL SEA
Total/NA	Prep	8011			183140	02/24/15 16:45	CGM	TAL SEA
Total/NA	Analysis	8011		1	183059	02/24/15 19:17	CGM	TAL SEA
Total/NA	Prep	3520C			182738	02/18/15 15:40	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182753	02/19/15 11:34	JJP	TAL SEA
Total Recoverable	Prep	3005A			182655	02/17/15 16:56	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	182767	02/18/15 18:51	FCW	TAL SEA

Client Sample ID: MW-2 DUP

Lab Sample ID: 580-47482-3

Date Collected: 02/11/15 09:55

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	184511	03/16/15 15:29	RSB	TAL SEA
Total/NA	Analysis	SM 2320B		1	182743	02/18/15 13:01	JLS	TAL SEA
Total/NA	Analysis	SM 2540D		1	182559	02/17/15 11:01	LKC	TAL SEA

Client Sample ID: MW-3

Lab Sample ID: 580-47482-4

Date Collected: 02/11/15 10:55

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	182580	02/17/15 16:00	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182640	02/17/15 18:46	CJ	TAL SEA
Total/NA	Prep	8011			183140	02/24/15 16:45	CGM	TAL SEA
Total/NA	Analysis	8011		1	183059	02/24/15 19:43	CGM	TAL SEA
Total/NA	Prep	3520C			182738	02/18/15 15:40	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182753	02/19/15 11:53	JJP	TAL SEA
Total Recoverable	Prep	3005A			182655	02/17/15 16:56	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	182767	02/18/15 18:55	FCW	TAL SEA
Total/NA	Analysis	9056A		1	184511	03/16/15 15:44	RSB	TAL SEA
Total/NA	Analysis	SM 2320B		1	182743	02/18/15 13:01	JLS	TAL SEA
Total/NA	Analysis	SM 2540D		1	182559	02/17/15 11:01	LKC	TAL SEA

Client Sample ID: MW-4

Lab Sample ID: 580-47482-5

Date Collected: 02/10/15 16:50

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	182580	02/17/15 16:27	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182640	02/17/15 19:18	CJ	TAL SEA
Total/NA	Prep	8011			183140	02/24/15 16:45	CGM	TAL SEA
Total/NA	Analysis	8011		1	183059	02/24/15 20:08	CGM	TAL SEA
Total/NA	Prep	3520C			182738	02/18/15 15:40	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182753	02/19/15 12:11	JJP	TAL SEA
Total Recoverable	Prep	3005A			182655	02/17/15 16:56	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	182767	02/18/15 19:11	FCW	TAL SEA
Total/NA	Analysis	9056A		1	184511	03/16/15 15:58	RSB	TAL SEA
Total/NA	Analysis	SM 2320B		1	182743	02/18/15 13:01	JLS	TAL SEA
Total/NA	Analysis	SM 2540D		1	182559	02/17/15 11:01	LKC	TAL SEA

Client Sample ID: MW-5

Lab Sample ID: 580-47482-6

Date Collected: 02/10/15 15:25

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	182580	02/17/15 16:55	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182640	02/17/15 19:52	CJ	TAL SEA
Total/NA	Prep	8011			183140	02/24/15 16:45	CGM	TAL SEA
Total/NA	Analysis	8011		1	183059	02/24/15 20:34	CGM	TAL SEA
Total/NA	Prep	3520C			182738	02/18/15 15:40	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182753	02/19/15 12:30	JJP	TAL SEA
Total Recoverable	Prep	3005A			182655	02/17/15 16:56	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	182767	02/18/15 19:15	FCW	TAL SEA
Total/NA	Analysis	9056A		1	184511	03/16/15 16:13	RSB	TAL SEA
Total/NA	Analysis	SM 2320B		1	182743	02/18/15 13:01	JLS	TAL SEA
Total/NA	Analysis	SM 2540D		1	182559	02/17/15 11:01	LKC	TAL SEA

Client Sample ID: MW-6

Lab Sample ID: 580-47482-7

Date Collected: 02/10/15 12:25

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	182580	02/17/15 17:22	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182640	02/17/15 20:57	CJ	TAL SEA
Total/NA	Prep	8011			183140	02/24/15 16:45	CGM	TAL SEA
Total/NA	Analysis	8011		1	183059	02/24/15 20:59	CGM	TAL SEA
Total/NA	Prep	3520C			182738	02/18/15 15:40	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182753	02/19/15 12:49	JJP	TAL SEA
Total Recoverable	Prep	3005A			182655	02/17/15 16:56	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	182767	02/18/15 19:19	FCW	TAL SEA
Total/NA	Analysis	9056A		1	184511	03/16/15 16:27	RSB	TAL SEA
Total/NA	Analysis	SM 2320B		1	182743	02/18/15 13:01	JLS	TAL SEA
Total/NA	Analysis	SM 2540D		1	182559	02/17/15 11:02	LKC	TAL SEA

Client Sample ID: MW-7

Lab Sample ID: 580-47482-8

Date Collected: 02/10/15 13:45

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	182580	02/17/15 17:50	CJ	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	182640	02/17/15 21:30	CJ	TAL SEA
Total/NA	Prep	8011			183140	02/24/15 16:45	CGM	TAL SEA
Total/NA	Analysis	8011		1	183059	02/24/15 22:15	CGM	TAL SEA
Total/NA	Prep	3520C			182738	02/18/15 15:40	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	182753	02/19/15 13:27	JJP	TAL SEA
Total Recoverable	Prep	3005A			182655	02/17/15 16:56	PAB	TAL SEA
Total Recoverable	Analysis	6020A		5	182767	02/18/15 19:23	FCW	TAL SEA

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Client Sample ID: MW-7

Lab Sample ID: 580-47482-8

Date Collected: 02/10/15 13:45

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056A		1	184511	03/16/15 16:42	RSB	TAL SEA
Total/NA	Analysis	SM 2320B		1	182743	02/18/15 13:01	JLS	TAL SEA
Total/NA	Analysis	SM 2540D		1	182559	02/17/15 11:02	LKC	TAL SEA

Client Sample ID: TB

Lab Sample ID: 580-47482-9

Date Collected: 02/10/15 00:00

Matrix: Water

Date Received: 02/12/15 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	182580	02/17/15 14:09	CJ	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: KVFR

TestAmerica Job ID: 580-47482-1

Laboratory: TestAmerica Seattle

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-02-16
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	11-06-15
US Fish & Wildlife	Federal		LE192332-0	02-28-16
USDA	Federal		P330-11-00222	04-08-17
Washington	State Program	10	C553	02-17-16

* Certification renewal pending - certification considered valid.

Sample Summary

Client: TerraGraphics Inc
Project/Site: KVFR

TestAmerica Job ID: 580-47482-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-47482-1	MW-1	Water	02/11/15 12:15	02/12/15 09:55
580-47482-2	MW-2	Water	02/11/15 09:50	02/12/15 09:55
580-47482-3	MW-2 DUP	Water	02/11/15 09:55	02/12/15 09:55
580-47482-4	MW-3	Water	02/11/15 10:55	02/12/15 09:55
580-47482-5	MW-4	Water	02/10/15 16:50	02/12/15 09:55
580-47482-6	MW-5	Water	02/10/15 15:25	02/12/15 09:55
580-47482-7	MW-6	Water	02/10/15 12:25	02/12/15 09:55
580-47482-8	MW-7	Water	02/10/15 13:45	02/12/15 09:55
580-47482-9	TB	Water	02/10/15 00:00	02/12/15 09:55

TestAmerica Seattle
755 8th Street East
Tacoma, WA 98424
Phone 253.922.2310 fax

580-47482 Chain of Custody

Chain of Custody Record

47482

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

Client Contact	Project Manager: John Meyers	Site Contact:	Date: 2/11/15	COC No:
TerraGraphics	Tel/Fax: 208 336 7080	Lab Contact: David Burtz	Carrier:	of 4 COCs
988 S longmont ave	Analysis Turnaround Time			Sampler: Richter
boise idaho 83706	☐CALENDAR DAYS ☐WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone 2083367080	TAT if different from Below Standard			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: KVFR	☐ 1 week			Job / SDG No.:
Site:	☐ 2 days			
PO#	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH - Dx	BTEX, MTBE, GRO	TPH - Dx SGC	Lead SGC	Manganese / Sulfate / Alkalinity	Total Suspended Solids
1- MW-1	2/11/15	1215	G	WT	13	N	N	3	3	2	2	1	1
2- MW-2	2/11/15	0950	G	WT	13	N	N	3	3	2	2	1	1
3- MW-2 DUP	2/11/15	0955	G	WT	13	N	N	3	3	2	2	1	1
4- MW-3	2/11/15	1055	G	WT	13	N	N	3	3	2	2	1	1
5- MW-4	2/10/15	1650	G	WT	13	N	N	3	3	2	2	1	1
6- MW-5	2/10/15	1525	G	WT	13	N	N	3	3	2	2	1	1
7- MW-6	2/10/15	1225	G	WT	13	N	N	3	3	2	2	1	1
8- MW-7	2/10/15	1345	G	WT	13	N	N	3	3	2	2	1	1
9- TB				WT		N	N		X				

(1) Cooler/TB Dig/IR cor 1.9 unc 1.7
Cooler Dsc LG B/W @Lab
Wet/Packs Packing BUBBLE
1 of CS FEDEX SO

(A2) Cooler/TB Dig/IR cor 1.0 unc 1.5
Cooler Dsc LG B/W @Lab
Wet/Packs Packing BUBBLE
1 of CS FEDEX SO

(A2) NOT Cooler/TB Dig/IR cor 0.7 unc 0.5
Cooler Dsc Lg Tan Blk @Lab 0955
Wet/Packs Packing Bubble
Fed Ex S.O. w/ C.S

(A2) Cooler/TB Dig/IR cor 0.0 unc 0.5
Cooler Dsc LG G/B @Lab
Wet/Packs Packing BUBBLE
1 of CS FEDEX SO

ic Notes:

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☒Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☐Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐Return to Client ☒Disposal by Lab

Special Instructions/QC Requirements & Comments:

1400

Custody Seals Intact: ☐Yes ☐No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by: Pete Richter	Company: TerraGraphics	Date/Time: 2/11/15	Received by: M Vonne	Company: TA Sea
Relinquished by:	Company:	Date/Time:	Received by:	Company:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:

Date/Time: 02/12/15 0955

3/17/2015

Login Sample Receipt Checklist

Client: TerraGraphics Inc

Job Number: 580-47482-1

Login Number: 47482

List Source: TestAmerica Seattle

List Number: 1

Creator: Abello, Andrea N

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.	True	
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica Seattle
5755 8th Street East

Tacoma, WA 98424
phone 253.922.2310 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐DW ☐NPDES ☐RCRA ☐Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: John Mecum	Site Contact:	Date: 2/11/15	COC No:
TerraGraphics	Tel/Fax: 208 336 7080	Lab Contact: David Bush	Carrier:	1 of 4 COCs
988 S longmont ave	Analysis Turnaround Time			Sampler: Richter
boise idaho 83706	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx Phone 208 336 7080	TAT if different from Below Standard			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: KVFR	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TPH Gx	BTEX, MTBE, EDC	TPH-Dx 8011	EDB 8011	Lead	Sulfate	Total Suspended Solids	Sample Specific Notes:
MW-1	2/11/15	1215	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-2	2/11/15	0950	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-2 DUP	2/11/15	0955	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-3	2/11/15	1055	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-4	2/10/15	1650	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-5	2/10/15	1525	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-6	2/10/15	1225	G	WT	13	N	N	3	3	2	2	1	1	1	
MW-7	2/10/15	1345	G	WT	13	N	N	3	3	2	2	1	1	1	
TB				WT		N	N		X						

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

1400

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____
Relinquished by: Pete Richter	Company: TerraGraphics	Date/Time: 2/11/15	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Appendix D

Plans and Specifications for the Cleanup Action, Kittitas Valley Fire and Rescue Station 2-9 400 East Mountain View Ellensburg, WA

DRAFT

Plans and Specifications for Cleanup Action at 400 East Mountain View Avenue Ellensburg, WA

Kittitas Valley Fire & Rescue

102 N. Pearl Street

Ellensburg, Washington 98926

Prepared by:

TerraGraphics Environmental Engineering, Inc.

988 S. Longmont Avenue, Suite 200

Boise, Idaho 83706

www.terragraphics.com

March 20, 2015

Table of Contents

Section 01 11 00 Summary of Work

Part 1.0 General

The work involves petroleum impacted soil remediation at the future Kittitas Valley Fire and Rescue Station 2-9 located at 400 East Mountain View Avenue Ellensburg, Washington. Work is generally expected to include earthwork including excavation and segregation of non-contaminated overburden soils and contaminated source area soils, removal and offsite disposal of petroleum impacted soils; trenching for the installation of a perforated pipe infiltration gallery within the groundwater saturation zone under the building footprint for supplemental chemical and biological treatment of saturated soils and groundwater, dewatering and collection and offsite disposal of contaminated water (if necessary); purchase, placement, and compaction of drain rock (in trenches) and imported backfill; and replacement of overburden soils and grading surface to existing surrounding grade level. Dewatering and disposing of potentially contaminated decant water is anticipated as part of the work. Required site controls include Best Management Practices (BMPs) for erosion and sediment controls, and traffic controls that follow Manual on Uniform Traffic Control Devices (MUTCD) standards.

The Construction Drawings and these project specifications provide the intent of the project. Excavation limits and material requirements may be adjusted in the field as authorized by the Owner. All construction work shall occur by May 1, 2015. Project roles and responsibilities, project description, and project components are described in this section.

The information presented in these plans and specifications have been developed for remediation activities only. Although specifications are provided for backfill materials and compaction, the work being

conducted for these remediation activities do not replace or supplement in any way proposed construction activities and/or foundation design requirements for the Kittitas County Valley Fire Station.

1.1 Project Entities

The following table outlines the project entities involved in the Kittitas Valley Fire and Rescue Cleanup Action and referred to in this specification as indicated.

Table 1. Project Responsibilities

Specification Reference	Entity	Designation and Responsibility	Point of Contact
Owner	Kittitas Valley fire and Rescue #2	Site owner's representative responsible for construction oversight and Contractor selection.	John Sinclair, Fire Chief (509)-933-7231
Regulatory Point of Contact	Washington State Department of Ecology	Manager and coordinator between Department of Ecology and TerraGraphics Environmental Engineering, Inc.	May Monahan (509)575-2809
Environmental Consultant	TerraGraphics Environmental Engineering, Inc.	Responsible for submittal approval, construction oversight, and construction quality control.	Mike Procsal (208)336-7080
Contractor	To be determined	Selected by and under the oversight of TerraGraphics Environmental Engineering Inc., responsible for implementing cleanup and construction activities at the Kittitas Valley Fire and Rescue Cleanup Action site in adherence to the Construction Drawings and these project specifications.	To be determined

1.2 Project Description

The work required under this contract includes, but is not limited to, environmental protection including installation of site BMPs; earthwork including excavation and segregation of non-contaminated overburden soils and contaminated source area soils, removal and offsite disposal of petroleum impacted soils; trenching for the installation of a perforated pipe infiltration gallery within the groundwater saturation zone under the building footprint for supplemental chemical and biological treatment of saturated soils and groundwater, dewatering and collection and offsite disposal of contaminated water (if necessary); purchase, placement, and compaction of drain rock (in trenches) and imported backfill; and replacement of overburden soils and grading surface to existing surrounding grade level. The Contractor shall provide all labor, equipment, materials, supervision, transportation, operating supplies, and incidentals to perform

all work specified herein. Perforated pipe and fittings will be supplied by the Environmental Consultant. The attached Cleanup Action Plan (CAP) provides more detail on the project.

All site construction work specified herein shall follow these specifications, the Construction Drawings, and with approval of the on-site Environmental Consultant.

1.3 Permits

The Contractor is responsible to acquire all construction permits, permit application packages, approvals to construct, notifications, certifications, reports, and termination documents as well as adhere to all environmental regulations.

1.4 Construction Sequencing

The Work Plan provides a general list of construction phase tasks and project milestones. The Contractor shall complete all construction to the satisfaction of the Regulatory Point of Contact, Owner, and Environmental Consultant. The Environmental Consultant will be onsite during construction. Upon completion, the Contractor shall notify the Regulatory Point of Contact, Owner, and Environmental Consultant and conduct a construction completion inspection as detailed in SECTION 01 45 00 CONSTRUCTION QUALITY CONTROL.

1.5 Contract Drawings and Specifications

The Contract drawings and specifications will be furnished to the project Contractor without charge. Reference publications will not be furnished. The Contractor shall check furnished drawings and specifications and notify the Environmental Consultant of any discrepancies.

1.6 Work Scheduling

The Contractor shall provide a project schedule that demonstrates the work will be accomplished by the Owner's desired completion date. Restrictions shall be imposed on construction activity if weather prevents proper construction and quality control as indicated in these specification sections.

Construction activity may occur Monday through Saturday from 7:00 am to 6:00 pm local time. Work outside of these times is not authorized unless approved in writing by the Owner.

1.7 Quantities Specified

Material quantities indicated on the Construction Drawings are estimates and site construction conditions will determine the final quantities. The Contractor is responsible for determining actual quantities of materials necessary to complete the work to the neat-line finished elevations and limits shown on the Construction Drawings in accordance with the specifications.

1.8 Location of Underground Facilities

The Contractor shall obtain digging permits prior to start of excavation. The Contractor shall verify actual locations of existing utilities prior to construction. The Contractor shall contact the One-Call Underground Service Alert by calling One-Call at 1-800-424-5555 at least two (2) working days prior to starting construction.

The Contractor shall verify the elevations of existing piping, utilities, and any type of underground obstructions not indicated to be specified or removed but indicated or discovered during the utility locate in areas to be traversed by any specified work to be conducted or installed. The Contractor shall protect and maintain all existing underground utilities and overhead utilities in areas of construction improvements or modifications.

1.9 Notification Prior to Excavation

Notify the Owner at least 48 hours prior to starting excavation work.

Part 2.0 Products

Not used.

Part 3.0 Execution

Not used.

Section 01 33 00 Submittal Procedures

Part 1.0 General

All submittals require the Environmental Consultant's approval and must be submitted and approved prior to the acquisition of materials or commencement of construction.

Each submittal is to be complete and in sufficient detail to allow the Environmental Consultant a rapid determination of compliance with contract requirements.

Units of weights and measures used on all submittals are to be the same as those used in each technical section, the Work Plan, and on the Construction Drawings.

1.1 Submittals

1.1.1 Submittal Descriptions

Submittals requirements are specified below. Submittals are identified by Submittal Description (SD) numbers and titles as follows:

SD-01 Pre-Construction Submittals

- Submittals which are required prior to start of commencing work on site.

SD-03 Product Data

- For these, submit the following prior to commencement of work:
- Catalog cuts; illustrations; schedules; diagrams; performance charts; instructions and brochures illustrating size, physical appearance, and other characteristics of materials; and systems or equipment for some portion of the work.
- Samples of warranty language when the contract requires extended product warranties.

SD-06 Test Reports

- For all materials specified in the technical sections, submit the following:
- Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accordance with specified requirements.
- Report that includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

SD-11 Closeout Submittals

- Provide documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

1.1.2 Approving Authority

The Environmental Consultant is the approving authority for all submittals.

1.1.3 Work

Work, as used in this section, includes on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2 Preparation

As soon as practicable after award of contract, and before procurement of fabrication, the Contractor shall forward submittals to Mr. Mike Procsal, P.G., TerraGraphics Environmental Engineering, Inc., 988 Longmont Avenue Ste 200, Boise, ID 83706, mike.procsal@terragraphics.com.

1.2.1 Transmittal Format and Identification

Transmit each submittal to Mr. Mike Procsal, P.G., TerraGraphics Environmental Engineering, Inc., in accordance with the standard for the project. Each transmittal shall clearly identify the Contractor, indicate date of submittal, and include the following information:

- Project title and location
- Construction contract number
- Date
- Submittal description and product description of each component of submittal
- Name, address, and telephone number of subcontractor, supplier, manufacturer, and any other subcontractor associated with the submittal

1.3 Variations

Variations from contract requirements require Environmental Consultant and Owner approval.

1.4 Review Notations

Environmental Consultant review will be completed within five (5) calendar days after date of submission. The Contractor will be notified whether the submittal is approved or not approved.

1.5 Disapproved or Rejected Submittals

The Contractor shall make corrections required by the Environmental Consultant. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the Construction Drawings or specifications, notice as required under the clause entitled "Changes" is to be given to the Environmental Consultant. The Contractor is responsible for the dimensions and design of connection details and construction of work. Failure to point out deviations may result in the Environmental Consultant requiring rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved by the Environmental Consultant.

1.6 Approved/Accepted Submittals

The Environmental Consultant's approval or acceptance of submittals is not to be construed as a complete check.

Approval or acceptance will not relieve the Contractor of the responsibility for any error, which may exist, for which the Contractor under the Construction Quality Control requirements of this contract is responsible for.

After submittals have been approved or accepted by the Environmental Consultant, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

Part 2.0 Products

Not used.

Part 3.0 Execution

Not used.

Section 01 45 00 Construction Quality Control

Part 1.0 General

This section describes the Construction Quality Control (CQC) measures necessary to construct all work as intended as described herein. The Contractor is responsible for compliance with the CQC measures described herein. The Contractor must submit a Construction Quality Control Plan and Traffic Control Plan prior to commencing construction as described in this section.

The Environmental Consultant will provide a full-time Owners representative (Resident Project Representative or RPR) during construction. The RPR shall observe CQC measures and witness testing.

1.1 References

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

- U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)
- 2009 Manual of Uniform Traffic Control Devices (MUTCD)

1.2 Submittals

Environmental Consultant approval is required for all submittals in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. Submittals that are required include:

SD-01 Pre-Construction Submittals

- Construction Quality Control Plan:
  Submit a CQC plan within 7 days prior to commencing construction. The CQC plan requirements are detailed in this section.
- Traffic Control Plan:
  Submit a traffic control plan identifying procedures, warning signs, and barricades in accordance with MUTCD standards to safely control traffic entering and exiting the site.

Part 2.0 Products

Not used.

Part 3.0 Execution

The Regulatory Point of Contact, Owner, and Environmental Consultant shall provide varying degrees of oversight of the Contractor throughout cleanup and construction. The Contractor will be held responsible for the quality of work and is subject to removal by the Owner for non-compliance with the terms of the contract.

3.1 Pre-Construction

3.1.1 Construction Quality Control Plan

The Contractor shall submit to the Environmental Consultant for approval a Construction Quality Control Plan that includes the following:

- NAMES: For each person involved in both on-site and off-site construction: Include the name of the Contractor's on-site construction superintendent and other persons performing site construction work.
- SUBMITTALS: Provide the name(s) of the person(s) authorized to review, produce, and certify submittals prior to approval.
- CONSTRUCTION SCHEDULE: Proposed work hours and dates.
- LIST OF PROPOSED SUBCONTRACTORS: Companies, names, and duties of subcontractors.

3.1.2 Traffic Control Plan

The Contractor shall submit to the Environmental Consultant for approval a Traffic Control Plan that includes the procedures for controlling truck and equipment traffic entering and exiting the site. The Plan shall also provide warning signs and barricades for proper traffic control in accordance with MUTCD.

3.1.3 Submittals and Deliverables

All submittals shall comply with the requirements in Section 1.1 SUBMITTAL PROCEDURES. The Contractor is responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.1.4 Pre-Construction Meeting and Walk-Through

The Contractor shall attend a pre-construction meeting and site-walk (can be completed via teleconference) with the Owner and Environmental Consultant. The Contractor shall provide a project schedule at the pre-construction meeting. The meeting will be held to clarify any questions or concerns the Contractor may have, answer questions, and transmit Contractor submittals including shop drawings, product data, test reports, and vendor certificates.

3.2 Construction

During the Construction phase, on-site project oversight by the Regulatory Point of Contact, Owner, and Environmental Consultant may occur at any time. The Environmental Consultant or Consultant's representative will be onsite to observe that the work is conducted in conformance with the plans and specifications.

3.2.1 Notification of Noncompliance

At any time during construction, the Environmental Consultant will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, will be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

3.3 Post Construction

3.3.1 Completion Inspection

The Contractor shall participate in a project completion meeting that shall be attended by the Owner and the Environmental Consultant prior to final acceptance of the project by the Owner. The final acceptance inspection will be formally scheduled once agreement is reached between the Contractor and the Environmental Consultant that all contract requirements are met. The Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. At that time, the Contractor shall present to the Regulatory Point of Contact and Owner any outstanding questions and deviation explanations that were made from the Construction Drawings. The Regulatory Point of Contact and the Owner will also identify any unsatisfactory or outstanding issues that the Contractor must resolve before final construction is approved. In addition, the Contractor shall identify any deviations made from the Construction Drawings or modifications during the final inspection.

Section 01 57 23 Environmental Protection

Part 1.0 General

1.1 Work Description

Work described under this section includes the site controls necessary for construction to be completed in a manner that prevents offsite contamination from petroleum impacted materials. The Contractor shall be responsible for performing all work in compliance with the National Pollutant Discharge Requirements (NPDES) of the United States Environmental Protection Agency (USEPA) under the Construction General Permit. The Contractor is responsible for selection, furnishing, installing, and maintaining erosion and sediment controls in accordance with the City of Ellensburg, City Standards Section 4 Storm Drainage Standards and the Washington State Department of Ecology Stormwater Management Manual for Eastern Washington. In addition, the Contractor is responsible for protection of cultural resources and maintaining Occupational Safety and Health Administration (OSHA) health and safety requirements.

1.2 References

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

- CITY OF ELLENSBURG
  - (2011)City Standards, Section 4, Storm Drainage Standards
- WASHINGTON STATE DEPARTMENT OF ECOLOGY
  - (2004) Stormwater Management Manual for Eastern Washington.
- U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
  - 40 CFR 279:Standards for the Management of Used Oil

1.3 Submittals

Environmental Consultant approval is required for submittals. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Pre-Construction Submittals

- Site Control Plan:
  The Contractor shall submit, 15 days prior to starting work, a completed Site Control Plan as outlined in this section.
- Dewatering, Collection and Disposal Plan:
  The Contractor shall submit, 15 days prior to starting work, a completed Dewatering, Collection and Disposal Plan.
- Decant Water Disposal Location:
  The Contractor shall submit, 15 days prior to starting work, the name and location of the designated regulated disposal facility where the Contractor selects to dispose of petroleum impacted decant water generated during construction.

SD-07 Certificates

- Certification of Disposal for Impacted Soils:
  Upon completion of all construction, submit a certification from Anderson Rock and Demolition Landfill Yakima, Washington illustrating acceptance of the petroleum impacted soils and what tonnage was disposed.
- Certification of Disposal for Contaminated Water:
  Upon completion of all construction, submit a certification from a regulated disposal facility illustrating acceptance of the petroleum impacted water and the volume disposed.

1.4 General Environmental Controls

The Contractor shall minimize environmental pollution and damage that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work must be protected during the entire duration of this contract. Comply with all applicable environmental federal, state, and local laws and regulations. Any delays resulting from failure to comply with environmental laws and regulations will be the Contractor's responsibility.

1.4.1 Permits

The Contractor is responsible to acquire and comply with all environmental permits, permit application packages, approvals to construct, notifications, certifications, reports, and termination documents to adhere to environmental regulations.

1.4.2 Health and Safety

It is the responsibility of the Contractor to maintain a safe work environment and comply with all health and safety regulations and requirements of OSHA.

1.4.3 Historical and Archaeological Resources

The Contractor is responsible for preservation of any historical, cultural, and archaeological resources discovered onsite. If the Contractor encounters any historical and archaeological items or human skeletal remains discovered in the course of work, the Contractor shall notify the site Owner and stop work in the immediate area of the discovery until directed by the Owner to resume work.

1.4.4 Compliance

No requirement in this Section will relieve the Contractor of any applicable federal, state, and local environmental protection laws and regulations. During construction, the Contractor will be responsible for identifying, implementing, and submitting for approval any additional requirements to be included in the Site Control Plan.

1.4.5 Stormwater Pollution Prevention

The Contractor is responsible for following all federal, state and local regulations regarding stormwater pollution prevention.

1.4.6 Protection Features

The Contractor must protect all environmental features within and outside the project extents indicated on the Construction Drawings regardless of interference, which their preservation may cause to the work under the contract.

1.4.7 Environmental Assessment of Contract Deviations

Any deviations from the drawings, plans, and specifications, requested by the Contractor and that may have an environmental impact, will be subject to approval by the Environmental Consultant, and may require an extended review, processing, and approval time. The Environmental Consultant reserves the right to disapprove alternate methods, even if they are more cost effective, if the Owner determines that the proposed alternate method will have an adverse environmental impact.

1.4.8 Notification

The Contractor shall notify the Environmental Consultant of any observed noncompliance with federal, state or local environmental laws or regulations, permits, and other elements. It is the responsibility of the Contractor to inform the Environmental Consultant of the proposed corrective action and take such action when approved by the Environmental Consultant. The Owner may issue an order stopping all or part of the work until a satisfactory corrective action has been taken. No time extensions will be granted or equitable adjustments allowed for any such suspensions. This is in addition to any other actions the Owner may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

1.5 Site Control Plan

Prior to commencing construction activities or delivery of materials to the site, the Contractor shall submit a Site Control Plan for review and approval by the Environmental Consultant. The purpose of the plan is to present a comprehensive overview of known or potential environmental issues that the Contractor must address during construction. At a minimum, the Contractor shall submit a Site Control Plan to the Environmental Consultant that includes the following information:

- Name(s) of on-site person(s) within the Contractor's organization who is (are) responsible for ensuring adherence to the Site Control Plan and a schedule of activities.
- Selection of site erosion and sediment controls, BMPs, and locations where the control will be placed.
- Haul routes.
- Decontamination procedures.
- Spill contingency plan.
- Dust control plan consisting of application of water to the disturbed surfaces during the entire construction period.
- Disposal plans for petroleum impacted waste soils and contaminated water identifying methods and locations for waste disposal including schedules for disposal.

- Identify any Subcontractors responsible for the transportation and disposal of solid waste. Petroleum impacted solid waste shall be disposed of at Anderson Rock and Demolition Landfill Yakima, Washington. Petroleum impacted decant water shall be disposed of at a regulated disposal facility. Submit licenses or permits for solid and liquid waste disposal sites that are not a commercial operating facility.
- Evidence of the disposal facility's acceptance of the petroleum impacted solid waste and the petroleum impacted decant water must be attached to this plan during construction. Attach a copy of the disposal receipts from each regulated disposal facility.
- Indicate in the report the total amount of solid and liquid waste generated and disposed of at the regulated facility(ies).

1.6 Dewatering, Collection and Disposal Plan

There will be no discharge of water that comes in contact with petroleum impacted soils. This means that all storm water, ground water, and water used for decontamination during construction must be collected by the Contractor and properly disposed of at an offsite regulated disposal facility. The Contractor must submit procedures for accomplishing dewatering work, including onsite collection and storage methods of petroleum impacted ground and surface water encountered during construction.

1.7 Disposal Requirements

Offsite disposal of petroleum impacted soils shall be disposed of at Anderson Rock and Demolition Landfill Yakima, Washington. Prior to commencing excavation, the Contractor shall submit to the Environmental Consultant the Decant Water Disposal Location for petroleum impacted decant waters that will be generated during construction. The location must be a commercially available regulated disposal facility and must be approved by the Environmental Consultant 15 days prior to commencing work.

Part 2.0 Products

2.1 Silt Fences

The Contractor shall install a silt fence or equivalent best management practice as a sediment and erosion control barrier around the perimeter of the contaminated excavation area as well as any onsite stockpile areas. The approximate location of the permit control is located on the Construction Drawings and Section 01 57 23.01 SILT FENCE specification is included to provide the Contractor with product information and installation details.

Part 3.0 Execution

3.1 Work Area Limits

Prior to commencing construction, install the silt fence or use an equivalent BMP to prevent off-site sediment migration and delineate the work area in the locations shown in the Construction Drawings. Areas outside the silt fence should not be disturbed. If the Contractor would like to stockpile clean imported materials to use as fill after all contaminated materials are removed, a silt fence or perimeter BMP should also be installed around the stockpile.

3.2 Erosion and Sediment Controls

The Contractor shall implement all sediment and erosion control BMPs that are included in the Site Control Plan in a timely manner during the construction process to minimize erosion and sediment runoff and spread of off-site contamination from impacting areas outside the active construction area.

3.2.1 Dust Control

The Contractor shall be responsible for fugitive dust suppression by application of water and the methods identified out in the Site Control Plan. No particulate discharges shall be allowed from the site.

3.2.2 Supplemental BMPs

The Contractor shall identify and implement any other BMPs necessary to protect against off-site discharge from exposed areas of the site. Additional BMPs can be selected from the IDEQ Stormwater BMPs Manual and included in the Site Control Plan.

3.2.3 Field Quality Control

The Contractor shall maintain all erosion and sediment control measures and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness. The Contractor shall repair erosion and sediment control measures and other protective measures as necessary to prevent pollutant discharge. All inspections shall be carried out and reported by the procedures and schedules identified in the Site Control Plan.

3.3 Waste Materials Management and Disposal

The Contractor is responsible for proper waste disposal of petroleum impacted soils and waters. Upon completion of all construction, the Contractor shall submit a Certification of Disposal for Petroleum Impacted Soils from Anderson Rock and Demolition Landfill Yakima, Washington indicating acceptance of petroleum impacted soils and what tonnage was disposed. In addition, the Contractor shall also submit a Certification of Disposal for Petroleum Impacted Water from a regulated disposal facility able to accept the petroleum impacted decant water and the volume of liquid that was disposed.

3.3.1 Fuel and Lubricants

Storage, fueling, and lubrication of equipment and motor vehicles must be conducted in a manner that affords the maximum protection against spills and evaporation. The Contractor shall manage and store fuel, lubricants, and oil in accordance with all federal, state, regional, and local laws and regulations. Used lubricants and used oil to be discarded must be stored in marked corrosion-resistant containers and recycled or disposed in accordance with 40 CFR 279, state, and local laws and regulations. Storage of fuel on the project site will be in accordance with all federal, state, and local laws and regulations.

3.4 Post-Construction Cleanup

The Contractor will clean up all areas used for construction. Unless otherwise instructed in writing by the Owner, the Contractor will remove all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work.

3.5 Environmental Oversight

At any time during construction, the Environmental Consultant, Owner, or Regulatory Point of Contact may inspect site BMPs and shall make correction recommendations to the Contractor or site personnel to assure no spread of contamination off site occurs.

Section 01 57 23.01 Silt Fence

Part 1.0 General

This silt fencing specification is provided as a supplemental specification in the event the Contractor would like to install silt fencing to facilitate the environmental protection requirements in Section 01 57 23

ENVIRONMENTAL PROTECTION. If used as a perimeter BMP, silt fencing shall be installed prior to all construction work that occurs on-site.

1.1 References

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

- ASTM INTERNATIONAL (ASTM)
  - ASTM D 4439 (2004) Geosynthetics
  - ASTM D 4491 (1999a; R 2004) Water Permeability of Geotextiles by Permittivity
  - ASTM D 4533 (2004) Trapezoid Tearing Strength of Geotextiles
  - ASTM D 4632 (2008) Grab Breaking Load and Elongation of Geotextiles
  - ASTM D 4751 (2004) Determining Apparent Opening Size of a Geotextile

1.2 Submittals

Environmental Consultant approval is required for submittals. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

- Filter Fabric:
  Include manufacturer information, material properties, and warranties.

Part 2.0 Products

2.1 Components for Silt Fences

2.1.1 Filter Fabric

Provide geotextile that complies with the requirements of ASTM D 4439 and consists of polymeric filaments, which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent (85%) by weight of ester, propylene, or amide, and contains stabilizers and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultraviolet and heat exposure. Provide synthetic filter fabric that contains ultraviolet ray inhibitors and stabilizers to assure a minimum of six months of expected usable construction life at a temperature range of 0 to 120 degrees F. The filter fabric shall meet the following requirements:

Table 2. Filter Fabric for Silt Screen Fence

Physical Property	Test Procedure	Requirement
Grab Tensile Elongation (percent)	ASTM D 4632	100 lbs. min.; 30 percent max
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

2.1.2 Silt Fence Stakes and Posts

Use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction shall have a minimum cross section of 2 inches by 2 inches and have a minimum length of 3

feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction shall have a minimum weight of 1.33 pounds per lineal foot and a minimum length of 3 feet.

Part 3.0 Execution

3.1 Installation of Silt Fences

Silt fencing shall be installed according to these specifications and locations in the Construction Drawings. Extend silt fences a minimum of 24 inches above the ground surface without exceeding 34 inches above the ground surface. Provide filter fabric from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, splice together filter fabric at a support post, with a minimum 6 inch overlap, and seal securely. Excavate trench approximately 4 inches wide and 4 inches deep on the up-slope side of the location of the silt fence. The 4 inch by 4 inch trench shall be backfilled and the soil compacted over the filter fabric.

3.2 Clean-Up

The Contractor is responsible for disposal of excess materials, debris, and waste materials.

Section 02 61 13 Excavation of Contaminated Material, Handling and Disposal

Part 1.0 General

1.1 Description of Work

The work described in this section consists of excavating, removing and temporarily stockpiling approximately 1161 cubic yards of non-contaminated overburden soil from surface to approximately 4 feet bgs and approximately 361 cubic yards of petroleum contaminated soil underlying the overburden soil , material, handling, and disposing of contaminated materials. Trenching for the installation of a ¾" PVC perforated pipe infiltration gallery (consultant will supply piping material) within the groundwater saturation zone under the building footprint for supplemental chemical and biological treatment of soils and groundwater, dewatering and collection and offsite disposal of contaminated water (if necessary); purchase, placement, and compaction of imported backfill; and placement and grading surface gravel existing surrounding grade level. The approximate extent of the contaminated zone is shown on the Construction Drawings. Subsurface conditions and the nature and extent of the contaminated material are described in the Work Plan. The Environmental Consultant will be on site during construction to field-verify the extents of contamination. Groundwater is approximately 6 feet below pre-excavation ground surface. Confirmation sampling will be performed by the Environmental Consultant.

1.2 References

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

- U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
  - 40 CFR 302: Designation, Reportable Quantities, and Notification

1.3 Scheduling

Notify the Owner and Environmental Consultant seven (7) calendar days prior to the start of excavation of contaminated material. The Contractor shall be responsible for contacting regulatory agencies in accordance with the applicable reporting requirements.

1.4 Work Plan

The Work Plan will be provided to the Contractor. The Contractor shall notify the Environmental Consultant of any discrepancies between the Work Plan, Construction Drawings, and the Specifications.

1.5 Regulatory Requirements

1.5.1 Permits and Licenses

The Contractor shall obtain all required federal, state, and local permits for excavation and disposal of contaminated material. Permits shall be obtained at no additional cost to the Owner.

Part 2.0 Products

2.1 Spill Response Materials

Provide and maintain onsite appropriate spill response materials including, but not limited to the following: containers, adsorbents, shovels, and personal protective equipment. Spill response materials shall be available at all times when contaminated materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of materials and contaminants being handled.

Part 3.0 Execution

3.1 Existing Structures and Utilities

No excavation shall be performed until site utilities have been field located. Take the necessary precautions to ensure no damage occurs to existing structures and utilities. Damage to existing structures and utilities resulting from the Contractor's operations shall be repaired at no additional cost to the Owner. Utilities encountered that were not previously shown or otherwise located shall not be disturbed without approval from the Owner and the city of Ellensburg.

3.2 Contaminated Material Removal

3.2.1 Excavation

Areas of contamination shall be excavated to the depth and extent shown described in Section 02 61 13 and as directed by the Environmental Consultant sufficient to remove all petroleum impacted soils. Excavation shall be performed in a manner that will limit spills and the potential for contaminated material to be mixed with uncontaminated material.

3.2.2 Shoring

The Contractor shall excavate in such a way that shoring is not required.

3.2.3 Dewatering

Surface water shall be diverted to prevent entry into the excavation. Dewatering shall be performed as necessary within the work area to ensure adequate access, a safe excavation, prevent the spread of contamination, and to ensure that compaction requirements can be met.

3.2.4 Contaminated Material Storage

The Contractor may choose to stockpile or stage excavated contaminated soil material until loading on haul trucks for offsite disposal. The staged material must be stockpiled within the perimeter of the contaminated excavation area to prevent polluting surrounding areas.

3.2.5 Contaminated Liquid Storage

The Contractor shall collect all contaminated surface water from both run on and dewatering during excavations. The contaminated water shall be temporarily stored by the Contractor until disposed in a regulated offsite facility. Liquid storage containers shall be water-tight and shall be inspected daily for leaks

3.2.6 Spills

In the event of a spill or release of a hazardous substance (as designated in 40 CFR 302), pollutant, contaminant, or oil (as governed by the Oil Pollution Act [OPA], 33 U.S.C. 2701 et seq.), the Contractor shall notify the Environmental Consultant immediately. The Contractor shall take immediate containment actions to minimize the effect of any spill or leak. Cleanup shall be in accordance with applicable federal, state, and local regulations. As directed by the Environmental Consultant, additional sampling and testing shall be performed to verify spills have been cleaned up. Spill cleanup and testing shall be done at no additional cost to the Owner.

3.3 Confirmation Sampling and Analysis

The Contractor shall work with the on-site Environmental Consultant collect soil samples used for confirmation of cleanup. Excavation of additional material shall be completed as directed by the Environmental Consultant. After all suspected contaminated material is removed, confirmation samples shall be collected by the Environmental Consultant who will report the results to the Owner.

Section 31 23 00.00 21 Backfill and Surface Aggregate

Part 1.0 General

1.1 Description of Work

The work described in this section consists of furnishing imported materials, placement and compaction of backfill and surface aggregate to reconstruct the area to existing grade. Fill materials will be placed in the void created by removal of contaminated materials. Surfacing aggregate will be placed and compacted to match the grade of the existing parking area. Dewatering is likely to occur until fill placement is achieved above the ground water table.

1.2 References

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

- ASTM INTERNATIONAL (ASTM)
  - ASTM C136:(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
  - ASTM D1140:(2000; R 2006) Amount of Material in Soils Finer than the No. 200 (75-micrometer) Sieve
  - ASTM D1556(2007) Density and Unit Weight of Soil in Place by the Sand-Cone Method
  - ASTM D1557(2012) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)
  - ASTM D2487(2011) Soils for Engineering Purposes (Unified Soil Classification System)
  - ASTM D4318(2010) Liquid Limit, Plastic Limit, and Plasticity Index of Soils

- ASTM D6938(2010) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
- ASTM D698(2012) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

1.3 Definitions

1.3.1 Degree of Compaction

Degree of compaction is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D1557, for general soil types, abbreviated as percent laboratory maximum density.

1.4 Submittals

Environmental Consultant approval is required for submittals. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-06 Test Reports

- Backfill test:
  Submit the borrow source and testing results indicated in this section 7 days prior to commencing construction.
- Surface Aggregate test:
  Submit the borrow source and testing results indicated in this section 7 days prior to commencing construction.
- Density tests:
  Submit copies of all laboratory and field test reports within 24 hours of the completion of the test and conduct testing to the frequency described in this section.

1.5 Delivery, Storage, and Handling

Perform in a manner to prevent contamination or segregation of materials.

Part 2.0 Products

2.1 Soil Materials

2.1.1 Satisfactory Materials

Any materials classified by ASTM D2487 as GW, GP, GM, GP-GM, GW-GM, GC, GP-GC, GM-GC, SW, SP, is acceptable and shall be free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, and deleterious or objectionable materials. The maximum particle diameter shall be one-half the lift thickness at the intended location.

2.1.2 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials include man-made fills, trash, refuse, or backfills from previous construction. Unsatisfactory materials also include material classified as satisfactory which contains root and other organic matter, frozen material, and stones larger than 4 inches. The Environmental Consultant shall be notified of any contaminated materials.

2.1.3 Backfill Material

Approximately 361 cubic yards of backfill material shall be furnished by the Contractor from offsite sources. Furnish aggregates that consist of 3-inch minus hard, durable particles or fragments of crushed stone, free from organic matter and lumps or balls of clay. ASTM D2487, classification GW, GP, GM, GC,

SW, SP, SM, SC with a maximum ASTM D4318 Liquid Limit of 35, maximum ASTM D4318 Plasticity Index of 12, and a maximum of 25 percent (25%) by weight passing ASTM D1140, No. 200 sieve may be used as long as 95 percent (95%) compaction is achieved during placement.

Part 3.0 Execution

3.1 Drainage and Dewatering

Provide for the collection and disposal of surface and subsurface water encountered during construction.

3.1.1 Dewatering

Operate dewatering system continuously as needed until construction work below existing water levels is complete. The Contractor shall collect and dispose of petroleum impacted water during construction as indicated in SECTION 01 57 23 and report to the Environmental Consultant if there are any issues.

3.2 Filling and Backfilling

Fill and backfill in 8-inch loose lifts and compact each lift to 95 percent (95%) of ASTM D1557 before placing overlaying lift. Continue to place and compact subsequent lifts until finished grade.

3.3 Compaction

Compact all materials to 95 percent of ASTM D1557.

3.4 Finish Operations

3.4.1 Grading

Grade areas to match existing surrounding grade level.

3.5 Field Quality Control

3.5.1 Sampling

Take the number and size of samples required to perform the following tests.

3.5.2 Testing

Perform one of each of the following tests for each material used. Provide additional tests for each source change.

3.5.2.1 Backfill Testing

Test backfill material in accordance with ASTM C136 for conformance to ASTM D2487 gradation limits; ASTM D1140 for material finer than the No. 200 sieve; ASTM D4318 for liquid limit and for plastic limit; ASTM D698 or ASTM D1557 for moisture density relations, as applicable.

3.5.2.2 Density Tests

Test density in accordance with ASTM D1556, or ASTM D6938. When ASTM D6938 density tests are used, verify density test results by performing an ASTM D1556 density test at a location already ASTM D6938 tested as specified herein. Perform an ASTM D1556 density test at the start of the job, and for every ten (10) ASTM D6938 density tests thereafter. Test each lift at randomly selected locations every 2,500 square feet. Include density test results in daily report to the Environmental Consultant.