Final

Groundwater Sampling Report
Tiger Oil
Yakima, Washington

Prepared for:

State of Washington Department of Ecology

Toxics Cleanup Program

Central Regional Office

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June 12, 2013

Contract #C1100144; Work Assignment #C110144LL

Approval Form

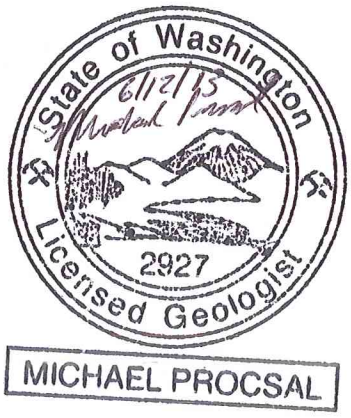
This document contains geologic work and is therefore submitted under the seal of an appropriately licensed professional, as required by Chapters 18.43 and 18.220 Revised Code of Washington (RCW).

Approved by:

Mike Procsal Date: 6/12/13

Mike Procsal, P.G.

Geologist, TerraGraphics Environmental Engineering, Inc.



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Acronyms and Abbreviations

BTEX	benzene, toluene, ethylbenzene, and total xylenes
CPOC	conditional point of compliance
DID	Drainage and Irrigation District
Ecology	Washington State Department of Ecology
famsl	feet above mean sea level
ft	foot/feet
GRO	Gasoline Range Organics
GWE	Groundwater Extraction
Hart Crowser	Hart Crowser, Inc.
LNAPL	Light Non-Aqueous Phase Liquid
µg/L	micrograms per liter
MTCA	Model Toxics Control Act
PLP	Potentially Liable Person
QA/QC	Quality Assurance/Quality Control
SAP/QAPP	Sampling and Analysis Plan/Quality Analysis Project Plan
SVE	Soil Vapor Extration
TerraGraphics	TerraGraphics Environmental Engineering, Inc.
TOC	Top of Casing
USEPA	U.S. Environmental Protection Agency
WAC	Washington Administrative Code

Executive Summary

TerraGraphics Environmental Engineering, Inc. (TerraGraphics) teamed with Hart Crowser Inc. (Hart Crowser)—under contract with the Washington State Department of Ecology (Ecology)—to identify and evaluate the extent of petroleum impacted groundwater at the Former Tiger Oil (hereinafter, referred to as the "Site"), located at the intersection of S. 24th Ave. and W. Nob Hill Blvd. in Yakima, Washington (Figure 1). Groundwater sample results were compared to the Model Toxics Control Act (MTCA) Method A Cleanup Levels (Tables 720-1). This document summarizes field activities and analytical data collected, and provides recommendations.

Site History

An estimated 20,000 gallons of gasoline was released at the Site between about 1983 and 1985. Several interim actions have occurred and enforcement actions issued, culminating in a Consent Decree between Tiger Oil Corporation and Ecology in 2004. The last observation and sampling event at the Site occurred in January 2010, though groundwater samples have not been collected and analyzed from most wells since 2003-2004. In 2013, TerraGraphics and Hart Crowser were contracted by Ecology to collect groundwater samples from a select group of groundwater monitoring wells at the Site and evaluate the extent of petroleum impacted groundwater. Sampling was conducted in accordance with Ecology's Sampling Analysis Plan and Quality Assurance Project Plan (SAP/QAPP) (Ecology, 2013).

Groundwater Quality

Groundwater samples were collected at 17 locations on April 2 and 3, 2013. At least one of the analytes in 7 of the 17 samples was at or above the respective MTCA Method A Cleanup Levels. Table 1 summarizes those samples above the reporting limit (expressed in micrograms per liter [µg/L]). Samples above the MTCA Method A Cleanup Levels included:

- KMW-16
  - benzene = 5.5 µg/L, Cleanup Level = 5 µg/L.
- MWG-3
  - benzene = 600 µg/L, Cleanup Level = 5 µg/L.
- S-2
  - benzene = 3,100 µg/L, Cleanup Level = 5 µg/L.
  - Gasoline Range Organics (GRO) = 3,900 µg/L, Cleanup Level = 800 µg/L.
- MW-13
  - GRO = 1,800 µg/L, Cleanup Level = 800 µg/L.
- KMW-7
  - benzene = 6.0 µg/L, Cleanup Level = 5 µg/L.
- MW-9
  - benzene = 25 µg/L, Cleanup Level = 5 µg/L.
  - GRO = 6,000 µg/L, Cleanup Level = 800 µg/L.
- KMW-22
  - benzene = 4,900 µg/L, Cleanup Level = 5 µg/L.
  - ethylbenzene = 2,500 µg/L, Cleanup Level = 700 µg/L.

  - total xylenes = 5,400 µg/L, Cleanup Level = 1,000 µg/L.
  - GRO = 34,000 µg/L, Cleanup Level = 800 µg/L.

- KMW-6
  - benzene = 5.8 µg/L, Cleanup Level = 5 µg/L.

Light Non-Aqueous Phase Liquid

Light Non-Aqueous Phase Liquid (LNAPL) was measured at four groundwater monitoring wells and samples were not collected as a result (MW-11, MW-15, MW-7, and MW-8). LNAPL thickness varied from 0.01 feet (ft) at MW-15 and MW-8 to 2.34 ft at MW-7. LNAPL was encountered at KMW-20 after the well was purged in preparation for sampling. As a result, the LNAPL thickness was not measured and a groundwater sample was not collected. In addition, a heavy sheen was observed during purging at wells MW-9, MW-13 and KMW-22 where it had not been detected during initial gauging.

Summary

This investigation confirmed that petroleum-impacted groundwater above the MTCA Method A Cleanup Levels is present at the Site and at downgradient locations. In addition, LNAPL still remains at the Site in spite of historical remediation efforts.

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

- Groundwater does not appear to be impacted upgradient of KMW-8.
- Petroleum-impacted groundwater above the MTCA A Cleanup Levels is present at the Tiger Oil Property and downgradient to at least KMW-16.
- All monitoring wells, with the exception of KMW-24, do not meet well construction standards.

Section 1.0 Introduction

The information and background provided below was provided by Ecology in the form of a SAP/QAPP entitled: SAP/QAPP for Tiger Oil Site Sampling, March 2013 (Ecology 2013). Tiger Oil Corporation (New Tiger) is the current owner of the Site, which is located at 2312 W. Nob Hill Boulevard in Yakima, WA. New Tiger's property was previously owned by Tiger Oil Company. In 1982, when the property was still owned by Tiger Oil Company, there was a release of approximately 20,000 gallons of fuel from piping and lines connected to underground fuel storage tanks. Initial recovery and remediation began at the Site between 1982 and 1985. New Tiger purchased the Site around October 1987. Between October of 1987 and 2001, the Site was an Exxon Service Station and convenience store known as "Tiger Mart." New Tiger ceased commercial operations at the Site in 2001.

In 1989, free petroleum product was discovered in monitoring wells MW-9, MW-11, MW-13, and MW15. In November of 1990, New Tiger began recovery of free product through bailing. In September of 1994, Ecology issued an enforcement order to New Tiger, Tiger Oil Company, Federated Insurance Company, and M&E Company (potentially liable persons [PLPs]), requiring installation of a free product recovery system designed to prevent contaminant migration into the drainage and irrigation district (DID) line offsite, and collect free product, contaminated groundwater, and contaminated soil vapors.

An interim remedial system consisting of a soil vapor extraction (SVE) and groundwater extraction (GWE) system commenced operation in August of 1995. The system consisted of two trenches fitted with vacuum equipment designed to extract groundwater and soil vapors from the subsurface and transport them to an onsite treatment facility. The treated water was discharged into the municipal sanitary sewer system, and the soil vapors were vented to the atmosphere. Although the interim remediation system appeared to be effective, it was limited in its scope. While the system appeared to be adequate for remediating the subsurface of portions of the adjacent Safeway parking lot, it did not target the areas where free product was present on the Tiger Oil Property. Since the interim remedial system did not adequately remove free product from the Tiger Oil Property, it was not approved as a final cleanup action. Groundwater sampling was conducted at the Property from July 1992 through January 2010, with most of this sampling work occurring on a quarterly basis. During this time, sampling was limited to the the conditional point of compliance (CPOC) wells; however, some other wells were gauged for LNAPL but were not sampled for groundwater analysis.

In September of 1998, Ecology issued another enforcement order to all PLPs requiring the planning and implementation of a final cleanup action for the Site. In 2004, New Tiger and Ecology entered into a Consent Decree to provide for remedial action at the Site.

In 2013, TerraGraphics and Hart Crowser were contracted by Ecology to collect groundwater samples from a select group of groundwater monitoring wells at the Site and evaluate the extent of petroleum impacted groundwater.

Section 2.0 Field Activities and Methodology

In general, sampling procedures followed the SAP/QAPP developed by Ecology (Ecology, 2013) except for the following changes:

- Proposed sample location S-1 was replaced by sample location MW-13. TerraGraphics and Ecology staff determined that the quality of the data collected from S-1 would be potentially influenced by surface drainage (no lid and no cap) and the presence of debris in the well.
- Proposed sample locations KMW-12 and S-10 could not be located and were therefore not sampled.
- Proposed sample location DID#15 is a manhole access point to the Yakima Irrigation District return line (formerly named drainage and irrigation district). Field observations showed a lack of heavy groundwater contamination and the absence of LNAPL in the vicinity of this line. Therefore, historical issues related to the line flow were not a concern for the purposes of this study.

Field activities were conducted on April 1, 2, and 3, 2013, and are described in the following sections.

2.1 Well Condition Survey

On April 1, 2013, TerraGraphics, Ecology, and Freestone Environmental Services (New Tiger's consultant) staff examined the condition of several groundwater monitoring wells at the Property. Well conditions were examined for integrity and evaluated based on the Minimum Standards for Construction and Maintenance of Wells (WAC 173-160). The following characteristics were recorded: functional monument, functional gasket, working lock, working compression plug, and functional bolts. The results are discussed in Section 3.1 and are summarized in Table 3.

2.2 Groundwater Elevations

Depth to water was measured at each groundwater monitoring well from the north side of the top of casing (TOC) using a Solinst interface probe on April 2, 2013. Depth to water was recorded on the groundwater sampling sheet (Appendix A). The TOC of each monitoring well was surveyed by a Washington State licensed surveyor on April 2, 2013. PLSA Engineering and Surveying surveyed the wells in NAVD88 datum in the State Plane South Projection (Appendix B). Groundwater elevations were calculated by subtracting the depth to water from the TOC elevation. Groundwater elevations are expressed in feet above mean sea level (famsl).

2.3 Groundwater Sampling

Groundwater samples were collected using low-flow methods (via peristaltic pump) until groundwater quality stabilized (pH, conductivity, temperature, dissolved oxygen, and oxidation/reduction potential) (Table 2 and Appendix A). These parameters provide information on the water chemistry and were used as stabilization criteria. The stabilization criteria were

used to indicate that the well had been sufficiently purged and that the extracted groundwater was representative of the groundwater from the aquifer. New peristaltic tubing was used to collect water from each groundwater monitoring well.

Seventeen groundwater samples (plus two duplicates), were collected on April 2, and 3, 2013. Samples were labeled and placed in a cooler on ice for transportation to Test America, along with the chain-of-custody documentation. Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by U.S. Environmental Protection Agency (USEPA) Method 8021 (USEPA, 1996); and for GRO, by NWTPH-Gx using Ecology's Analytical Methods for Petroleum Hydrocarbons (Ecology, 1997). Complete laboratory data sheets and chain-of-custody documentation are included as Appendix D.

Data from MW-13 and MW-9 are qualified as estimates due to low recharge during pre-sampling purge.

Section 3.0 Results

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

3.1 Well Condition Survey

Of the 24 wells that were examined for integrity and functionality, only one met the minimum standards (Table 3). Most of the well monument lids were ineffective at preventing surface runoff from entering the well-head space (lack of a lid, no gasket, rests below grade). In addition, many of the wells were lacking an effective compression plug and/or lock. Although well monuments should be constructed to keep all liquids and solids from entering the well-head space, in the absence of an effective gasket, lid, and compression plug, drainage from the well-head space is desired. In at least five cases standing water was observed in the well-head space.

3.2 Groundwater Elevations and Contaminant Distribution

Groundwater elevations ranged from 1,069.20 famsl at KMW-14 to 1,079.09 famsl at KMW-8 (Table 2). In general, groundwater flow at the Property is toward the southeast at calculated gradient of 0.0229 ft/ft (Figure 2). However, the gradient is much shallower at locations near the Former Tiger Oil building. The calculated gradient between wells KMW-8 and the contour near S-2, KMW-10, and MW-13 is 0.0085 ft/ft. The distribution and lateral extent of petroleum impacted groundwater is consistent with the calculated groundwater flow direction in that upgradient wells are un-impacted, wells immediately downgradient of the LNAPL plume are greatly impacted, and further downgradient wells are less impacted.

LNAPL was measured at four groundwater monitoring wells (MW-11, MW-15, MW-7, and MW-8). LNAPL thickness varied from 0.01 ft MW-15 and MW-8 to 2.34 ft at MW-7. LNAPL was also encountered at KMW-20 after the well was purged in preparation for sampling. As a result, the LNAPL thickness was not measured and a groundwater sample was not collected. The approximate extent of the LNAPL plume is displayed in Figure 3. In addition, the approximate extent of the dissolved phase plume is displayed in Figure 3. The extent of

petroleum impacted groundwater was not defined further downgradient beyond the extent of monitoring well KMW-16.

3.3 Quality Assurance/Quality Control

Laboratory data validation and verification was reconciled with the measurement quality objectives identified in the SAP/QAPP (Ecology, 2013). A summary of the data quality assurance/quality control (QA/QC) review for the groundwater samples submitted for laboratory analysis analyzed by TestAmerica is provided in the QA/QC Memorandum in Appendix C.

The samples were analyzed for one or more of the following: gasoline by Ecology method NWTPH-Gx; BTEX by USEPA Method 8021B; and following analysis, the laboratory reanalyzed two samples for confirmation of benzene by USEPA Method 8260B. Data from MW-13 and MW-9 are qualified as estimates due to low recharge during pre-sampling purge. No results were rejected during the internal data validation and verification; therefore, none are categorized as unusable.

3.4 Groundwater Sample Analysis

At least one of the analytes in 7 of the 17 samples was at or above the respective MTCA Method A Cleanup Levels. Table 1 summarizes those samples above the reporting limit (expressed in µg/L). Samples above the MTCA Method A Cleanup Levels included:

- KMW-16
  - benzene = 5.5 µg/L, Cleanup Level = 5 µg/L.
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  - benzene = 600 µg/L, Cleanup Level = 5 µg/L.
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  - benzene = 3,100 µg/L, Cleanup Level = 5 µg/L.
  - GRO = 3,900 µg/L, Cleanup Level = 800 µg/L.
- MW-13
  - GRO = 1,800 µg/L, Cleanup Level = 800 µg/L.
- KMW-7
  - benzene = 6.0 µg/L, Cleanup Level = 5 µg/L.
- MW-9
  - benzene = 25 µg/L, Cleanup Level = 5 µg/L.
  - GRO = 6,000 µg/L, Cleanup Level = 800 µg/L.
- KWM-22
  - benzene = 4,900 µg/L, Cleanup Level = 5 µg/L.
  - ethylbenzene = 2,500 µg/L, Cleanup Level = 700 µg/L.
  - total xylenes = 5,400 µg/L, Cleanup Level = 1,000 µg/L.
  - GRO = 34,000 µg/L, Cleanup Level = 800 µg/L.
- KMW-6
  - benzene = 5.8 µg/L, Cleanup Level = 5 µg/L.

Section 4.0 Summary and Conclusions

This groundwater sampling event determined that petroleum contamination including LNAPL is present at the Tiger Oil Property and downgradient locations (or portions of the Site on other properties). Some concentrations above the MTCA Method A Cleanup levels are present at the Site. In addition the LNAPL plume as thick as 2.34 ft is present at the Tiger Site in spite of historical remediation efforts— an SVE and GWE systems was installed in 1995 and analysis from this system ceased in January 2010. Groundwater flows toward the southeast at a calculated gradient of 0.0229 ft/ft.

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

- Groundwater does not appear to be impacted upgradient of KMW-8.
- Petroleum-impacted groundwater above the MTCA A Cleanup Levels is present at the Tiger Oil Property and downgradient to at least KMW-16.
- All monitoring wells, with the exception of KMW-24, do not meet well construction standards.

Section 5.0 References and Resources Used

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

Ecology, 2013. SAP/QAPP for Tiger Oil Site Sampling March 2013.

U.S. Environmental Protection Agency, 1996. Method 8021B: Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors; Revision 2, December.

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

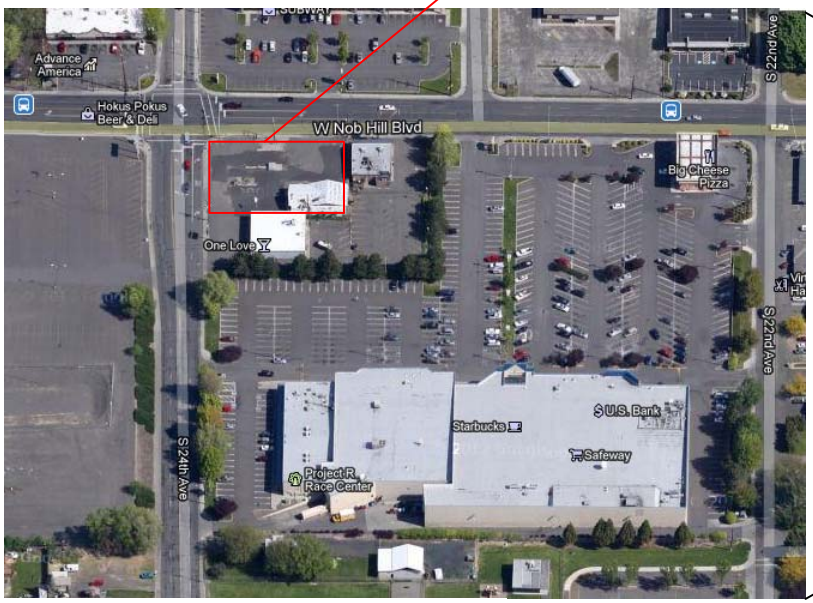


Image courtesy of Google Maps

Project No. 13022	TerraGraphics Environmental Engineering, Inc.	**Former Tiger Oil W. Nob Hill and 24th Avenue Yakima, Washington**	Date: 05/07/13
Scale: not to scale			
Requestor: M. Procsal		**Figure 1. Site Location**	
Drafter: M. Procsal			

CTR S26, T13N, R18E, W.M.

NOB HILL BOULEVARD

South 24th Avenue

KMW-8
1079.09

Former Diesel Tank Locations

Former Gasoline Tank Locations

New Tiger SVE Expansion

MW-15
Product

KMW-7
1078.58

Tiger (former)

MW-1
Product

KMW-22
1077.67

MW-11
Product

Ted Brown Music (former)

MW-8
Product

KMW-10
1077.38

Skippers (former)

KMW-20
Product

KMW-24
1077.44

Treatment Compound

S-2
1077.14

Mercy KMW8 to Nob Hill SVE Extension

KMW-12
Not Located

MWG-3
1076.25

MW-9
1076.60

MW-13
1077.19

S-1
Damaged

Mercy MW9/MW-13 Extension

MWG-2
1075.77

Trench A GWE/SVE System

KMW-6
1074.38

Trench B GWE/SVE System

S-10
Not Located

MWG-1
1074.13

KMW-18
1075.75

New Gas Station (approx)

KMW-5
1073.40

Drainage Improvement District (DID) 12" SD

KMW-15
1071.80

KMW-16
1071.89

KMW-14
1069.20

DID #15

1,079
1,078
1,077
1,076
1,075
1,074
1,073
1,072
1,071
1,070

0.0085
0.0229

LEGEND

- MW-22 / 1070.00 — Monitoring Well Location & Identification; Groundwater Elevation (famsl)
- 1,070 — Groundwater Contour (famsl)
- 0.0229 — Goundwater Gradient (ft/ft)
- Property Lines
- 4" PVC SVE Pipe (non-Slotted)
- 4" PVC SVE Pipe (Slotted)
- Storm Drain Maintenance Hole
- Sanitary Sewer Maintenance Hole

N
W E
S

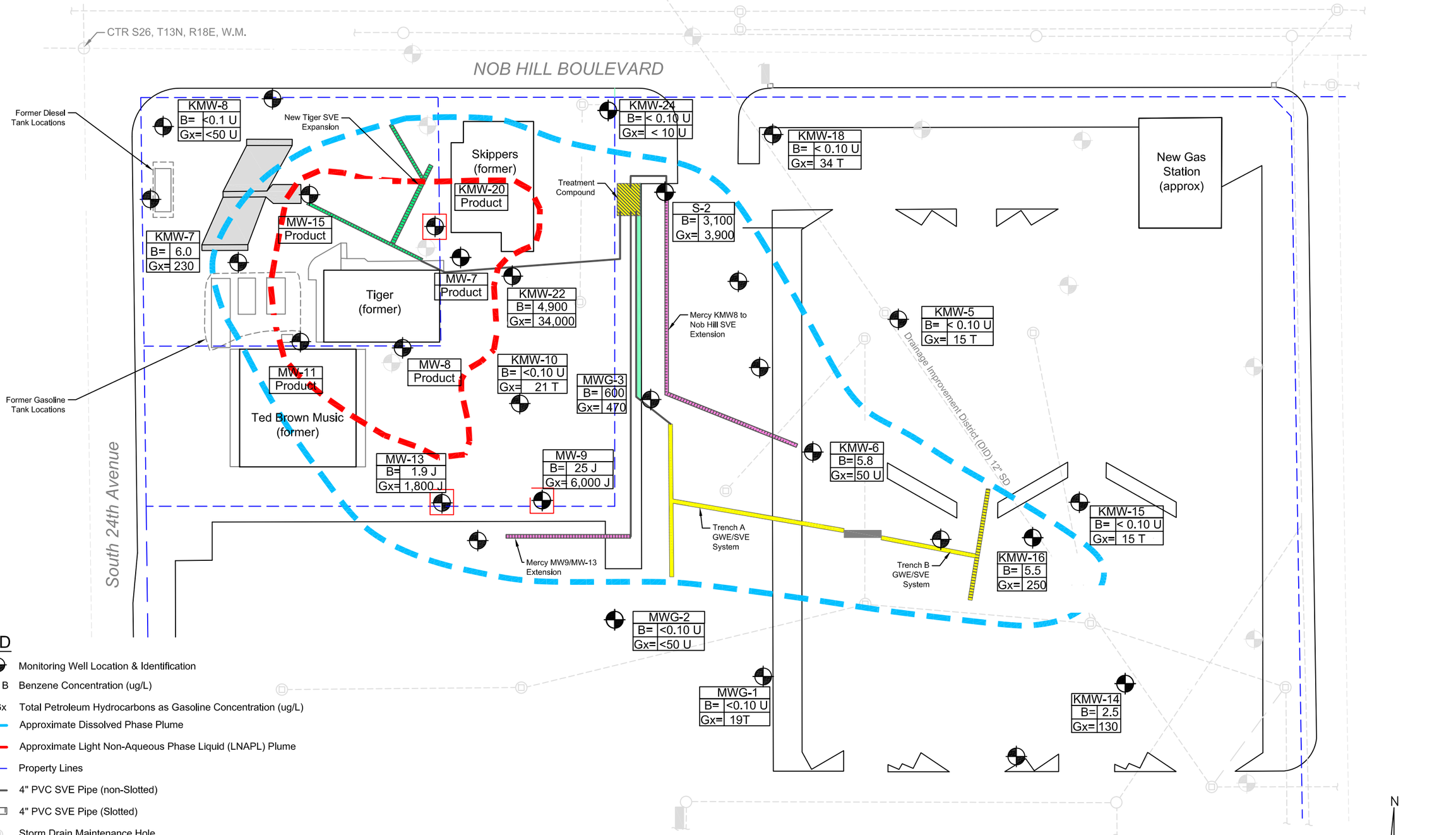
0 25 50
SCALE: 1" = 50'

TerraGraphics
Environmental Engineering, Inc.

DRAWN BY:	PROJECT NO:
M. PROCSAL	13022-3
PROJECT MANAGER:	DATE:
M. PROCSAL	5/9/2013

FORMER TIGER OIL
2131 W. NOB HILL BLVD.
YAKIMA, WA

FIGURE 2
GROUNDWATER CONTOUR MAP
APRIL 2, 2013



TerraGraphics Environmental Engineering, Inc.

DRAWN BY: E. RADFORD	PROJECT NO: 13022-3
PROJECT MANAGER: M. PROCSAL	DATE: 6/04/2013

FORMER TIGER OIL
2131 W. NOB HILL BLVD.
YAKIMA, WA

FIGURE 3
LNAPL AND DISSOLVED PHASE PLUMES
APRIL 3, 2013

Table 1
Groundwater Analytical Results (µg/L)
Tiger Oil
Yakimam, Washington

Sample ID/Sample Date		Depth to Water (ft. bgs)	Top of Casing Elevation (ft.)	Groundwater Elevation (famsl)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m-Xylene & p-Xylene (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	GRO (µg/L)
KMW-15	4/2/2013	11.74	1,083.54	1,071.80	< 0.10 U	< 0.5 U	< 0.10 U	< 1.0 U	< 0.20	< 1.0 U	15 T
KMW-16	4/2/2013	11.38	1,083.27	1,071.89	**5.5**	< 0.10 U	5.4	4.7	0.33 T	5.0	250
KMW-14	4/2/2013	13.20	1,082.40	1,069.20	2.5	< 0.10 U	< 0.10 U	< 1.0 U	< 0.20	< 1.0 U	130
MWG-1	4/2/2013	9.85	1,083.98	1,074.13	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20	< 0.20 U	19 T
KMW-5	4/2/2013	9.45	1,082.85	1,073.40	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20	< 0.20 U	15 T
MWF-3 (MWG-3)	4/2/2013	7.90	1,084.15	1,076.25	**600**	7.7	53	23	7.2	30	470
KMW-18	4/3/2013	9.59	1,085.34	1,075.75	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20	< 0.20 U	34 T
KMW-24	4/3/2013	10.03	1,087.47	1,077.44	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20	< 0.20 U	< 10 U
S-2	4/3/2013	8.60	1,085.74	1,077.14	**3,100**	18	660	230	4.5	240	**3,900**
KMW-8	4/3/2013	13.29	1,092.38	1,079.09	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20	< 0.20 U	< 50 U
KMW-10	4/3/2013	13.25	1,090.63	1,077.38	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20	< 0.20 U	21 T
MW-13†	4/3/2013	14.69	1,091.88	1,077.19	1.9 J	1.8 J	5.1 J	11.00	4.7	16 J	**1,800 J**
MWG-2	4/3/2013	9.70	1,085.47	1,075.77	< 0.10 U	< 0.10 U	< 0.10 U	< 0.20 U	< 0.20	< 0.20 U	< 50 U
KMW-7	4/3/2013	13.38	1,091.96	1,078.58	**6.0**	5.8	1.4 T	19	11	30	230
MW-9†	4/3/2013	14.88	1,091.48	1,076.60	**25 J**	13 J	46 J	66.0	36	100 J	**6,000 J**
KMW-22†	4/3/2013	11.95	1,089.62	1,077.67	**4,900**	450	**2,500**	**5,000**	430.0	**5,400**	**34,000**
KMW-6	4/3/2013	9.2	1,083.58	1,074.38	**5.8**	< 0.10 U	< 0.5 U	< 0.20 U	< 0.20	< 0.20 U	< 50 U
MW-11	-	15.8	1,092.67	1,074.38	NO SAMPLE COLLECTED DUE TO FREE PRODUCT, THICKNESS = 1.46 ft.						
MW-15	-	13.31	1,091.56	1,074.38	NO SAMPLE COLLECTED DUE TO FREE PRODUCT, THICKNESS = 0.01 ft.						
MW-7	-	14.3	1,090.30	1,074.38	NO SAMPLE COLLECTED DUE TO FREE PRODUCT, THICKNESS = 2.34 ft.						
MW-8	-	16.7	NM	NM	NO SAMPLE COLLECTED DUE TO FREE PRODUCT, THICKNESS = 0.01 ft.						
KMW-20††	-	13.69	1,091.53	1,074.38	NO SAMPLE COLLECTED DUE TO FREE PRODUCT, THICKNESS = NOT MEASURED						
MTCA Method A Groundwater Cleanup Levels (µg/L)					5	1,000	700	1,000	1,000	1,000	800 or 1,000*

Notes:
famsl = feet above mean sea level
all concentrations reported in µg/L = micrograms per Liter
BTEX analyzed by USEPA Method 8021B
GRO = Gasoline Range Organics analyzed by Method NWTPH-Gx
< = less than the method detection limit (MDL)
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 720-1, WAC 173-340-900)
* = cleanup level when benzene is present is 800 µg/L , and 1,000 µg/L when there is no detectable benzene present.
† = heavy sheen present on purge water but was not detected during gauging.
†† = heavy sheen present on purge water but was not detected during initial gauging.
Once purging began, free product was detected with an interface probe (Solinst 12.2) and was therefore not sampled.
The highest concentration is reported from duplicate samples.
U = The sample concentration is less then the MDL but found in the trip blank and method blank.
T = The sample concentration falls between the MDL and the RL.
J = The sample is qualified as an estimate due to low recharge during the presampling purge.
NM = not measured
Depth to groundwater measurements in wells containing free product or Light Non-Aqueous Phase Liquid (LNAPL) were not corrected.
Since the mass of the LNAPL was not accounted for, these elevations were not used to calculate groundwater gradients.

Table 2
Water Quality Parameters
Tiger Oil
Yakima, Washington

Well ID	Time	pH	Electrical Conductivity (mS)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	ORP (mV)
KMW-6	00:00	6.15	0.770	13.46	4.54	43.7	-74.1
	05:00	6.86	0.772	13.57	4.18	40.5	-86.1
	10:00	6.49	0.772	13.62	4.06	39.0	-70.2
	15:00	6.45	0.778	13.78	3.99	38.5	-66.2
KMW-22	00:00	6.46	1.487	14.45	5.56	53.5	-168.7
	05:00	6.38	1.492	14.01	3.01	29.1	-215.7
	10:00	6.52	1.506	14.02	1.68	16.3	-236.0
	15:00	6.33	1.514	14.10	0.78	7.6	-233.0
	20:00	6.33	1.549	14.15	0.48	4.0	-235.0
MW-9	00:00	6.34	1.052	14.79	3.36	33.1	-215
	05:00	5.95	1.051	14.68	2.26	22.3	-236
KMW-7	00:00	5.96	0.781	15.02	5.33	53.8	-26.6
	05:00	6.44	0.780	14.72	4.85	47.9	-24.3
	10:00	6.76	0.781	14.76	4.63	46.0	-35.6
	15:00	6.74	0.783	14.78	4.60	45.5	-40.4
MWG-2	00:00	6.09	0.777	13.84	6.37	61.7	-32
	05:00	6.37	0.776	13.82	6.11	59.3	-31
	10:00	6.42	0.775	13.91	5.97	58.0	-22
MW-13	00:00	6.38	0.869	14.31	5.41	53.0	-251.0
KMW-10	00:00	7.11	0.771	15.20	5.96	59.4	16.6
	05:00	7.04	0.772	13.20	6.04	60.1	16.0
	10:00	7.04	0.771	15.22	6.11	60.7	17.4

Table 2
Water Quality Parameters
Tiger Oil
Yakima, Washington

Well ID	Time	pH	Electrical Conductivity (mS)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	ORP (mV)
KMW-8	00:00	6.96	0.915	13.87	6.38	61.7	-25.0
	05:00	6.78	0.905	13.89	6.31	61.2	-7.5
	10:00	6.87	0.901	13.89	6.28	60.8	-1.4
S-2	00:00	7.44	1.115	20.01	4.79	44.2	-117
	05:00	6.43	1.135	12.33	2.65	25.0	-227
	10:00	7.11	1.703	12.89	1.53	14.6	-258
	15:00	6.95	1.223	12.97	1.40	13.3	-250
	20:00	6.87	1.247	13.05	1.43	13.5	-225
KMW-24	00:00	6.69	0.781	13.69	7.35	73.0	66.7
	07:00	6.72	0.782	13.76	7.42	71.9	72.5
	12:00	6.68	0.782	13.80	7.39	71.6	73.1
KMW-18	00:00	9.81	0.767	13.34	7.39	89.9	41.9
	05:00	7.70	0.765	13.38	8.31	79.6	75.8
	10:00	7.49	0.766	13.43	8.51	81.8	79.1
	15:00	7.23	0.766	13.46	8.59	82.7	82.1
	20:00	6.97	0.766	13.52	8.57	82.7	82.1
	25:00	7.73	0.766	13.52	8.45	81.3	53.1
	30:00	6.80	0.766	13.51	8.20	79.2	79.6
	35:00	6.82	0.766	13.51	8.23	79.2	76.3
MWG-3	00:00	6.42	0.854	13.62	4.91	47.0	-42.3
	05:00	7.98	0.841	13.54	1.51	14.4	-213.6
	10:00	7.28	0.827	13.49	0.47	4.5	-202.2
	15:00	6.36	0.843	13.54	0.39	3.7	-168.2
	20:00	6.41	0.849	13.62	0.35	3.4	-171.0
KMW-5	00:00	6.40	1.040	13.66	4.74	45.5	15.6
	05:00	6.21	1.041	13.66	4.83	46.9	13.4
	10:00	6.12	1.035	13.80	4.33	41.3	12.4
	15:00	6.01	1.026	13.96	1.11	10.0	12.0
	20:00	7.38	1.015	14.23	0.74	7.4	46.6
	22:00	7.21	1.012	14.22	0.84	8.2	42.5
	25:00	7.39	1.004	14.28	1.59	15.9	49.7
	30:00	7.18	0.996	14.29	1.31	13.0	32.6
	32:00	7.02	0.987	14.28	1.43	14.0	25.5
	34:00	6.76	0.987	14.20	1.43	14.0	13.7
	39:00	6.60	0.972	14.29	1.85	18.2	9.0
	42:00	6.62	0.962	14.30	2.17	21.4	7.0
	47:00	6.55	0.957	14.28	2.39	23.5	2.6

Table 2
Water Quality Parameters
Tiger Oil
Yakima, Washington

Well ID	Time	pH	Electrical Conductivity (mS)	Temperature (degrees C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	ORP (mV)
MWG-1	00:00	6.41	0.884	6.39	8.17	78.0	14.7
	05:00	7.77	0.882	13.43	9.10	87.5	-46.5
	10:00	7.58	0.813	13.52	9.01	86.8	-38.9
	13:00	7.09	0.806	13.50	9.10	87.5	-17.4
	18:00	7.04	0.796	13.53	9.12	87.7	-13.7
KMW-14	00:00	6.63	0.975	14.82	5.60	53.6	-75.6
	05:00	7.07	0.974	14.76	4.37	43.3	-69.0
	10:00	6.66	0.680	14.75	3.03	28.7	-79.6
	15:00	6.44	0.962	14.74	2.21	8.0	-74.0
	20:00	6.45	0.959	14.71	0.85	8	-76.2
KMW-16	00:00	7.49	0.869	14.66	5.39	52.6	-63.7
	05:00	6.89	0.872	14.64	4.70	47.2	-30.9
	10:00	6.39	0.878	14.66	4.56	45.0	-10.5
	15:00	7.40	0.887	14.82	4.57	45.2	-65.7
	20:00	6.85	0.894	14.80	4.64	45.8	-46.9
	23:00	7.58	0.894	14.74	4.47	44.1	-81.7
	25:00	7.49	0.895	14.91	4.21	41.7	-82.0
	31:00	6.93	0.902	14.84	3.85	38.1	-58.7
	35:00	6.70	0.905	14.94	3.69	36.6	-50.0
	40:00	6.70	0.907	14.90	3.59	35.6	-50.9
KMW-15	00:00	8.89	0.774	15.56	9.95	100.1	-80.8
	05:00	8.57	0.775	15.44	9.95	99.7	-74.3
	10:00	8.20	0.773	15.46	9.78	98.0	-61.0
	15:00	7.74	0.773	15.51	9.52	95.7	-40.6
	20:00	7.06	0.773	15.42	9.33	93.6	-14.0
	25:00	6.88	0.774	15.40	9.15	91.7	-24.4
	26:00	7.07	0.773	15.39	9.14	91.6	-15.9
	31:00	7.13	0.773	15.35	9.02	90.3	-12.1

Notes:
mS = milli Siemens
C = celcius
mg/L = milligrams per Liter
ORP = oxidation reduction potential
mV = millivolts

Table 3
Well Conditions Summary
Tiger Oil
Yakima, Washington

Well ID	Well Diameter (inches)	Monument	Gasket	Lock	Functional Compression Plug	Bolts	Notes
KMW-15	4	below grade	No	No	loose	No	drains
KMW-16	4	below grade	No	Yes	No	No	poor drainage
KMW-14	4	below grade	No	No	Yes	No	concrete near TOC/poor drainage
MWG-1	2	below grade	No	No	No	No	leaking
KMW-5	4	below grade	No	No	No	No	TOC above monument lid
*MWG-3	2	below grade	No	No	No	No	
KMW-18	4	below grade	No	No	No	Yes	drainage ok
S-1	2	below grade	No	No	No	No	leaking
S-2	2	no lid	No	No	No	No	damaged monument skirt
KMW-8	4	good	No	No	No	No	drainage ok
KMW-10	4	good	No	No	No	No	poor drainage
*MW-13	2	below grade	No	No	No	No	poor drainage
MWG-2	2	below grade	No	No	No	No	leaking
KMW-7	4	good	No	No	No	No	poor drainage
*MW-9	2	below grade	No	No	No	No	leaking
KMW-22	4	good	No	No	loose	Yes	
KMW-6	4	below grade	No	No	loose	No	
MW-15	4	good	No	No	Yes	No	
*MW-11	2	below grade	No	No	No	No	
KMW-20	1.5	good	No	No	No	No	leaking
MW-7	2	good	No	No	No	No	leaking
KMW-24	4	good	Yes	Yes	Yes	Yes	well meets minimum requirements
MW-8	2	good, above ground	NA	No	No	NA	
KMW-12							not located
S-10							not located

Notes:
NA = Not Applicable
* = Utility monument constructed, unsuitable for use as monitoring/resource protection well.

Appendix A

Groundwater Sampling Forms

TerraGraphics
ENVIRONMENTAL ENGINEERING, INC.

Moscow
Kellogg
Boise
Spokane

GROUNDWATER SAMPLING RECORD

Project: TIBER	Well Number: KMW-6
Project Number:	Sample Number:
Location: YAKIMA, WA	Weather: CLOUDY, ~~LOSE~~ MILD
Date: 4/2/13	Sampler(s): PROCSAL; RICHTER
Depth to Bottom (ft): 19.25'	Purge Time: 1835
Depth to Water (ft): 9.20	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1840	6.15	0.770	13.46	4.54	43.7	-74.1
	1845	6.86	0.772	13.57	4.18	40.5	-86.1
	1850	6.49	0.777	13.62	4.06	39.0	-70.2
	1855	6.45	0.775	13.78	3.99	38.5	-66.2
4 gallons							

Sampling Date: 4/3/13	Sampling Method: PERISTALTIC	Time Sampled: 1900	

Container	Volume	Preservative	Cooled	Filtered	Other
VOAs	3@40mL	HCl	Y	N	TPH-GX
VOAs	3@40ml	HC	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	
Notes:	

TerraGraphics
ENVIRONMENTAL ENGINEERING, INC.

(18)

Moscow
Kellogg
Boise
Spokane

GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: KMW-22
Project Number:	Sample Number:
Location:	Weather: CLOUDY
Date: 4/2/13 - CAUGED	Sampler(s): PRESSAC, RICHTER
Depth to Bottom (ft): 14.14	Purge Time: 1745
Depth to Water (ft): 11.95	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 (___/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1745	6.46	1.487	14.45	5.86	53.5	-168.7
	1750	~~6.58~~ 6.15	1.492	14.01	3.01	29.1	-215.7
	1755	6.52	1.506	14.02	1.68	16.3	-236.0
	1800	6.33	1.514	14.10	0.78	7.6	-238.0
	1805	6.33	1.519	14.15	0.48	4.6	-255.0

Sampling Date: 4/3/13	Sampling Method: PERISTALTIC	Time Sampled: 1810	

Container	Volume	Preservative	Cooled	Filtered	Other

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	
Notes: SHEEN ON PURGE WATER	

TerraGraphics
ENVIRONMENTAL ENGINEERING, INC.

(17)

Moscow
Kellogg
Boise
Spokane

GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: MW-9
Project Number:	Sample Number:
Location: YAKIMA, WA	Weather: CLOUDY, WARM
Date: 4/2/13 - GAUGED	Sampler(s): PRESAL, RICHTER
Depth to Bottom (ft): 18.65	Purge Time: 1649
Depth to Water (ft): 14.88	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1654	6.34	1.052	14.79	3.36	33.1	-215.0
	1659	5.95	1.051	14.68	2.26	22.3	-235.6
1.5 gallons							

Sampling Date: 4/3/13 | Sampling Method: | Time Sampled: 1730

Container	Volume	Preservative	Cooled	Filtered	Other
VOAs	3 @ 40ml	HCl	Y	N	TPH-GX
VOAs	3 @ 40ml	HCl	Y	N	BTEX

Chain of Custody: Yes/No | Duplicate Sample Number:

Chain of Custody Number: | Replicate Sample Number:

Laboratory:

Method of Shipment:

Split With:

Notes: WELL NOT RECHARGING, WAIT 15 MIN - THEN CHECK RECHARGE = 17.12' @ 1518

WAIT 10 MINUTES THEN SAMPLE - DATA WILL BE QUALIFIED

TURBIN ON PURGE WATER

(14)

TerraGraphics
ENVIRONMENTAL ENGINEERING, INC.

Moscow
Kellogg
Boise
Spokane

GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: KMW-07
Project Number:	Sample Number:
Location: YAKIMA, WA	Weather: SUNNY, ~~HOT~~ WARM
Date: 4/2/13 - GAUGED	Sampler(s): PROBST, RICHTER
Depth to Bottom (ft): 19.95	Purge Time: 1608
Depth to Water (ft): ~~13.38~~ 13.38	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1610	5.96	0.781	15.02	5.33	53.0	-26.6
	1615	6.44	0.780	14.72	4.85	47.9	-24.3
	1620	6.76	0.781	14.76	4.65	46.0	-35.6
	1625	6.74	0.785	14.78	4.60	45.5	-40.4
4 gal/6mS							

Sampling Date: 4/3/13 | Sampling Method: | Time Sampled: 1626

Container	Volume	Preservative	Cooled	Filtered	Other
VOAs	3@40ml	HCl	Y	N	TPH-GX
VOAs	3@40ml	HCl	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number: KMW-70 @ 1628
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes:

(11)

TerraGraphics
ENVIRONMENTAL ENGINEERING, INC.

Moscow
Kellogg
Boise
Spokane

GROUNDWATER SAMPLING RECORD

Project: TIGER	Well Number: MWG-2
Project Number:	Sample Number:
Location: ~~FIGER~~ YAKIMA	Weather: SUNNY, WARM
Date: 4/2/13	Sampler(s): PROCSAL, RICHTER
Depth to Bottom (ft): 13.96	Purge Time: 1432
Depth to Water (ft): 9.70	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1440	6.09	0.777	13.84	6.37	61.7	-32.2
	1445	6.37	0.776	13.82	6.11	59.3	-30.7
	1450	6.42	0.775	13.91	5.97	58.0	-22.3
2.5 GALLONS							

Sampling Date: 4/3/13 | Sampling Method: | Time Sampled: 1452

Container	Volume	Preservative	Cooled	Filtered	Other
VOAs	3@40ml	HCl	Y	N	TPHgx
VOAs	3@40ml	HCl	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes:

(15)

TerraGraphics ENVIRONMENTAL ENGINEERING, INC.

Moscow
Kellogg
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Spokane

GROUNDWATER SAMPLING RECORD

Project: TIGER	Well Number: MW-13
Project Number:	Sample Number:
Location:	Weather: SUNNY, WARM
Date: 4/2/13 GAUGED	Sampler(s): PROESAL, RICHTER
Depth to Bottom (ft): 17.98	Purge Time: 1308
Depth to Water (ft): 14.69	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 (___/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
		6.38	0.869	14.31	5.41	53.0	-251.0
1 GALLON							

Sampling Date: 4/3/13	Sampling Method: PERISTALTIC	Time Sampled: 1410	
Container / Volume	Preservative	Cooled	Filtered / Other

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes: WELL NOT RECHARGING DURING PURGING

PURGED DRY, WAITED 30 MIN, PURGED DRY, WAITED 20 MIN
SAMPLE FROM REMAINING WATER

-DATA WILL BE QUALIFIED

(16)

TerraGraphics
ENVIRONMENTAL ENGINEERING, INC.

Moscow
Kellogg
Boise
Spokane

GROUNDWATER SAMPLING RECORD

Project: TIBER OIC	Well Number: KMW-10
Project Number:	Sample Number:
Location: IH. YAKIMA	Weather: SUNNY
Date: 4/2/13 - GAUGE	Sampler(s): PROSIC
Depth to Bottom (ft): 22.71'	Purge Time: 1222
Depth to Water (ft): 13.25	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1230	7.01	0.771	15.20	5.96	59.4	10.6
	1235	7.04	0.772	15.20	6.04	60.1	16.0
	1240	7.04	0.771	15.22	6.11	60.7	17.4
4 GALLONS							

Sampling Date: 4/3/13 | Sampling Method: PERISTALTIC | Time Sampled: 1242

Container	Volume	Preservative	Cooled	Filtered	Other
VOA	3 @ 40ml	HCl	Y	N	BTEX-GV
VOA	3 @ 40ml	HCl	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	
Notes:	

(12)

TerraGraphics
ENVIRONMENTAL ENGINEERING, INC.

Moscow
Kellogg
Boise
Spokane

GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: KMW-08
Project Number:	Sample Number:
Location:	Weather: SUNNY
Date: 4/2/13 - GAUGED	Sampler(s): PROCIAL, LICHTER
Depth to Bottom (ft): 19.37	Purge Time: 1135
Depth to Water (ft): 13.29	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1140	6.96	0.915	13.87	6.38	61.7	-25.0
	1145	6.78	0.905	13.89	6.31	61.2	-7.5
	1150	6.87	0.901	13.89	6.28	60.8	-1.4
4 gallons							

Sampling Date: 4/3/13 | Sampling Method: PERISTALTIC | Time Sampled: 1151

Container	Volume	Preservative	Cooled	Filtered	Other
VOAs	3@40ml	HCl	Y	N	TPH-GX
VOAs	3@40ml	HCl	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes:

TerraGraphics
ENVIRONMENTAL ENGINEERING, INC.

Moscow
Kellogg
Boise
Spokane

GROUNDWATER SAMPLING RECORD

Project: TIGER	Well Number: S-2
Project Number:	Sample Number:
Location: TIGER OIL	Weather: SUNNY
Date: 4/2/13	Sampler(s): PROCSAL, RICHTER
Depth to Bottom (ft): 12.86	Purge Time: 1022
Depth to Water (ft): 8.60	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1031	7.44	1.115	12.01	4.79	44.2	-117.0
	1036	6.43	1.135	12.33	2.65	25.0	-227.2
	1041	7.11	1.703	12.89	1.53	14.6	-258.7
	1046	6.95	1.223	12.97	1.40	13.3	-249.8
	1051	6.87	1.247	13.05	1.43	13.5	-244.8
5 gallons							

Sampling Date: 4/3/13	Sampling Method: PERISTALTIC		Time Sampled: 1052	
Container	Volume	Preservative	Cooled	Filtered	Other
VOA	3@ 40ml	HCl	Y	N	TPH-Dx
VOA	3@ 40ml	HCl	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	
Notes:	

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: KMW-24
Project Number:	Sample Number:
Location: TIGER OIL	Weather: SUNNY 43°
Date: 4/2/13	Sampler(s): PROCSAL, RICHTER
Depth to Bottom (ft): 19.61'	Purge Time: 0952 on 4/3/13
Depth to Water (ft): 10.03'	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	0953	6.69	0.781	~~7.55~~ 13.69	7.55	73.0	66.7
	1000	6.72	0.782	13.76	7.42	71.9	72.5
	1005	6.68	0.782	13.80	7.39	71.6	73.1
4 gallons							

Sampling Date: 4/3/13		Sampling Method:		Time Sampled: 1008	
Container	Volume	Preservative	Cooled	Filtered	Other
VOAs	3 @ 40ml	HCl	Y	N	TPH-Dx
VOAs	3 @ 40ml	HCl	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	
Notes:	

(7)

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: KMW-18
Project Number:	Sample Number:
Location: TIGER OIL	Weather: SUNNY 36°
Date: 4/2/13 - CANCED	Sampler(s): PROSAL, RICHTER
Depth to Bottom (ft): 18.60	Purge Time: 0850 on 4/3/13
Depth to Water (ft): 9.59	Purge Method: PERISTALTIC
DTB-DTW (ft): 9.01	Volume Measurement Method: BUCKET
Volume (gal): 5.87	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	0857	9.81	0767	13.34	7.39	89.9	41.9
	0902	7.7	0.765	13.38	8.31	79.6	75.8
	0907	7.49	0.766	13.43	8.51	81.8	79.1
	0912	7.23	0.766	13.46	8.59	82.7	81.8
	0917	6.97	0.766	13.52	8.57	82.7	82.1
	0922	7.75	0.766	13.52	8.45	81.3	83.1
	0927	6.80	0.766	13.51	8.2	79.2	79.6
7 GALLONS	0932	6.82	0.766	13.51	8.23	79.2	76.3

Sampling Date: 4/3/13 | Sampling Method: | Time Sampled: 0933

Container	Volume	Preservative	Cooled	Filtered	Other
VOA	3@ 40ml	HCl	Y	N	MW-9K
VOA	3@ 40ml	HCl	Y	N	BRK

Chain of Custody: Yes/No | Duplicate Sample Number:

Chain of Custody Number: | Replicate Sample Number:

Laboratory:

Method of Shipment:

Split With:

Notes:

(10)

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GROUNDWATER SAMPLING RECORD

Project: TGER	Well Number: MW G-5
Project Number:	Sample Number:
Location: YAKIMA, WA	Weather: CLOUDY, WARM 70°
Date: 4/2/13	Sampler(s): PROCSAL, RICHTER
Depth to Bottom (ft): 14.45	Purge Time: 1744
Depth to Water (ft): 7.90	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1746	6.42	0.854	13.62	4.91	47.0	-42.3
	1751	7.98	0.841	13.54	1.51	14.4	-213.6
	1756	7.28	0.827	13.44	0.47	4.5	-209.2
	1801	6.36	0.843	13.54	0.39	3.7	-168.2
	1806	6.41	0.849	13.62	0.35	3.4	-171.0
5 GALLONS							

Sampling Date: 4/2/13	Sampling Method:		Time Sampled: 1806	
Container	Volume	Preservative	Cooled	Filtered	Other
3 VOAS	3 @ 40ml	HCL	Y	N	TPH gx
3 VOAS	3 @ 40ml	HCL	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	
Notes:	

(5)

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: KMW-05
Project Number:	Sample Number:
Location: YAKIMA, WA	Weather: CLOUDY, WARM 70°
Date: 4/2/13	Sampler(s): PROESAL, RICHTER
Depth to Bottom (ft): 14.45'	Purge Time: 1633
Depth to Water (ft): 9.45'	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
~~1635~~	1635	6.40	1.041	13.66	4.74	45.5	15.6
	1640	6.21	1.041	13.66	4.83	46.9	13.4
	1645	6.12	1.035	13.80	4.33	41.3	12.4
	1650	6.01	1.026	13.96	1.11	10.0	12.0
	1655	7.38	1.015	14.23	0.79	7.4	46.6
	1657	7.20	1.012	14.22	0.84	8.2	42.5
	1700	7.39	1.004	14.28	1.59	15.9	44.7
	1705	7.18	0.996	14.29	1.31	13.0	32.6

Sampling Date: 4/2/13 | Sampling Method: | Time Sampled: 1725

Container	Volume	Preservative	Cooled	Filtered	Other

Chain of Custody: Yes/No
Duplicate Sample Number: KMW-50 @ 1726
Chain of Custody Number:
Replicate Sample Number:
Laboratory:
Method of Shipment:
Split With:

Notes:

Time	pH	mS/cm	Temp	mg/L	%	ORP
1707	7.02	0.987	14.28	1.43	14.0	25.5
1709	6.76	0.987	14.20	1.43	14.0	13.7
1714	6.60	0.972	14.29	1.85	18.2	9.0
1717	6.62	0.962	14.30	2.17	21.4	7.0
1722	6.55	0.957	14.28	2.39	23.3	3.6

9 GALLONS

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: ~~MW-6~~ MWG-1
Project Number:	Sample Number:
Location: YAKIMA, WA	Weather: SUNNY 72°
Date: 4/2/13	Sampler(s): PROCSAL, RICHTER
Depth to Bottom (ft): 15.26'	Purge Time: 1552
Depth to Water (ft): 9.85'	Purge Method: PERISTALTIC
DTB-DTW (ft): 5.41	Volume Measurement Method: BUCKET
Volume (gal): 0.88	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1555	6.41	0.884	6.39	8.17	78.0	14.7
	1600	7.77	0.882	13.43	9.10	87.5	-46.5
	1605	7.58	0.883	13.52	9.01	86.8	-38.9
	1608	7.09	0.806	13.50	9.10	87.5	-17.4
	1613	7.04	0.796	13.53	9.12	87.7	-13.7
5 GALLONS							

Sampling Date: 4/2/13	Sampling Method: PERISTALTIC	Time Sampled: 1615		
Container	Volume	Preservative	Cooled	Filtered	Other
VOAS	3@40mL	HCl	Y	N	TPH-Gx
VOAS	3@40mL	HCl	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	
Notes:	

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: KMW-14
Project Number:	Sample Number:
Location: YAKIMA, WA	Weather: SUNNY 70°
Date: 4/2/13	Sampler(s): PROCSAL, RICHTER
Depth to Bottom (ft): 19.80'	Purge Time: 1450
Depth to Water (ft): 13.20'	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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1455	6.63	0.975	14.82	5.6	53.6	-75.6
	1500	7.07	0.974	14.76	4.37	43.3	-96.0
	1505	6.66	0.968	14.75	3.05	28.7	-79.6
	1510	6.44	0.962	14.74	0.76	8.0	-74.0
5 GALLONS	1515	6.45	0.959	14.71	0.85	8.0	-76.2

Sampling Date: 4/2/13	Sampling Method:	Time Sampled: 1515	

Container	Volume	Preservative	Cooled	Filtered	Other
3 VOAS	3@ 40ml	HCl	Y	N	TPH-Dx
3 VOAS	3@ 40ml	HCl	Y	N	BTEX

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes:

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GROUNDWATER SAMPLING RECORD

Project: TIGER	Well Number: KMW-16
Project Number:	Sample Number:
Location: YAKIMA, WA	Weather: 70° SUNNY
Date: 4/2/13	Sampler(s): PROCSAL, RICHTER
Depth to Bottom (ft): 20.53'	Purge Time: 1351 on 4/2/13
Depth to Water (ft): 11.38'	Purge Method: PERISTALTIC
DTB-DTW (ft): 9.15	Volume Measurement Method: BUCKET
Volume (gal): 5.67	Purge Volume (Volume x 3) (gal): 17

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 (mS/cm)	Temp (°C)	Dissolved Oxygen mg/L	Dissolved Oxygen %	ORP (mV)
	1351	7.49	0.869	14.64	5.39	52.6	-63.7
	1356	6.89	0.872	14.64	4.70	47.3	-30.9
	1401	6.39	0.878	14.66	4.56	45.0	-10.5
	1406	7.40	0.887	14.82	4.57	45.2	-65.7
	1411	6.85	0.894	14.80	4.69	45.8	-46.9
	1414	7.50	0.894	14.74	4.47	44.1	-81.7
	1416	7.49	0.895	14.91	4.21	41.7	-82.0
	1422	6.93	0.902	14.84	3.85	38.1	-58.7

Sampling Date: 4/2/13 | Sampling Method: PERISTALTIC | Time Sampled: 1435

Container	Volume	Preservative	Cooled	Filtered	Other
3 VOAs	3@40mL	HCl	Y	N	TPHGX
3 VOAs	3@40mL	HCl	Y	N	BTEX

Chain of Custody: Yes/No
Chain of Custody Number:
Duplicate Sample Number:
Replicate Sample Number:
Laboratory:
Method of Shipment:
Split With:

Notes:	MORE PARAMETERS				DO		
	TIME	PH	COND	TEMP	mg/L	%	ORP
	1426	6.70	0.905	14.94	3.69	36.6	-50.0
	1431	6.70	0.907	14.7	3.59	35.6	-50.9

8 GALLONS

(1)

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: KMW-15
Project Number:	Sample Number:
Location: YAKIMA, WA	Weather: 65° SUNNY
Date: 4/2/13	Sampler(s): PROEBEL, RICHTER
Depth to Bottom (ft): 20.14	Purge Time: 1248 on 4/2
Depth to Water (ft): 11.74	Purge Method: PERISTALTIC
DTB-DTW (ft): 8.4	Volume Measurement Method:
Volume (gal): 5.47	Purge Volume (Volume x 3) (gal): 16.4

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 gal	1252	8.89	0.774	15.56	9.95	100.1	-80.8
1.3 gal	1257	8.57	0.775	15.44	9.95	99.7	-74.3
1.7 gal	1302	8.20	0.773	15.46	9.78	98.0	-61.0
	1307	7.74	0.773	15.51	9.52	95.7	-49.6
	1312	7.06	0.773	15.42	9.33	93.6	-44.0
	1317	6.88	0.774	15.24	9.15	91.7	-34.4
	1318	7.07	0.773	15.39	9.14	91.6	-45.9
	1323	7.13	0.773	15.35	9.02	90.3	-12.1

Sampling Date: 4/2/13 | Sampling Method: PERISTALTIC (500mL) | Time Sampled: ~~1307~~ 1323

Container	Volume	Preservative	Cooled	Filtered	Other
3 VOAs	3@40mL	HCl	YES	No	TPH-gx
3 VOAs	3@40mL	HCl	YES	No	BTEX

Chain of Custody: Yes/No | Duplicate Sample Number:

Chain of Custody Number: | Replicate Sample Number:

Laboratory:

Method of Shipment:

Split With:

Notes: ~~3 VOAs~~ FD

13

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: KMW-20
Project Number:	Sample Number:
Location:	Weather:
Date: 4/2/13 – GAUGED	Sampler(s): PROESEL, RICHTER
Depth to Bottom (ft): 18.71	Purge Time: ~~1845~~ 1515
Depth to Water (ft): 13.69	Purge Method:
DTB-DTW (ft):	Volume Measurement Method:
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 (___/cm)	Temp (°C)	Dissolved Oxygen		ORP (mV)
					mg/L	%	

Sampling Date:		Sampling Method:		Time Sampled:	
Container	Volume	Preservative	Cooled	Filtered	Other

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes: WELL NOT RECHARGING, PURGED DRY (AT 3 GT FOR 15 MIN), GAUGED FREE PRODUCT SHEEN AT 14.51' & RISING – NO SAMPLE COLLECTED

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: MW-11
Project Number:	Sample Number:
Location:	Weather:
Date:	Sampler(s):
Depth to Bottom (ft): 15.80	Purge Time:
Depth to Water (ft): 15.80	Purge Method:
DTB-DTW (ft):	Volume Measurement Method:
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 (___/cm)	Temp (°C)	Dissolved Oxygen		ORP (mV)
					mg/L	%	

Sampling Date:		Sampling Method:		Time Sampled:	
Container	Volume	Preservative	Cooled	Filtered	Other

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes: 14.31' FREE PRODUCT ~1.5' OF

NO SAMPLE WILL BE COLLECTED

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: MW-15
Project Number:	Sample Number:
Location:	Weather:
Date:	Sampler(s):
Depth to Bottom (ft): 18.29	Purge Time:
Depth to Water (ft): 13.21	Purge Method:
DTB-DTW (ft):	Volume Measurement Method:
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 (___/cm)	Temp (°C)	Dissolved Oxygen		ORP (mV)
					mg/L	%	

Sampling Date:		Sampling Method:		Time Sampled:	
Container	Volume	Preservative	Cooled	Filtered	Other

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes:

13.20 FREE PRODUCT SHEEN

0.01'

NO SAMPLE WILL BE COLLECTED

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GROUNDWATER SAMPLING RECORD

Project: TIGER OIL	Well Number: MW-7
Project Number:	Sample Number:
Location:	Weather:
Date:	Sampler(s):
Depth to Bottom (ft): 18.50	Purge Time:
Depth to Water (ft): 14.30	Purge Method:
DTB-DTW (ft):	Volume Measurement Method:
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 (___/cm)	Temp (°C)	Dissolved Oxygen		ORP (mV)
					mg/L	%	

Sampling Date:		Sampling Method:		Time Sampled:	
Container	Volume	Preservative	Cooled	Filtered	Other

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes:

11.96 TO FREE PRODUCT 2.34' OF PRODUCT WILL BE

NO SAMPLE COLLECTED

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GROUNDWATER SAMPLING RECORD

Project:	Well Number: MW-8
Project Number:	Sample Number:
Location:	Weather:
Date:	Sampler(s):
Depth to Bottom (ft): 21.67	Purge Time:
Depth to Water (ft): 16.71	Purge Method:
DTB-DTW (ft):	Volume Measurement Method:
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 (___/cm)	Temp (°C)	Dissolved Oxygen		ORP (mV)
					mg/L	%	

Sampling Date:		Sampling Method:		Time Sampled:	
Container	Volume	Preservative	Cooled	Filtered	Other

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	

Notes:

16.70 TO FREE PRODUCT

NO SAMPLE COLLECTED

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GROUNDWATER SAMPLING RECORD

Project: YTGER	Well Number: S-1
Project Number:	Sample Number:
Location:	Weather:
Date:	Sampler(s):
Depth to Bottom (ft): 13.14	Purge Time:
Depth to Water (ft): 11.97	Purge Method:
DTB-DTW (ft):	Volume Measurement Method:
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 (___/cm)	Temp (°C)	Dissolved Oxygen		ORP (mV)
					mg/L	%	

Sampling Date:		Sampling Method:		Time Sampled:	
Container	Volume	Preservative	Cooled	Filtered	Other

Chain of Custody: Yes/No	Duplicate Sample Number:
Chain of Custody Number:	Replicate Sample Number:
Laboratory:	
Method of Shipment:	
Split With:	
Notes:	

NOT ENOUGH WATER TO SAMPLE

Appendix B

Survey Map

CEN 1/4 SECTION 26,
T-13 N, R-18 E,W.M.
2-1/2" ALUM. CAP
ELEVATION 1093.12 NAVD88
N: 5100.6915
E: 4628.7826

NE CORNER, NW 1/4,
NW 1/4, SE 1/4 SEC. 26,
T-13 N, R-18 E,W.M.
5/8" REBAR
N: 5090.4619
E: 5291.9748

26

NOB HILL BLVD.
S 89°07' E 663.27'

S. 24TH AVENUE

S. 22ND AVENUE

19
MW-12
ELEV: 1092.30

20
KMW-08
ELEV: 1092.38

18
KMW-24
ELEV: 1087.47

7
KMW-18
ELEV: 1085.34

EXISTING GAS STATION

EXISTING BUILDING

21
MW-10
ELEV: 1092.11

22
MW-15
ELEV: 1091.56

6
S-2
ELEV: 1085.74

23
KMW-20
ELEV: 1091.53

24
KMW-07
ELEV: 1091.96

16
MW-7
ELEV: 1090.30

17
KMW-22
ELEV: 1089.62

EXISTING BUILDING

25
MW-11
ELEV: 1092.67

2
KMW-05
ELEV: 1082.85

EXISTING BUILDING

15
KMW-10
ELEV: 1090.63

9
MWG-3
ELEV: 1084.15

8
KMW-06
ELEV: 1083.58

13
MW-13
ELEV: 1091.88

14
MW-9
ELEV: 1091.48

5
KMW-15
ELEV: 1083.54

3
KMW-16
ELEV: 1083.27

12
S-1
ELEV: 1088.82

11
MWG-2
ELEV: 1085.47

10
MWG-1
ELEV: 1083.98

4
KMW-14
ELEV: 1082.40

LEGEND

XX (DENOTES PLSA POINT NUMBER)

MWG-XX (DENOTES MONITORING WELL DESIGNATION)
ELEV: 999.99 (DENOTES NAVD88 ELEVATION AT TOP OF PVC PIPE)

50 0 50 FEET
SCALE: 1" = 50'

JOSEPH W. BAUER
STATE OF WASHINGTON
14333
REGISTERED
PROFESSIONAL LAND SURVEYOR

4-23-13

SITE MAP

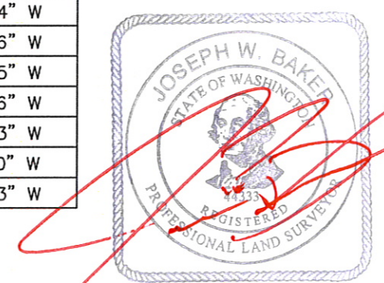
PREPARED FOR
TERRAGRAPHICS ENVIRONMENTAL ENGINEERING, INC.

PLSA ENGINEERING & SURVEYING

JOB NO. 13052
APRIL 23, 2013

MONITORING WELL TABLE

PLSA POINT NO.	NORTHING	EASTING	ELEVATION NAVD88 (TOP OF PVC PIPE)	DESCRIPTION	LATITUDE	LONGITUDE
2	4954.8671	5052.8544	1082.85	KMW-05	46°35'08.88" N	120°32'21.16" W
3	4840.7990	5123.0901	1083.27	KMW-16	46°35'04.76" N	120°32'20.15" W
4	4764.5643	5171.4288	1082.40	KMW-14	46°35'04.01" N	120°32'19.46" W
5	4859.3040	5147.4609	1083.54	KMW-15	46°35'04.94" N	120°32'19.81" W
6	5021.2687	4930.9315	1085.74	S-2	46°35'06.54" N	120°32'22.91" W
7	5051.4057	4987.2028	1085.34	KMW-18	46°35'06.84" N	120°32'22.10" W
8	4885.5764	5008.2201	1083.58	KMW-06	46°35'05.20" N	120°32'21.80" W
9	4912.9631	4923.4646	1084.15	MWG-3	46°35'05.47" N	120°32'23.01" W
10	4768.3311	4982.2587	1083.98	MWG-1	46°35'04.04" N	120°32'22.17" W
11	4797.9617	4904.7300	1085.47	MWG-2	46°35'04.34" N	120°32'23.28" W
12	4839.3147	4833.0792	1088.82	S-1	46°35'04.74" N	120°32'24.31" W
13	4859.0247	4814.3874	1091.88	MW-13	46°35'04.94" N	120°32'24.57" W
14	4860.2561	4866.7432	1091.48	MW-9	46°35'04.95" N	120°32'23.82" W
15	4910.8844	4855.0536	1090.63	KMW-10	46°35'05.45" N	120°32'23.99" W
16	4987.1827	4824.1088	1090.30	MW-7	46°35'06.20" N	120°32'24.43" W
17	4977.4002	4854.1273	1089.62	KMW-22	46°35'06.11" N	120°32'24.00" W
18	5063.9566	4901.2291	1087.47	KMW-24	46°35'06.96" N	120°32'23.33" W
19	5070.0335	4725.7836	1092.30	MW-12	46°35'07.02" N	120°32'25.84" W
20	5055.5640	4668.6702	1092.38	KMW-08	46°35'06.88" N	120°32'26.66" W
21	5017.5467	4662.0658	1092.11	MW-10	46°35'06.50" N	120°32'26.75" W
22	5019.9558	4745.1529	1091.56	MW-15	46°35'06.53" N	120°32'25.56" W
23	5003.3642	4810.7297	1091.53	KMW-20	46°35'06.36" N	120°32'24.63" W
24	4984.5546	4707.9043	1091.96	KMW-07	46°35'06.18" N	120°32'26.10" W
25	4943.2060	4740.3854	1092.67	MW-11	46°35'05.77" N	120°32'25.63" W



5-9-13

SITE MAP

PREPARED FOR

TERRAGRAPHICS ENVIRONMENTAL ENGINEERING, INC.

PLSA ENGINEERING & SURVEYING

JOB NO. 13052
APRIL 23, 2013

Appendix C

Data Validation and QA/QC Memorandum

CHEMICAL DATA QUALITY REVIEW AND LABORATORY REPORTS

Chemical Data Quality Review

Seventeen water samples were collected on March 2 and 3, 2013. Two field duplicates, two rinseate blanks, two field blanks, and one trip blank (identified as "TRIB BLANK") were also collected/prepared and submitted. The samples were submitted to TestAmerica - Seattle (TAS), in Tacoma, WA, for chemical analysis. The laboratory reported results as AAL Job ID 580-37879-1. The samples were analyzed for one or more of the following:

- Gasoline by Washington State Department of Ecology (Ecology) method NWTPH-Gx;
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B.

Following analysis, the laboratory reanalyzed two samples for confirmation of benzene by EPA Method 8260B.

The laboratory performed quality assurance/quality control (QA/QC) reviews on an ongoing basis. Hart Crowser reviewed the data to ensure they met data quality objectives for the project and recorded the results on laboratory quality control summary sheets.

The following criteria were evaluated during the standard data quality review process:

- Holding times;
- Reporting limits;
- Method blanks;
- Surrogate recoveries;
- Field duplicate relative percent differences (RPDs); and
- Laboratory control sample (LCS) recoveries.

The data were determined to be acceptable for use with qualification, and the complete laboratory reports are presented at the end of this Appendix. The data review is summarized in the following pages.

Sample Receiving Discrepancies

Sample KMW-16: The sample label listed the collection time of 1435, while the Chain of Custody listed the collection time as 1535. The laboratory logged the sample into the LIMS using the collection time from the Chain of Custody.

Sample TRIB BLANK: The sample label listed the sampling date as 3/27/13, while the Chain of Custody listed the sampling date as 3/17/13. The laboratory logged the sample into the LIMS using the sampling date from the Chain of Custody. The sample was analyzed past the method recommended holding time of 14 days from 3/17/13, and the laboratory qualified the data with "H" for holding time exceedance. The sampler contacted the laboratory, and the date on the Chain of Custody was revised to 3/27/13, the date the vial was prepared at the laboratory. The laboratory revised the report, but the "H" qualifier remained on the data, as the sample had been analyzed on 4/14/13, which was past the 14 day method recommended holding time. Sampling dates for trip blanks can be reported as either the date the trip blank was prepared at the laboratory, or the date the associated samples were collected in the field. The laboratory "H" qualifier was changed to "J" for estimated results.

Sample Reporting Limits

Detections that fell between the Method Detection Limit (MDL) and the Reporting Limit (RL) were qualified as estimated (J) by TAS. The J qualifier was changed to T to be consistent with Washington State's EIM database.

Water Samples

BTEX by EPA 8021B

The reporting limits were acceptable. The surrogate and laboratory control sample recoveries were within laboratory control limits. The field duplicate RPDs were less than 50 percent, or not applicable when the sample and duplicate results were below the reporting limit.

The recommended holding times were met with the following exception:

- Sample TRIB BLANK

The trip blank was qualified by the laboratory with "H" due to holding time exceedances. The trip blank analysis was past the 14 day method recommended holding time for the laboratory preparation date of 3/27/13, but

fell within the holding time for the associated sample collection date of 4/2/13 or 4/3/13. The laboratory "H" qualifier was changed to "J" (estimated).

Blank Contamination

Contamination below the laboratory reporting limits were observed in the method blanks, trip blank, rinseate blank, and field blank. Rinseate Blank 2 (Rinseate 2) and Field Blank 2 (FB2) were non-detect. The associated samples were evaluated and results modified and qualified as follows:

- Method Blank 04/10/13: The method blank had detections for ethylbenzene, m,p-Xylenes, and Total Xylenes between the MDL and the RL. Detections for those analytes in the associated samples (KMW-15, KMW-16, KMW-14, MWG-1, KMW-5, KMW-50, MWG-3, RINSEATE, FB, KMW-18, KMW-24, S-2, KMW-8, KMW-10, MW-13, MWG-2, KMW-7, KMW-70, and MW-9) were qualified by the laboratory with B. Results were evaluated and qualified thus:

  - Results below the MDL were not qualified.
    - KMW-15 [Ethylbenzene]
    - KMW-14 [Ethylbenzene]
    - MWG-1 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - KMW-5 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - KMW-50 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - RINSEATE [m,p-Xylenes]
    - FB [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - KMW-18 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - KMW-24 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - KMW-8 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - KMW-10 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - MWG-2 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]

  - Results above the RL and greater than five times the amount in the method blank had the B qualifier removed.
    - KMW-16 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - MWG-3 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - S-2 [m,p-Xylenes and Total Xylenes]
    - MW-13 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - KMW-7 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - MW-9 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]
    - KMW-70 [Ethylbenzene, m,p-Xylenes, and Total Xylenes]

- Results between the MDL and the RL were raised to the RL and qualified as non-detect (U).
    - KMW-15 [m,p-Xylenes and Total Xylenes]
    - KMW-14 [m,p-Xylenes and Total Xylenes]
    - RINSEATE [Ethylbenzene and Total Xylenes]

- Method Blank 04/13/13: The method blank had detections for Ethylbenzene, mp-Xylenes, o-xylene, and total xylenes between the MDL and the RL. Detections for those analytes in the associated samples (MWG-3 Dilution reanalysis [benzene only], S-2 dilution reanalysis, KMW-22, KMW-6, RINSEATE 2, FB2, and TRIB BLANK) were qualified by the laboratory with B. Results were evaluated and qualified thus:

    - Results below the MDL were not qualified.
        - KMW-6 [mp-Xylenes, o-xylene, and total xylenes]
        - RINSEATE 2 [Ethylbenzene, mp-Xylenes, o-xylene, and total xylenes]
        - FB2 [Ethylbenzene, mp-Xylenes, o-xylene, and total xylenes]

    - TRIB BLANK [o-xylene]

    - Results above the RL and greater than five times the amount in the method blank had the B qualifier removed.
        - S-2 dilution reanalysis [Ethylbenzene]
        - KMW-22 [Ethylbenzene, mp-Xylenes, o-xylene, and total xylenes]

    - Results between the MDL and the RL were raised to the RL and qualified as non-detect (U).
        - KMW-6 [Ethylbenzene]
        - TRIB BLANK [Ethylbenzene, m,p-Xylene, and total xylenes]

- Rinseate: The rinseate blank had detections for benzene, toluene, ethylbenzene, and total xylenes between the MDL and the RL. The results for ethylbenzene and total xylenes were raised to the RL and U-flagged due to associated method blank contamination. Associated samples (KMW-15, KMW-16, KMW-14, MWG-1, KMW-5, KMW-50, and MWG-3) were evaluated for detections for benzene and toluene below the RL as follows.

    - Results below the RL were raised to the RL and qualified as non-detect (U).
        - KMW-15 [Toluene]

    - Results below the MDL were not qualified.

    - KMW-15 [Benzene]
    - KMW-16 [Toluene]
    - KMW-14 [Toluene]
    - MWG-1 [Benzene and toluene]
    - KMW-5 [Benzene and toluene]
    - KMW-50 [Benzene and toluene]

  - Results greater than five times the amount in the Rinseate were not qualified.
    - KMW-16 [Benzene]
    - KMW-14 [Benzene]
    - MWG-3 [Benzene and toluene]

- FB: The field blank had a detection for Toluene between the MDL and the RL comparable to the amount of toluene in the Rinseate. Associated samples (KMW-15, KMW-16, KMW-14, MWG-1, KMW-5, KMW-50, and MWG-3) were evaluated for toluene detections as described under Rinseate. No additional qualification was made due to field blank contamination.

- TRIB BLANK: The trip blank had detections between the MDL and the RL for Ethylbenzene, m,p-Xylenes and Total Xylenes. The trip blank detections appeared to be the result of laboratory contamination, and were evaluated and raised to the RL. Associated sample results were not qualified due to trip blank contamination.

Gasoline by NWTPH-Gx

Holding times and reporting limits were acceptable. Surrogate and LCS recoveries were within laboratory control limits. The field duplicate RPDs were not applicable as the sample and duplicate results were either below the reporting limit, or less than five times the reporting limit.

Samples KMW-8, MWG-2, and KMW-70: The samples were reanalyzed due to possible carryover from previous sample analyses. Results were reported from the reanalyses.

Sample KMW-6: The sample was reanalyzed due to QC failures. Results were reported from the reanalysis.

Blank Contamination

Contamination below the laboratory reporting limits was observed in one method blank. The associated samples were evaluated and results modified and qualified as follows:

- Method Blank - 04/16/13: The method blank had a detection for gasoline between the MDL and the RL. Detections in the associated samples (KMW-8, MWG-2, KMW-70, MW-9, and KMW-6) were qualified by the laboratory with B. Results were evaluated and qualified as follows:

  - Results between the MDL and the RL were raised to the RL and qualified as non-detect (U).
    - KMW-8
    - MWG-2
    - KMW-6

  - Results above the RL and greater than five times the amount in the method blank had the B qualifier removed.
    - KMW-70
    - MW-9

Benzene by EPA 8260B

Holding times and reporting limits were acceptable. No method blank contamination was detected. Surrogate and LCS recoveries were within laboratory control limits.

Samples KMW-14 and KMW-6: The samples were analyzed for confirmation of Benzene by the laboratory and reported.

Appendix D

Analytical Reports with Chain-of-Custody

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 580-37879-1
Client Project/Site: Tiger Oil Yakima, WA

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

Attn: Mike Procsal

Pamela R. Johnson

Authorized for release by:
4/19/2013 9:14:54 AM

Pam Johnson
Project Manager I
pamr.johnson@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

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Job ID: 580-37879-1

Laboratory: TestAmerica Seattle

Narrative

Comments
No additional comments.

Receipt
The samples were received on 4/5/2013 10:25 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 container label for the following samples KMW-16 (580-37879-2), TRIB BLANK (580-37879-24) did not match the information listed on the Chain-of-Custody (COC).
KMW-16 (580-37879-2): The container labels lists a time of 14:35 The Chain-of-Custody (COC) lists a time of 15:35.
The Trip Blank lists a date of 3/27 on the label. The Chain-of-Custody (COC) lists a date of 3/17.
Both were logged in per Chain-of-Custody (COC) and analysis has been added.

Typically the trip blank date is associated with the sample date, though as 3/17 was noted on the COC, this date was used for login. The holding time "H" qualifier may not apply.

GC/MS VOA - Method(s) 8260B
The associated samples KMW-14 (580-37879-3) and KMW-6 (580-37879-21) were analyzed by method 8260B to confirm the single target Benzene from the previous 8021 analysis.

No other analytical or quality issues were noted.

GC/MS VOA - Method(s) 8021B
Ethylbenzene, m-Xylene & p-Xylene, and total, Xylenes were detected in method blank (MB) 580-133487/4 at levels that were above the method detection limit but below the reporting limit. The values should be considered as estimates, and have been “J” qualified. The associated sample results have been “B” qualified.

Ethylbenzene, m-Xylene & p-Xylene, o-Xylene, and total, Xylenes were detected in method blank (MB) 580-133715/4 at levels that were above the method detection limit but below the reporting limit. The values should be considered as estimates, and have been “J” qualified. The associated sample results have been “B” qualified.

No other analytical or quality issues were noted.

GC/MS VOA - Method(s) NWTPH-Gx
The associated samples KMW-8 (580-37879-13), MWG-2 (580-37879-16) and KMW-70 (580-37879-18) were reanalyzed in analysis batch 133834 due to the likelihood of carryover from a highly contaminated sample in the original analysis.

The associated sample KMW-6 (580-37879-21) was reanalyzed in analysis batch 133834 due to QC failures in the original analysis.

GRO was detected in the method blank (MB) 580-133834/5 at a level that was above the method detection limit but below the reporting limit. The values should be considered as estimates, and have been “J” qualified. The associated sample results have been “B” qualified.

No other analytical or quality issues were noted.

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Qualifiers

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.
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
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
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)
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 Results

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-15
Date Collected: 04/02/13 13:23
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-1
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/10/13 18:41	1
Toluene	~~0.10~~ 0.5	~~J~~ U	0.50	0.10	ug/L			04/10/13 18:41	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/10/13 18:41	1
m-Xylene & p-Xylene	~~0.20~~ 1.0	~~J B~~ U	1.0	0.20	ug/L			04/10/13 18:41	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 18:41	1
Xylenes, Total	~~0.36~~ 1.0	~~J B~~ U	1.0	0.20	ug/L			04/10/13 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*109*		*50 - 150*		*04/10/13 18:41*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 130*		*04/10/13 18:41*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**0.015**	~~J~~ T	0.050	0.010	mg/L			04/13/13 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*50 - 150*		*04/13/13 13:14*	*1*
Trifluorotoluene (Surr)	*102*		*50 - 150*		*04/13/13 13:14*	*1*

A
5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-16
Date Collected: 04/02/13 15:35
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-2
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.5		0.50	0.10	ug/L			04/10/13 19:04	1
Toluene	ND		0.50	0.10	ug/L			04/10/13 19:04	1
Ethylbenzene	5.4	B	0.50	0.10	ug/L			04/10/13 19:04	1
m-Xylene & p-Xylene	4.7	B	1.0	0.20	ug/L			04/10/13 19:04	1
o-Xylene	0.33	J	1.0	0.20	ug/L			04/10/13 19:04	1
Xylenes, Total	5.0	B	1.0	0.20	ug/L			04/10/13 19:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*106*		*50 - 150*		*04/10/13 19:04*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 130*		*04/10/13 19:04*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.25		0.050	0.010	mg/L			04/13/13 13:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*50 - 150*		*04/13/13 13:37*	*1*
Trifluorotoluene (Surr)	*99*		*50 - 150*		*04/13/13 13:37*	*1*

A 5/7/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-14
Date Collected: 04/02/13 15:15
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**1.1**		1.0	0.15	ug/L			04/16/13 19:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*75 - 120*		*04/16/13 19:04*	*1*
Ethylbenzene-d10	*108*		*80 - 120*		*04/16/13 19:04*	*1*
Fluorobenzene (Surr)	*97*		*80 - 120*		*04/16/13 19:04*	*1*
Toluene-d8 (Surr)	*103*		*85 - 120*		*04/16/13 19:04*	*1*
Trifluorotoluene (Surr)	*112*		*80 - 120*		*04/16/13 19:04*	*1*

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**2.5**		0.50	0.10	ug/L			04/10/13 19:27	1
Toluene	ND		0.50	0.10	ug/L			04/10/13 19:27	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/10/13 19:27	1
m-Xylene & p-Xylene	1.0 ~~0.38 J B~~ U		1.0	0.20	ug/L			04/10/13 19:27	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 19:27	1
Xylenes, Total	1.0 ~~0.51 J B~~ U		1.0	0.20	ug/L			04/10/13 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*102*		*50 - 150*		*04/10/13 19:27*	*1*
4-Bromofluorobenzene (Surr)	*89*		*80 - 130*		*04/10/13 19:27*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**0.13**		0.050	0.010	mg/L			04/13/13 13:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*50 - 150*		*04/13/13 13:59*	*1*
Trifluorotoluene (Surr)	*100*		*50 - 150*		*04/13/13 13:59*	*1*

A 5/2/13

Client Sample ID: MWG-1
Date Collected: 04/02/13 16:15
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-4
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/10/13 19:50	1
Toluene	ND		0.50	0.10	ug/L			04/10/13 19:50	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/10/13 19:50	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/10/13 19:50	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 19:50	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/10/13 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*111*		*50 - 150*		*04/10/13 19:50*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 130*		*04/10/13 19:50*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.019	~~J~~ T	0.050	0.010	mg/L			04/13/13 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*50 - 150*		*04/13/13 14:22*	*1*
Trifluorotoluene (Surr)	*97*		*50 - 150*		*04/13/13 14:22*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-5
Date Collected: 04/02/13 17:25
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-5
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/10/13 21:20	1
Toluene	ND		0.50	0.10	ug/L			04/10/13 21:20	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/10/13 21:20	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/10/13 21:20	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 21:20	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/10/13 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*111*		*50 - 150*		*04/10/13 21:20*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 130*		*04/10/13 21:20*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**0.012**	~~J~~ T	0.050	0.010	mg/L			04/13/13 14:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*50 - 150*		*04/13/13 14:45*	*1*
Trifluorotoluene (Surr)	*101*		*50 - 150*		*04/13/13 14:45*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-50
Date Collected: 04/02/13 17:26
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-6
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/10/13 21:43	1
Toluene	ND		0.50	0.10	ug/L			04/10/13 21:43	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/10/13 21:43	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/10/13 21:43	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 21:43	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/10/13 21:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*117*		*50 - 150*		*04/10/13 21:43*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 130*		*04/10/13 21:43*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.015	~~J~~ T	0.050	0.010	mg/L			04/13/13 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*50 - 150*		*04/13/13 15:08*	*1*
Trifluorotoluene (Surr)	*99*		*50 - 150*		*04/13/13 15:08*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: MWG-3
Date Collected: 04/02/13 18:06
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-7
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	7.7		0.50	0.10	ug/L			04/10/13 22:06	1
Ethylbenzene	53	B	0.50	0.10	ug/L			04/10/13 22:06	1
m-Xylene & p-Xylene	23	B	1.0	0.20	ug/L			04/10/13 22:06	1
o-Xylene	7.2		1.0	0.20	ug/L			04/10/13 22:06	1
Xylenes, Total	30	B	1.0	0.20	ug/L			04/10/13 22:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*111*		*50 - 150*		*04/10/13 22:06*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 130*		*04/10/13 22:06*	*1*

Method: 8021B - Volatile Organic Compounds (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	600		5.0	1.0	ug/L			04/14/13 04:49	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.47		0.050	0.010	mg/L			04/13/13 16:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*50 - 150*		*04/13/13 16:16*	*1*
Trifluorotoluene (Surr)	*98*		*50 - 150*		*04/13/13 16:16*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: RINSEATE
Date Collected: 04/02/13 18:34
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-8
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.26	~~J~~ T	0.50	0.10	ug/L			04/10/13 22:29	1
Toluene	0.24	~~J~~ T	0.50	0.10	ug/L			04/10/13 22:29	1
Ethylbenzene	0.5 ~~0.16~~	~~J B~~ U	0.50	0.10	ug/L			04/10/13 22:29	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/10/13 22:29	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 22:29	1
Xylenes, Total	1.0 ~~0.21~~	~~J B~~ U	1.0	0.20	ug/L			04/10/13 22:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*114*		*50 - 150*		*04/10/13 22:29*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 130*		*04/10/13 22:29*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: FB
Date Collected: 04/02/13 18:41
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-9
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/10/13 22:51	1
Toluene	**0.25**	J T	0.50	0.10	ug/L			04/10/13 22:51	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/10/13 22:51	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/10/13 22:51	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 22:51	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/10/13 22:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*109*		*50 - 150*		*04/10/13 22:51*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 130*		*04/10/13 22:51*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-18
Date Collected: 04/03/13 09:33
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-10
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/10/13 23:14	1
Toluene	ND		0.50	0.10	ug/L			04/10/13 23:14	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/10/13 23:14	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/10/13 23:14	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 23:14	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/10/13 23:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*111*		*50 - 150*		*04/10/13 23:14*	*1*
4-Bromofluorobenzene (Surr)	*104*		*80 - 130*		*04/10/13 23:14*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.034	~~J~~ T	0.050	0.010	mg/L			04/13/13 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*50 - 150*		*04/13/13 16:39*	*1*
Trifluorotoluene (Surr)	*100*		*50 - 150*		*04/13/13 16:39*	*1*

~~4~~ 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-24
Date Collected: 04/03/13 10:08
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-11
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/10/13 23:36	1
Toluene	ND		0.50	0.10	ug/L			04/10/13 23:36	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/10/13 23:36	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/10/13 23:36	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 23:36	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/10/13 23:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*114*		*50 - 150*		*04/10/13 23:36*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 130*		*04/10/13 23:36*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.010	mg/L			04/13/13 17:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*50 - 150*		*04/13/13 17:02*	*1*
Trifluorotoluene (Surr)	*100*		*50 - 150*		*04/13/13 17:02*	*1*

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: S-2
Date Collected: 04/03/13 10:52
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-12
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	18		0.50	0.10	ug/L			04/10/13 23:59	1
m-Xylene & p-Xylene	230	B	1.0	0.20	ug/L			04/10/13 23:59	1
o-Xylene	4.5		1.0	0.20	ug/L			04/10/13 23:59	1
Xylenes, Total	240	B	1.0	0.20	ug/L			04/10/13 23:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*50 - 150*		*04/10/13 23:59*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 130*		*04/10/13 23:59*	*1*

Method: 8021B - Volatile Organic Compounds (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	3100		25	5.0	ug/L			04/14/13 04:03	50
Ethylbenzene	660	B	25	5.0	ug/L			04/14/13 04:03	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	3.9		0.050	0.010	mg/L			04/13/13 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*137*		*50 - 150*		*04/13/13 17:24*	*1*
Trifluorotoluene (Surr)	*104*		*50 - 150*		*04/13/13 17:24*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-8
Date Collected: 04/03/13 11:51
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-13
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/11/13 01:30	1
Toluene	ND		0.50	0.10	ug/L			04/11/13 01:30	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/11/13 01:30	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/11/13 01:30	1
o-Xylene	ND		1.0	0.20	ug/L			04/11/13 01:30	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/11/13 01:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*112*		*50 - 150*		*04/11/13 01:30*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 130*		*04/11/13 01:30*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	~~0.013~~ 0.05	~~J B~~ U	0.050	0.010	mg/L			04/16/13 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*		*04/16/13 17:12*	*1*
Trifluorotoluene (Surr)	*103*		*50 - 150*		*04/16/13 17:12*	*1*

AC 5/2/13

Client Sample ID: KMW-10
Date Collected: 04/03/13 12:42
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-14
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/11/13 01:53	1
Toluene	ND		0.50	0.10	ug/L			04/11/13 01:53	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/11/13 01:53	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/11/13 01:53	1
o-Xylene	ND		1.0	0.20	ug/L			04/11/13 01:53	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/11/13 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*111*		*50 - 150*		*04/11/13 01:53*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 130*		*04/11/13 01:53*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.021	J T	0.050	0.010	mg/L			04/13/13 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*50 - 150*		*04/13/13 18:10*	*1*
Trifluorotoluene (Surr)	*97*		*50 - 150*		*04/13/13 18:10*	*1*

5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: MW-13
Date Collected: 04/03/13 14:10
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-15
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.9		0.50	0.10	ug/L			04/11/13 02:16	1
Toluene	1.8		0.50	0.10	ug/L			04/11/13 02:16	1
Ethylbenzene	5.1	B	0.50	0.10	ug/L			04/11/13 02:16	1
m-Xylene & p-Xylene	11	B	1.0	0.20	ug/L			04/11/13 02:16	1
o-Xylene	4.7		1.0	0.20	ug/L			04/11/13 02:16	1
Xylenes, Total	16	B	1.0	0.20	ug/L			04/11/13 02:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*50 - 150*		*04/11/13 02:16*	*1*
4-Bromofluorobenzene (Surr)	*95*		*80 - 130*		*04/11/13 02:16*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	1.8		0.050	0.010	mg/L			04/13/13 18:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*50 - 150*		*04/13/13 18:33*	*1*
Trifluorotoluene (Surr)	*94*		*50 - 150*		*04/13/13 18:33*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: MWG-2
Date Collected: 04/03/13 14:52
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-16
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/11/13 02:38	1
Toluene	ND		0.50	0.10	ug/L			04/11/13 02:38	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/11/13 02:38	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/11/13 02:38	1
o-Xylene	ND		1.0	0.20	ug/L			04/11/13 02:38	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/11/13 02:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*103*		*50 - 150*		*04/11/13 02:38*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 130*		*04/11/13 02:38*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.05 ~~0.046~~ ~~J B~~ U		0.050	0.010	mg/L			04/16/13 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*50 - 150*		*04/16/13 18:19*	*1*
Trifluorotoluene (Surr)	*102*		*50 - 150*		*04/16/13 18:19*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-7
Date Collected: 04/03/13 16:26
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-17
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.1		0.50	0.10	ug/L			04/11/13 03:01	1
Toluene	3.8		0.50	0.10	ug/L			04/11/13 03:01	1
Ethylbenzene	1.4	B	0.50	0.10	ug/L			04/11/13 03:01	1
m-Xylene & p-Xylene	13	B	1.0	0.20	ug/L			04/11/13 03:01	1
o-Xylene	7.6		1.0	0.20	ug/L			04/11/13 03:01	1
Xylenes, Total	20	B	1.0	0.20	ug/L			04/11/13 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*107*		*50 - 150*		*04/11/13 03:01*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 130*		*04/11/13 03:01*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.12		0.050	0.010	mg/L			04/13/13 19:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*50 - 150*		*04/13/13 19:18*	*1*
Trifluorotoluene (Surr)	*97*		*50 - 150*		*04/13/13 19:18*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-70
Date Collected: 04/03/13 16:28
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-18
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	6.0		0.50	0.10	ug/L			04/11/13 03:24	1
Toluene	5.8		0.50	0.10	ug/L			04/11/13 03:24	1
Ethylbenzene	1.3	B	0.50	0.10	ug/L			04/11/13 03:24	1
m-Xylene & p-Xylene	19	B	1.0	0.20	ug/L			04/11/13 03:24	1
o-Xylene	11		1.0	0.20	ug/L			04/11/13 03:24	1
Xylenes, Total	30	B	1.0	0.20	ug/L			04/11/13 03:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*108*		*50 - 150*		*04/11/13 03:24*	*1*
4-Bromofluorobenzene (Surr)	*93*		*80 - 130*		*04/11/13 03:24*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.23	B	0.050	0.010	mg/L			04/16/13 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*		*04/16/13 18:41*	*1*
Trifluorotoluene (Surr)	*104*		*50 - 150*		*04/16/13 18:41*	*1*

5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: MW-9
Date Collected: 04/03/13 17:30
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-19
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	25		0.50	0.10	ug/L			04/11/13 03:46	1
Toluene	13		0.50	0.10	ug/L			04/11/13 03:46	1
Ethylbenzene	46	B	0.50	0.10	ug/L			04/11/13 03:46	1
m-Xylene & p-Xylene	66	B	1.0	0.20	ug/L			04/11/13 03:46	1
o-Xylene	36		1.0	0.20	ug/L			04/11/13 03:46	1
Xylenes, Total	100	B	1.0	0.20	ug/L			04/11/13 03:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*81*		*50 - 150*		*04/11/13 03:46*	*1*
4-Bromofluorobenzene (Surr)	*83*		*80 - 130*		*04/11/13 03:46*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	6.0	B	0.25	0.050	mg/L			04/16/13 19:49	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*50 - 150*		*04/16/13 19:49*	*5*
Trifluorotoluene (Surr)	*106*		*50 - 150*		*04/16/13 19:49*	*5*

A 5/2/13

Client Sample ID: KMW-22
Date Collected: 04/03/13 18:10
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-20
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4900		25	5.0	ug/L			04/14/13 04:26	50
Toluene	450		25	5.0	ug/L			04/14/13 04:26	50
Ethylbenzene	2500	B	25	5.0	ug/L			04/14/13 04:26	50
m-Xylene & p-Xylene	5000	B	50	10	ug/L			04/14/13 04:26	50
o-Xylene	430	B	50	10	ug/L			04/14/13 04:26	50
Xylenes, Total	5400	B	50	10	ug/L			04/14/13 04:26	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*109*		*50 - 150*		*04/14/13 04:26*	*50*
4-Bromofluorobenzene (Surr)	*96*		*80 - 130*		*04/14/13 04:26*	*50*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	34		2.5	0.50	mg/L			04/13/13 12:51	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*50 - 150*		*04/13/13 12:51*	*50*
Trifluorotoluene (Surr)	*102*		*50 - 150*		*04/13/13 12:51*	*50*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-6
Date Collected: 04/03/13 19:00
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-21
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**6.2**		1.0	0.15	ug/L			04/16/13 19:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*		*04/16/13 19:26*	*1*
Ethylbenzene-d10	*107*		*80 - 120*		*04/16/13 19:26*	*1*
Fluorobenzene (Surr)	*97*		*80 - 120*		*04/16/13 19:26*	*1*
Toluene-d8 (Surr)	*102*		*85 - 120*		*04/16/13 19:26*	*1*
Trifluorotoluene (Surr)	*116*		*80 - 120*		*04/16/13 19:26*	*1*

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**5.8**		0.50	0.10	ug/L			04/14/13 01:46	1
Toluene	ND		0.50	0.10	ug/L			04/14/13 01:46	1
Ethylbenzene	~~0.48~~ 0.5 ~~J B~~ U		0.50	0.10	ug/L			04/14/13 01:46	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/14/13 01:46	1
o-Xylene	ND		1.0	0.20	ug/L			04/14/13 01:46	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/14/13 01:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*108*		*50 - 150*		*04/14/13 01:46*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 130*		*04/14/13 01:46*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	~~0.048~~ 0.05 ~~J B~~ U		0.050	0.010	mg/L			04/16/13 19:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*50 - 150*		*04/16/13 19:26*	*1*
Trifluorotoluene (Surr)	*103*		*50 - 150*		*04/16/13 19:26*	*1*

A 5/2/13

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: RINSEATE 2
Date Collected: 04/03/13 19:20
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-22
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/14/13 02:09	1
Toluene	ND		0.50	0.10	ug/L			04/14/13 02:09	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/14/13 02:09	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/14/13 02:09	1
o-Xylene	ND		1.0	0.20	ug/L			04/14/13 02:09	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/14/13 02:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*110*		*50 - 150*		*04/14/13 02:09*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 130*		*04/14/13 02:09*	*1*

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: FB2
Date Collected: 04/03/13 19:30
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-23
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/14/13 02:32	1
Toluene	ND		0.50	0.10	ug/L			04/14/13 02:32	1
Ethylbenzene	ND		0.50	0.10	ug/L			04/14/13 02:32	1
m-Xylene & p-Xylene	ND		1.0	0.20	ug/L			04/14/13 02:32	1
o-Xylene	ND		1.0	0.20	ug/L			04/14/13 02:32	1
Xylenes, Total	ND		1.0	0.20	ug/L			04/14/13 02:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*110*		*50 - 150*		*04/14/13 02:32*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 130*		*04/14/13 02:32*	*1*

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: TRIB BLANK
Date Collected: 03/27/13 00:00
Date Received: 04/05/13 10:25

Lab Sample ID: 580-37879-24
Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	~~H~~ UJ	0.50	0.10	ug/L			04/14/13 01:24	1
Toluene	ND	~~H~~ UJ	0.50	0.10	ug/L			04/14/13 01:24	1
Ethylbenzene	0.5 ~~0.11~~	~~J H B~~ UJ	0.50	0.10	ug/L			04/14/13 01:24	1
m-Xylene & p-Xylene	1.0 ~~0.21~~	~~J H B~~ UJ	1.0	0.20	ug/L			04/14/13 01:24	1
o-Xylene	ND	~~H~~ UJ	1.0	0.20	ug/L			04/14/13 01:24	1
Xylenes, Total	1.0 ~~0.29~~	~~J H B~~ UJ	1.0	0.20	ug/L			04/14/13 01:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*113*		*50 - 150*		*04/14/13 01:24*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 130*		*04/14/13 01:24*	*1*

A 5/2/13

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

Lab Sample ID: MB 580-133836/4
Matrix: Water
Analysis Batch: 133836

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.15	ug/L			04/16/13 13:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*75 - 120*		*04/16/13 13:55*	*1*
Ethylbenzene-d10	*106*		*80 - 120*		*04/16/13 13:55*	*1*
Fluorobenzene (Surr)	*97*		*80 - 120*		*04/16/13 13:55*	*1*
Toluene-d8 (Surr)	*103*		*85 - 120*		*04/16/13 13:55*	*1*
Trifluorotoluene (Surr)	*110*		*80 - 120*		*04/16/13 13:55*	*1*

Lab Sample ID: LCS 580-133836/5
Matrix: Water
Analysis Batch: 133836

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	28.1		ug/L		112	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*75 - 120*
Ethylbenzene-d10	*106*		*80 - 120*
Fluorobenzene (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*103*		*85 - 120*
Trifluorotoluene (Surr)	*107*		*80 - 120*

Lab Sample ID: LCSD 580-133836/6
Matrix: Water
Analysis Batch: 133836

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
Benzene	25.0	27.0		ug/L		108	80 - 120	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*75 - 120*
Ethylbenzene-d10	*107*		*80 - 120*
Fluorobenzene (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*104*		*85 - 120*
Trifluorotoluene (Surr)	*99*		*80 - 120*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 580-133487/4
Matrix: Water
Analysis Batch: 133487

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/10/13 16:48	1
Toluene	ND		0.50	0.10	ug/L			04/10/13 16:48	1
Ethylbenzene	0.108 J T		0.50	0.10	ug/L			04/10/13 16:48	1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 580-133487/4
Matrix: Water
Analysis Batch: 133487

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	0.231	J	1.0	0.20	ug/L			04/10/13 16:48	1
o-Xylene	ND		1.0	0.20	ug/L			04/10/13 16:48	1
Xylenes, Total	0.388	J	1.0	0.20	ug/L			04/10/13 16:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*111*		*50 - 150*		*04/10/13 16:48*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 130*		*04/10/13 16:48*	*1*

Lab Sample ID: LCS 580-133487/5
Matrix: Water
Analysis Batch: 133487

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	25.1		ug/L		101	80 - 125
Toluene	25.0	24.0		ug/L		96	80 - 120
Ethylbenzene	25.0	23.8		ug/L		95	80 - 125
m-Xylene & p-Xylene	50.0	47.4		ug/L		95	75 - 120
o-Xylene	25.0	24.2		ug/L		97	75 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*50 - 150*
4-Bromofluorobenzene (Surr)	*97*		*80 - 130*

Lab Sample ID: LCSD 580-133487/6
Matrix: Water
Analysis Batch: 133487

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
Benzene	25.0	26.2		ug/L		105	80 - 125	4	20
Toluene	25.0	24.1		ug/L		97	80 - 120	1	20
Ethylbenzene	25.0	23.9		ug/L		95	80 - 125	0	20
m-Xylene & p-Xylene	50.0	47.4		ug/L		95	75 - 120	0	20
o-Xylene	25.0	24.4		ug/L		98	75 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*50 - 150*
4-Bromofluorobenzene (Surr)	*101*		*80 - 130*

Lab Sample ID: MB 580-133715/4
Matrix: Water
Analysis Batch: 133715

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.10	ug/L			04/13/13 23:29	1
Toluene	ND		0.50	0.10	ug/L			04/13/13 23:29	1
Ethylbenzene	0.124	J	0.50	0.10	ug/L			04/13/13 23:29	1
m-Xylene & p-Xylene	0.325	J	1.0	0.20	ug/L			04/13/13 23:29	1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 580-133715/4
Matrix: Water
Analysis Batch: 133715

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	0.241	J	1.0	0.20	ug/L			04/13/13 23:29	1
Xylenes, Total	0.567	J	1.0	0.20	ug/L			04/13/13 23:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*116*		*50 - 150*		*04/13/13 23:29*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 130*		*04/13/13 23:29*	*1*

Lab Sample ID: LCS 580-133715/5
Matrix: Water
Analysis Batch: 133715

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	27.4		ug/L		110	80 - 125
Toluene	25.0	25.0		ug/L		100	80 - 120
Ethylbenzene	25.0	24.7		ug/L		99	80 - 125
m-Xylene & p-Xylene	50.0	49.5		ug/L		99	75 - 120
o-Xylene	25.0	25.2		ug/L		101	75 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*105*		*50 - 150*
4-Bromofluorobenzene (Surr)	*96*		*80 - 130*

Lab Sample ID: LCSD 580-133715/6
Matrix: Water
Analysis Batch: 133715

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
Benzene	25.0	26.9		ug/L		108	80 - 125	2	20
Toluene	25.0	25.0		ug/L		100	80 - 120	0	20
Ethylbenzene	25.0	24.9		ug/L		100	80 - 125	1	20
m-Xylene & p-Xylene	50.0	50.0		ug/L		100	75 - 120	1	20
o-Xylene	25.0	25.4		ug/L		102	75 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*105*		*50 - 150*
4-Bromofluorobenzene (Surr)	*95*		*80 - 130*

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

Lab Sample ID: MB 580-133707/5
Matrix: Water
Analysis Batch: 133707

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		0.050	0.010	mg/L			04/13/13 11:43	1

5/2/13

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

Lab Sample ID: MB 580-133707/5
Matrix: Water
Analysis Batch: 133707

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		50 - 150		04/13/13 11:43	1
Trifluorotoluene (Surr)	101		50 - 150		04/13/13 11:43	1

Lab Sample ID: LCS 580-133707/6
Matrix: Water
Analysis Batch: 133707

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	0.814		mg/L		81	79 - 110		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		50 - 150
Trifluorotoluene (Surr)	95		50 - 150

Lab Sample ID: LCSD 580-133707/7
Matrix: Water
Analysis Batch: 133707

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	0.880		mg/L		88	79 - 110	8	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		50 - 150
Trifluorotoluene (Surr)	94		50 - 150

Lab Sample ID: MB 580-133834/5
Matrix: Water
Analysis Batch: 133834

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	0.0137	J	0.050	0.010	mg/L			04/16/13 13:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		50 - 150		04/16/13 13:55	1
Trifluorotoluene (Surr)	110		50 - 150		04/16/13 13:55	1

Lab Sample ID: LCS 580-133834/6
Matrix: Water
Analysis Batch: 133834

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	0.880		mg/L		88	79 - 110		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		50 - 150
Trifluorotoluene (Surr)	101		50 - 150

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

Lab Sample ID: LCSD 580-133834/7
Matrix: Water
Analysis Batch: 133834

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	0.845		mg/L		85	79 - 110	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*50 - 150*
Trifluorotoluene (Surr)	*99*		*50 - 150*

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-15
Lab Sample ID: 580-37879-1
Date Collected: 04/02/13 13:23
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 18:41	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 13:14	JMB	TAL SEA

Client Sample ID: KMW-16
Lab Sample ID: 580-37879-2
Date Collected: 04/02/13 15:35
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 19:04	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 13:37	JMB	TAL SEA

Client Sample ID: KMW-14
Lab Sample ID: 580-37879-3
Date Collected: 04/02/13 15:15
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	RA	1	133836	04/16/13 19:04	JMB	TAL SEA
Total/NA	Analysis	8021B		1	133487	04/10/13 19:27	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 13:59	JMB	TAL SEA

Client Sample ID: MWG-1
Lab Sample ID: 580-37879-4
Date Collected: 04/02/13 16:15
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 19:50	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 14:22	JMB	TAL SEA

Client Sample ID: KMW-5
Lab Sample ID: 580-37879-5
Date Collected: 04/02/13 17:25
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 21:20	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 14:45	JMB	TAL SEA

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-50

Lab Sample ID: 580-37879-6

Date Collected: 04/02/13 17:26
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 21:43	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 15:08	JMB	TAL SEA

Client Sample ID: MWG-3

Lab Sample ID: 580-37879-7

Date Collected: 04/02/13 18:06
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 22:06	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 16:16	JMB	TAL SEA
Total/NA	Analysis	8021B	DL	10	133715	04/14/13 04:49	JMB	TAL SEA

Client Sample ID: RINSEATE

Lab Sample ID: 580-37879-8

Date Collected: 04/02/13 18:34
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 22:29	GH	TAL SEA

Client Sample ID: FB

Lab Sample ID: 580-37879-9

Date Collected: 04/02/13 18:41
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 22:51	GH	TAL SEA

Client Sample ID: KMW-18

Lab Sample ID: 580-37879-10

Date Collected: 04/03/13 09:33
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 23:14	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 16:39	JMB	TAL SEA

Client Sample ID: KMW-24

Lab Sample ID: 580-37879-11

Date Collected: 04/03/13 10:08
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 23:36	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 17:02	JMB	TAL SEA

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: S-2

Lab Sample ID: 580-37879-12

Date Collected: 04/03/13 10:52
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/10/13 23:59	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 17:24	JMB	TAL SEA
Total/NA	Analysis	8021B	DL	50	133715	04/14/13 04:03	JMB	TAL SEA

Client Sample ID: KMW-8

Lab Sample ID: 580-37879-13

Date Collected: 04/03/13 11:51
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/11/13 01:30	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx	RA	1	133834	04/16/13 17:12	JMB	TAL SEA

Client Sample ID: KMW-10

Lab Sample ID: 580-37879-14

Date Collected: 04/03/13 12:42
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/11/13 01:53	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 18:10	JMB	TAL SEA

Client Sample ID: MW-13

Lab Sample ID: 580-37879-15

Date Collected: 04/03/13 14:10
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/11/13 02:16	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 18:33	JMB	TAL SEA

Client Sample ID: MWG-2

Lab Sample ID: 580-37879-16

Date Collected: 04/03/13 14:52
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/11/13 02:38	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx	RA	1	133834	04/16/13 18:19	JMB	TAL SEA

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: KMW-7

Lab Sample ID: 580-37879-17

Date Collected: 04/03/13 16:26
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/11/13 03:01	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	133707	04/13/13 19:18	JMB	TAL SEA

Client Sample ID: KMW-70

Lab Sample ID: 580-37879-18

Date Collected: 04/03/13 16:28
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/11/13 03:24	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx	RA	1	133834	04/16/13 18:41	JMB	TAL SEA

Client Sample ID: MW-9

Lab Sample ID: 580-37879-19

Date Collected: 04/03/13 17:30
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133487	04/11/13 03:46	GH	TAL SEA
Total/NA	Analysis	NWTPH-Gx	DL	5	133834	04/16/13 19:49	JMB	TAL SEA

Client Sample ID: KMW-22

Lab Sample ID: 580-37879-20

Date Collected: 04/03/13 18:10
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	NWTPH-Gx		50	133707	04/13/13 12:51	JMB	TAL SEA
Total/NA	Analysis	8021B	DL	50	133715	04/14/13 04:26	JMB	TAL SEA

Client Sample ID: KMW-6

Lab Sample ID: 580-37879-21

Date Collected: 04/03/13 19:00
Matrix: Water
Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	RA	1	133836	04/16/13 19:26	JMB	TAL SEA
Total/NA	Analysis	8021B		1	133715	04/14/13 01:46	JMB	TAL SEA
Total/NA	Analysis	NWTPH-Gx	RA	1	133834	04/16/13 19:26	JMB	TAL SEA

Lab Chronicle

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Client Sample ID: RINSEATE 2

Lab Sample ID: 580-37879-22

Date Collected: 04/03/13 19:20

Matrix: Water

Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133715	04/14/13 02:09	JMB	TAL SEA

Client Sample ID: FB2

Lab Sample ID: 580-37879-23

Date Collected: 04/03/13 19:30

Matrix: Water

Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133715	04/14/13 02:32	JMB	TAL SEA

Client Sample ID: TRIB BLANK

Lab Sample ID: 580-37879-24

Date Collected: 03/17/13 00:00

Matrix: Water

Date Received: 04/05/13 10:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	133715	04/14/13 01:24	JMB	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: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Laboratory: TestAmerica Seattle

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-04-14
California	NELAP	9	01115CA	01-31-14
L-A-B	DoD ELAP		L2236	06-19-13
L-A-B	ISO/IEC 17025		L2236	06-19-13
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-13
USDA	Federal		P330-11-00222	05-20-14
Washington	State Program	10	C553	02-17-14

Sample Summary

Client: TerraGraphics Inc
Project/Site: Tiger Oil Yakima, WA

TestAmerica Job ID: 580-37879-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-37879-1	KMW-15	Water	04/02/13 13:23	04/05/13 10:25
580-37879-2	KMW-16	Water	04/02/13 15:35	04/05/13 10:25
580-37879-3	KMW-14	Water	04/02/13 15:15	04/05/13 10:25
580-37879-4	MWG-1	Water	04/02/13 16:15	04/05/13 10:25
580-37879-5	KMW-5	Water	04/02/13 17:25	04/05/13 10:25
580-37879-6	KMW-50	Water	04/02/13 17:26	04/05/13 10:25
580-37879-7	MWG-3	Water	04/02/13 18:06	04/05/13 10:25
580-37879-8	RINSEATE	Water	04/02/13 18:34	04/05/13 10:25
580-37879-9	FB	Water	04/02/13 18:41	04/05/13 10:25
580-37879-10	KMW-18	Water	04/03/13 09:33	04/05/13 10:25
580-37879-11	KMW-24	Water	04/03/13 10:08	04/05/13 10:25
580-37879-12	S-2	Water	04/03/13 10:52	04/05/13 10:25
580-37879-13	KMW-8	Water	04/03/13 11:51	04/05/13 10:25
580-37879-14	KMW-10	Water	04/03/13 12:42	04/05/13 10:25
580-37879-15	MW-13	Water	04/03/13 14:10	04/05/13 10:25
580-37879-16	MWG-2	Water	04/03/13 14:52	04/05/13 10:25
580-37879-17	KMW-7	Water	04/03/13 16:26	04/05/13 10:25
580-37879-18	KMW-70	Water	04/03/13 16:28	04/05/13 10:25
580-37879-19	MW-9	Water	04/03/13 17:30	04/05/13 10:25
580-37879-20	KMW-22	Water	04/03/13 18:10	04/05/13 10:25
580-37879-21	KMW-6	Water	04/03/13 19:00	04/05/13 10:25
580-37879-22	RINSEATE 2	Water	04/03/13 19:20	04/05/13 10:25
580-37879-23	FB2	Water	04/03/13 19:30	04/05/13 10:25
580-37879-24	TRIB BLANK	Water	03/17/13 00:00	04/05/13 10:25

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

580-37879 COC

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

☐ Rush
☐ Short Hold

Chain of Custody Record

4/19/2013

Client	Client Contact	Date	Chain of Custody Number
TERRAGRAPHICS	MIKE PROCSAL	4/4/13	18366
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 2**
3501 W. ELDER STREET SUITE 301	(208) 336-7080	37879	

City	State	Zip Code	Sampler	Lab Contact
BOISE	ID	83705	P. RICHTER	PAM JOHNSON

Project Name and Location (State)	Billing Contact
TIGER OIL YAKIMA, WA	JESSICA GIEDL

Contract/Purchase Order/Quote No.: LAB PROJECT # 580002736

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: NWTPH-Dx	BTEX 8021
1- KMW-15	4/2/13	1323		X						6			X	X
2- KMW-16	4/2/13	1535		X						6			X	X
3- KMW-14	4/2/13	1515		X						6			X	X
4- MWG-1	4/2/13	1615		X						6			X	X
5- KMW-5	4/2/13	1725		X						6			X	X
6- KMW-50	4/2/13	1726		X						6			X	X
7- MWG-3	4/2/13	1806		X						6			X	X
8- RINSEATE	4/2/13	1834		X						3				X
9- FB	4/2/13	1841		X						3				X
10- KMW-18	4/3/13	0933		X						6			X	X
11- KMW-24	4/3/13	1008		X						6			X	X
12- S-2	4/3/13	1052		X						6			X	X

Special Instructions/ Conditions of Receipt

Cooler: ☒ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

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

QC Requirements (Specify)

1. Relinquished By Sign/Print	Date	Time	1. Received By Sign/Print	Date	Time
Mike Procsal / MIKE PROCSAL	4/4/13	1000	Nicole Riley	04/05/2013	1025
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

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

TAL-8274-580 (0210)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

☐ Rush
☐ Short Hold

Chain of Custody Record

4/19/2013

Client	Client Contact	Date	Chain of Custody Number
TERRAGRAPHICS	MIKE PROCSAL	4/4/13	18367
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 2 of 2**
3501 W. ELDER STREET SUITE 301	(208) 336-7080	37879	
City / **State** / **Zip Code**	**Sampler**	**Lab Contact**	
BOISE / ID / 83705	P. RICHTER	PAM JOHNSON	
Project Name and Location (State)	**Billing Contact**		
TIGER OIL YAKIMA, WA	JESSICA GIEDL		
Contract/Purchase Order/Quote No.			
LAB PROJECT # 580002736			

	Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: NWTPH-Gx	BTEX - 8021	Special Instructions/ Conditions of Receipt
13	KMW-8	4/3/13	1151		X						6			X	X	
14	KMW-10	4/3/13	1242		X						6			X	X	
15	MW-13	4/3/13	1410		X						6			X	X	
16	MWG-2	4/3/13	1452		X						6			X	X	
17	KMW-7	4/3/13	1626		X						6			X	X	
18	KMW-70	4/3/13	1628		X						6			X	X	
19	MW-9	4/3/13	1730		X						6			X	X	
20	KMW-22	4/3/13	1810		X						6			X	X	
21	KMW-6	4/3/13	1900		X						6			X	X	
22	RINSEATE 2	4/3/13	1920		X						3				X	
23	FB2	4/3/13	1930		X						3				X	
24	TRIB BLANK	3/17			X						3				X	

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~~Cooler/TB~~ Dig/IR cor 2.5 unc 2.7
Cooler Dsc Lg Blu/Wht @ Lab
Wet/Packs Packing Bubble
wils FedEx 5.0-

~~Cooler/TB~~ Dig/IR cor 2.1 unc 2.3
Cooler Dsc Lg Blu/Wht @ Lab
Wet/Packs Packing Bubble
wils FedEx 5.0-

Cooler: ☒ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

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

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By Sign/Print: Mike Park / MIKE PROCSAL	4/4/13	1000	1. Received By Sign/Print: Nicole Riley	04/05/2013	1625
2. Relinquished By Sign/Print:			2. Received By Sign/Print:		
3. Relinquished By Sign/Print:			3. Received By Sign/Print:		

Comments:

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

Login Sample Receipt Checklist

Client: TerraGraphics Inc

Job Number: 580-37879-1

Login Number: 37879

List Source: TestAmerica Seattle

List Number: 1

Creator: Riley, Nicole

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	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	Preservation labels on samples match COC
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	