Geosyntec consultants

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09 April 2015

Tom Middleton
Toxics Cleanup Program
Southwest Regional Office,
Washington State Department of Ecology
PO Box 47775
Olympia, WA 98504-7775

Subject: **Gordon Trucking**
151 Stewart Road SW, Pacific, WA
Facility/Site No.: 3393818 VCP Project No: SW0969
Geosyntec Project: PNR0583

Dear Mr. Middleton:

This letter has been prepared by Geosyntec Consultants (Geosyntec) to summarize groundwater monitoring results from the January 20, 2015 groundwater monitoring event at the Gordon Trucking Inc. (GTI) property in Pacific, WA (site). Groundwater monitoring is being conducted under the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP), project number SW0969.

BACKGROUND

In August 2007, GTI discovered petroleum-impacted soil during pipe repair work in the vicinity of a fuel island at their Pacific, Washington property (Figure 1). In response, approximately 150 tons of soil were removed from the site. Soil and groundwater samples were collected in order to characterize the lateral and vertical extent of soil contamination resulting from the release. In 2008 and 2009, five groundwater monitoring wells (MW-01 through MW-05) were installed at the site (Figure 2). In 2009, GTI implemented a remedial program to address existing petroleum levels in the soil above Ecology Model Toxics Control Act (MTCA) Method A cleanup levels for diesel and heavy oil. Subsequent actions at the site included applying an in-situ microbial inoculant and the initiation of a soil and groundwater sampling program to evaluate the effectiveness of the in-situ treatment. Additional microbial inoculant was applied in 2010 and oxygen release compound (ORC) filter socks were installed in monitoring wells where petroleum hydrocarbon remained in groundwater (MW-03 and MW-04). These ORC socks were removed in 2011.

Semi-annual groundwater monitoring was performed at the site between 2008 and 2013. On January 4, 2013, Geosyntec submitted a work plan to Ecology ("Gordon Trucking Groundwater Monitoring Work Plan for 2013") recommending to change the monitoring frequency from semi-annual to annual, as well as the installation of ORC socks in three monitoring wells. The work plan was approved on January 25, 2013, and ORC socks were installed in February 2013. Annual sampling has since occurred in February 2014 and January 2015, during seasonal high groundwater levels. New, replacement, ORC socks were installed in February 2014 following the sampling event and were left in the wells through 2014. The socks were removed several weeks prior to the January 2015 event to allow the groundwater to return to its natural geochemical state prior to sample collection.

GROUNDWATER MONITORING

On January 20, 2015 the five groundwater monitoring wells were gauged using an electronic water level probe capable of detecting water depth with a precision of 0.01 foot. Project personnel recorded static water levels prior to sampling (Table 1 and Figures 3 and 4). The observed groundwater elevations in MW-01, MW-02, MW-04, and MW-05 were slightly lower but generally similar to the levels recorded a year earlier in February 2014. The highest groundwater elevations were observed in MW-05 (63.82 feet above mean sea level [ft AMSL]) and MW-01 (63.81 ft AMSL).

To ensure representative groundwater sample collection, monitoring wells were sampled using low flow groundwater sampling methodology. Field parameters such as temperature, electrical conductivity, pH, oxidation-reduction potential (ORP), and dissolved oxygen were measured during well purging and are summarized in Table 1. Once field parameters stabilized, groundwater samples were collected, preserved and stored as directed by the analytical laboratory. Equipment decontamination protocols were implemented using low-phosphate detergent and distilled water to prevent cross-contamination between sampling locations. Quality control samples comprised greater than ten percent of the total sample set submitted for laboratory analysis.

Results

Groundwater samples were submitted to TestAmerica in Tacoma, Washington for analysis of diesel-, kerosene-, and motor oil-range petroleum hydrocarbons by the Northwest Total Petroleum Hydrocarbons diesel-extended method (NWTPH-Dx). Analytical results and the corresponding MTCA cleanup levels are summarized in Table 2, and Figures 3 and 4. Calculated differences between field duplicate groundwater samples were three percent or less and within the acceptable range (Table 3). The analytical results were as follows:

- Kerosene-range petroleum hydrocarbons were detected in all wells. Kerosene-range petroleum hydrocarbons were detected at concentrations greater than the MTCA Method A cleanup level of 500 µg/L in MW-03 (3,500 µg/L) and MW-04 (1,200 µg/L). The detected concentrations of kerosene-range constituents in MW-01 (130 µg/L), MW-02 (140 µg/L) and MW-05 (300 µg/L) were below the MTCA Method A cleanup level. All kerosene-range petroleum hydrocarbon concentrations were slightly elevated compared with results from February 2014, but remain below historically much higher winter groundwater sampling results.

- Diesel-range petroleum hydrocarbons were detected in all wells except MW-01. Diesel-range petroleum hydrocarbons were detected at concentrations greater than the MTCA Method A cleanup level of 500 µg/L in MW-03 (4,200 µg/L) and MW-04 (1,400 µg/L). The detected concentrations of diesel-range constituents in MW-02 (140 µg/L) and MW-05 (340 µg/L) were below the MTCA Method A cleanup level. The diesel-range petroleum hydrocarbon concentration in MW-02 was slightly lower than February 2014 results, but concentrations in the remaining monitoring wells were above results from 2014. However, results from this most recent sampling event were significantly below historical winter groundwater monitoring results.

- Motor oil-range petroleum hydrocarbons were detected only in wells MW-03 (1,000 µg/L) and MW-04 (530 µg/L) at concentrations greater than the MTCA Method A cleanup level of 500 µg/L. Motor-oil range constituent concentrations in MW-01, MW-02, and MW-05 were below laboratory detection levels. The motor-oil range constituents in MW-03 and MW-04 were generally similar to results from 2014, but remain below historically much higher winter sampling results.

DISCUSSION

From historically collected groundwater monitoring data, groundwater levels at the site have been observed to vary seasonally between winter and summer by as much as three feet. Together with the high groundwater levels in the winter months, the petroleum constituents in groundwater also generally increase in the winter. Conversely, during the summer months when groundwater levels decrease, petroleum constituent concentrations decrease as well. This general pattern has been historically well displayed in MW-3, the monitoring well with the highest petroleum constituent concentrations. During periods of high groundwater, petroleum constituents that are thought to be adsorbed to soil particles in the zone between low and high groundwater levels likely are dissolved into groundwater. During periods of low groundwater levels the concentrations are interpreted to decrease due to degradation.

Overall, petroleum constituent concentrations in MW-3 have decreased significantly since 2012 when kerosene- (10,000 µg/L), diesel- (17,000 µg/L), and motor oil-range (4,900 µg/L) concentrations observed at historical maximums. The decrease in concentrations, particularly in MW-03, is a positive result and suggests that the continued ORC sock implementation is assisting in contaminant degradation. Therefore, new ORC socks were installed at the site following sample collection.

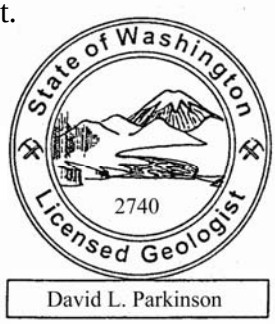
FUTURE ACTIONS

Diesel, kerosene, and motor oil range TPH concentrations continue to exceed MTCA Method A groundwater cleanup levels in MW-03 and MW-04. During the January 2015 monitoring event, concentrations for all analyzed constituents in MW-03 and MW-04 exhibited slight increases compared to the 2014 results, but exhibited overall declines compared to 2013 results.

We have installed oxygen-release socks in MW-02, MW-03, and MW-04 to aid in microbial degradation of the hydrocarbons. The next annual sampling event is scheduled for the first quarter of 2016, during seasonally high groundwater levels. The currently deployed oxygen-release socks will be removed from the wells a minimum of two weeks prior to when the next groundwater monitoring event is scheduled.

Please contact Dave Parkinson at (206) 496-1446 or Adrianna Jarosz (206) 496-1453 if you have questions regarding this report.

Sincerely,



Dave Parkinson, PhD, L.G.
Senior Scientist

Adrianna Jarosz, EIT
Staff Engineer

cc: Kimberly Miltimore – GTI
Norm Timmermans – GTI

Enclosures:

Table 1:	Groundwater Field Parameters
Table 2:	Groundwater Laboratory Results
Table 3:	Laboratory QA/QC Results
Figure 1:	Location Map
Figure 2:	Site Map
Figure 3:	Plots of Monitoring Results
Figure 4:	Plot of Groundwater Elevation and Diesel Concentrations

Attachment A – Laboratory Reports

Tables

Table 1
Groundwater Parameters
Gordon Trucking, Inc., Pacific, Washington

Monitoring Well	Date Measured	TOC Elevation (feet AMSL)	DTW (feet)	Groundwater Elevation (feet AMSL)	Temperature (°C)	Electrical Conductivity (mS/cm)	pH	ORP (mV)	DO (mg/L)
MW-01	1/11/2008	67.39	3.92	63.47	9.10	0.187	6.7	12	2.12
	6/24/2009		4.81	62.58	16.7	0.357	6.6	-10	2.17
	9/24/2009		5.56	61.83	19.7	0.184	6.2	-129	1.00
	12/16/2009		3.77	63.62	12.9	0.062	6.6	42	3.78
	3/17/2010		3.94	63.45	11.7	0.072	6.5	100	3.36
	9/30/2010		5.09	62.30	19.0	0.083	5.6	134	3.02
	3/15/2011		2.60	64.79	9.1	0.238	6.0	213	6.21
	9/7/2011		6.01	61.38	18.4	0.057	6.0	109	8.77
	3/22/2012		2.82	64.57	9.7	0.063	5.6	180.1	5.61
	9/25/2012		6.14	61.25	19.4	0.059	5.4	147	0.48
	2/11/2013		4.28	63.11	10.4	0.045	5.6	179	1.83
	2/27/2014		3.27	64.12	11.0	0.080	5.6	206	4.02
	1/20/2015		3.58	63.81	12.2	0.062	5.4	151	1.31
MW-02	1/11/2008	65.60	1.89	63.71	7.20	0.087	5.9	148	6.33
	6/24/2009		3.32	62.28	13.9	0.272	7.0	83	2.90
	9/24/2009		4.06	61.54	18.0	0.385	6.2	17	1.24
	12/16/2009		2.31	63.29	6.69	0.061	6.5	117	9.75
	3/17/2010		2.51	63.09	9.23	0.062	6.1	131	1.45
	9/30/2010		3.70	61.90	16.81	0.288	5.9	21	1.43
	3/15/2011		1.50	64.10	8.20	0.298	6.5	9	4.79
	9/7/2011		4.81	60.79	19.60	0.347	6.6	-39	3.24
	3/22/2012		1.75	63.85	8.57	0.061	5.2	147	6.37
	9/25/2012		4.77	60.83	19.29	0.455	6.0	-17	0.40
	2/11/2013		2.98	62.62	9.20	0.220	9.4	-54	9.64
	2/27/2014		1.90	63.70	9.86	0.048	5.9	182	5.67
	1/20/2015		2.18	63.42	9.74	0.027	5.4	123	4.90

Table 1
Groundwater Parameters
Gordon Trucking, Inc., Pacific, Washington

Monitoring Well	Date Measured	TOC Elevation (feet AMSL)	DTW (feet)	Groundwater Elevation (feet AMSL)	Temperature (°C)	Electrical Conductivity (mS/cm)	pH	ORP (mV)	DO (mg/L)
MW-03	1/11/2008	67.82	4.17	63.65	10.6	1.127	6.9	-64	0.52
	6/24/2009		5.31	62.51	14.6	2.213	6.6	-134	0.44
	9/24/2009		6.11	61.71	17.6	1.295	6.5	-125	0.15
	12/16/2009		4.51	63.31	13.3	1.263	6.6	-108	1.01
	3/17/2010		4.48	63.34	11.4	1.676	6.7	-106	1.12
	9/30/2010		5.92	61.90	17.1	1.310	6.2	-76	1.08
	3/15/2011		3.77	64.05	9.4	2.179	6.5	-87	1.60
	9/7/2011		6.87	60.95	19.1	1.310	6.6	-48	1.76
	3/22/2012		3.52	64.30	9.5	3.385	6.5	-75	2.66
	9/25/2012		6.46	61.36	17.6	1.38	6.5	-91	0.30
	2/11/2013		4.89	62.93	10.4	1.52	6.7	-78	0.36
	2/27/2014		3.90	63.92	11.7	1.28	6.3	-134	2.29
	1/20/2015		4.20	63.62	12.2	0.71	6.6	-183	2.25
MW-04	1/11/2008	67.29	3.68	63.61	11.2	0.887	6.3	-16	2.14
	6/24/2009	67.31	4.72	62.59	14.2	1.394	6.4	-106	0.84
	9/24/2009		5.59	61.70	18.3	1.295	6.5	-123	0.15
	12/16/2009		3.97	63.32	12.9	0.967	6.4	-56	1.53
	3/17/2010		4.00	63.29	11.1	0.965	6.5	-82	1.95
	9/30/2010		5.22	62.07	17.0	0.983	6.1	-66	1.03
	3/15/2011		2.83	64.46	9.6	0.860	6.2	-75	1.50
	9/7/2011		5.91	61.38	19.0	0.685	6.6	-64	8.36
	3/22/2012		3.06	64.23	9.6	1.028	6.4	-75	3.08
	9/25/2012		6.12	61.17	17.9	0.735	6.5	-92	2.23
	2/11/2013		4.47	62.82	9.9	0.811	6.7	-66	0.83
	2/27/2014		3.36	63.93	10.1	0.561	6.2	-99	0.79
	1/20/2015		3.67	63.62	10.8	0.349	6.4	-163	1.99

Table 1
Groundwater Parameters
Gordon Trucking, Inc., Pacific, Washington

Monitoring Well	Date Measured	TOC Elevation (feet AMSL)	DTW (feet)	Groundwater Elevation (feet AMSL)	Temperature (°C)	Electrical Conductivity (mS/cm)	pH	ORP (mV)	DO (mg/L)
MW-05	6/24/2009	67.79	5.20	62.59	13.3	1.746	6.5	-111	1.30
	9/24/2009		5.99	61.80	16.2	1.142	6.5	-96	0.51
	12/16/2009		4.38	63.41	13.4	1.117	6.6	-67	1.63
	1/21/2010		3.75	64.04	12.7	1.128	6.6	-103	0.85
	3/17/2010		4.36	63.43	12.3	1.132	6.6	-103	1.35
	9/30/2010		5.58	62.21	16.0	1.121	6.2	-116	0.75
	3/15/2011		3.17	64.62	11.3	1.101	6.2	-80	3.79
	9/7/2011		6.23	61.56	16.5	0.705	6.7	-64	7.82
	3/22/2012		3.39	64.40	11.2	1.002	6.5	-90	3.05
	2/11/2013		5.05	62.74	11.6	0.847	6.8	-104	1.07
	2/27/2014		3.73	64.06	12.0	1.01	6.5	-153	3.49
	1/20/2015		3.97	63.82	11.3	0.652	6.3	-171	3.31

Notes:

1 TOC = Top of Casing
2 AMSL = Above Mean Sea Level
3 DTW = Depth to Water
4 ORP = Oxygen Reduction Potential (mV = millivolts)
5 DO = Dissolved Oxygen (mg/L = milligrams per Liter)
6 mS/cm = microSiemens per centimenter

Table 2
Total Petroleum Hydrocarbons Compounds in Groundwater
Gordon Trucking, Inc., Pacific, Washington

	Date Sampled	Kerosene (µg/L)	#2 Diesel (µg/L)	Motor Oil (µg/L)
MW-01	1/11/2008	<500	<236	<472
	6/24/2009	--	<236	<472
	9/24/2009	<120	<120	<240
	12/16/2009	<120	<120	240
	3/18/2010	<120	<120	<240
	9/30/2010	<120	<120	<240
	3/15/2011	<120	<120	<240
	9/7/2011	<120	130	<240
	3/22/2012	<120	<120	<240
	9/25/2012	<120	<120	<240
	2/13/2013	<120	<120	<240
	2/27/2014	<130	<130	270
	1/20/2015	130	<130	<260
MW-02	1/11/2008	<500	<236	<472
	6/24/2009	--	387	<472
	9/24/2009	280	490	450
	12/16/2009	<120	270	**500**
	3/18/2010	<120	270	**550**
	9/30/2010	<120	<120	<240
	3/15/2011	<120	200	<240
	9/7/2011	**710**	**1100**	**980**
	3/22/2012	120	260	<240
	9/25/2012	**730**	**1,300**	**940**
	2/13/2013	310	440	330
	2/27/2014	120	190	290
	1/20/2015	140	140	<240
MW-03	1/11/2008	920	**958**	<472
	6/24/2009	--	**9,200**	<472
	9/24/2009	**4,700**	**6,000**	**1,000**
	12/16/2009	**3,500**	**5,300**	**1,300**
	3/18/2010	**8,400**	**15,000**	**3,200**
	9/30/2010	**1,600**	**2,500**	<240
	3/15/2011	**9,000**	**13,000**	**2,500**
	9/7/2011	**4,200**	**5,100**	**1,500**
	3/22/2012	**10,000**	**17,000**	**4,900**
	9/25/2012	**3,000**	**4,300**	**1,700**
	2/13/2013	**6,100**	**8,700**	**2,500**
	2/27/2014	**1,700**	**2,100**	**720**
	1/20/2015	**3,500**	**4,200**	**1,000**

Table 2
Total Petroleum Hydrocarbons Compounds in Groundwater
Gordon Trucking, Inc., Pacific, Washington

	Date Sampled	Kerosene (µg/L)	#2 Diesel (µg/L)	Motor Oil (µg/L)
MW-04	1/11/2008	<500	<236	<472
	6/24/2009	--	**836**	<472
	9/24/2009	**950**	**1,300**	**700**
	12/16/2009	**850**	**1,400**	**820**
	3/18/2010	**1,300**	**2,200**	**1,300**
	9/30/2010	130	200	<240
	3/15/2011	**1,500**	**2,000**	<1200
	9/7/2011	**2,000**	**2,300**	**1,100**
	3/22/2012	**1,600**	**2,300**	**1,000**
	9/25/2012	**1,700**	**2,100**	**810**
	2/13/2013	**1,700**	**1,900**	**720**
	2/27/2014	**770**	**950**	**500**
	1/20/2015	**1,200**	**1,400**	**530**
MW-05	6/24/2009	--	448	<472
	9/24/2009	370	490	420
	12/16/2009	370	**670**	**710**
	1/21/2010	300	**540**	**550**
	3/18/2010	300	**570**	**760**
	9/30/2010	<120	<120	<240
	3/15/2011	**810**	**1,200**	500
	9/7/2011	390	500	460
	3/22/2012	480	**840**	**550**
	9/25/2012	370	**590**	**620**
	2/13/2013	280	390	370
	2/27/2014	240	300	310
	2/20/2015	300	340	<240
Method A Cleanup Levels		**500**	**500**	**500**

Notes:

1 Sample analyzed per NWTPH-Dx Method

2 Cleanup Levels per Table 720-1, WAC 173-340-900

3 Bold values indicate data exceeds Method A Cleanup Levels

Table 3
Groundwater Quality Control/Quality Assurance Results Summary
Gordon Trucking, Inc., Pacific, Washington

	Date Sampled	Kerosene (µg/L)	#2 Diesel (µg/L)	Motor Oil (µg/L)
MW-03	1/20/2015	**3,500**	**4,200**	**1,000**
MW-DUP	1/20/2015	**3,600**	**4,300**	**970**
RPD[1]		3%	2%	3%

Notes:

1 RPD = Relative Percent Difference

Figures

N

Location Map, Gordon Trucking, Inc.
151 Stewart Road SW, Pacific, Washington 98047

Scale

1,350 675 0 1,350 Feet

Geosyntec consultants

Seattle, WA

February 2015

Figure 1

Legend

Monitoring well location
(water elevation in feet above mean sea level)

45 22.5 0 45 Feet

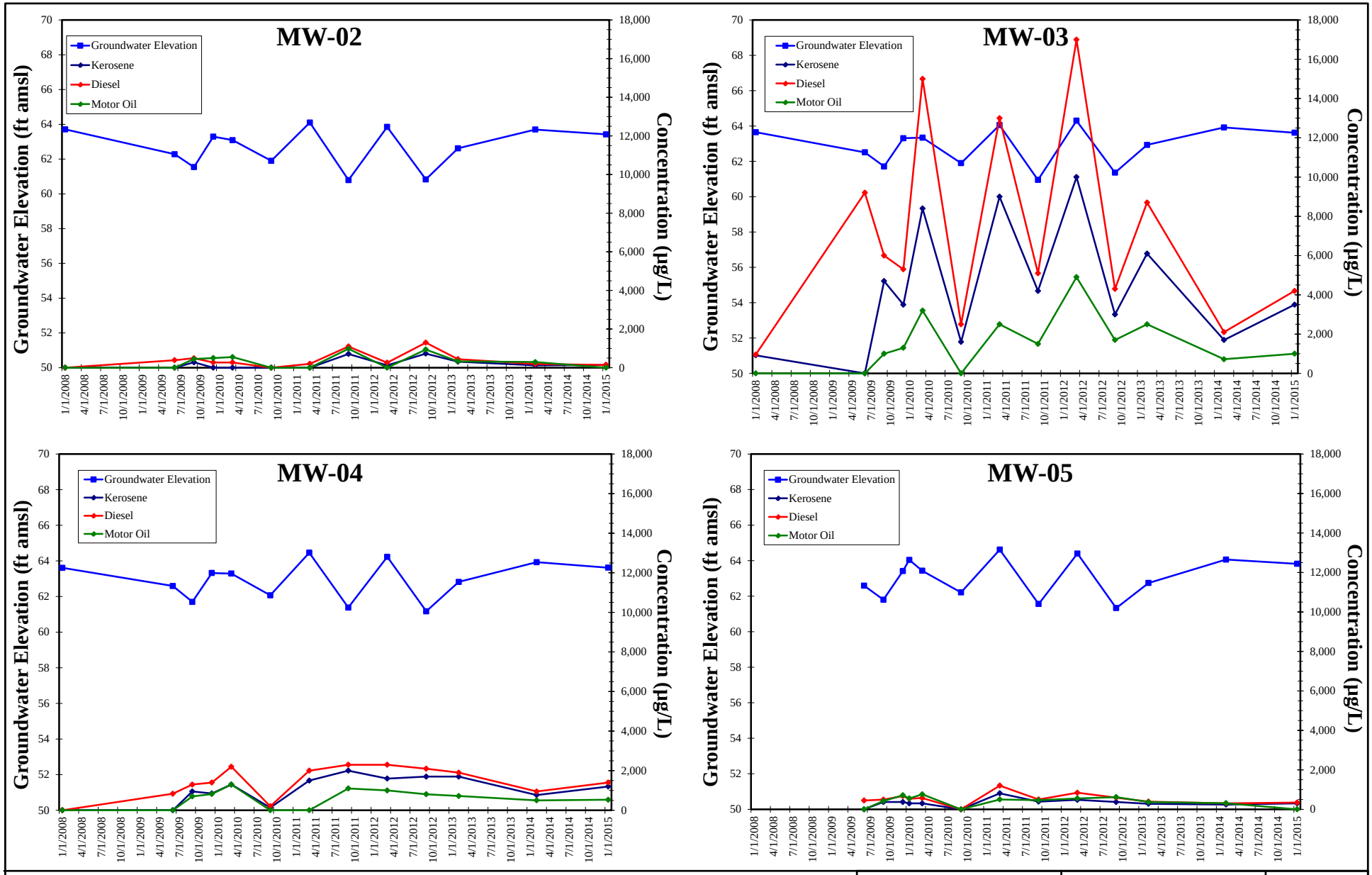
Groundwater Monitoring Locations with Groundwater Elevations for January 2015 Gordon Trucking Inc.

Geosyntec consultants

Seattle, WA

February 2015

Figure 2



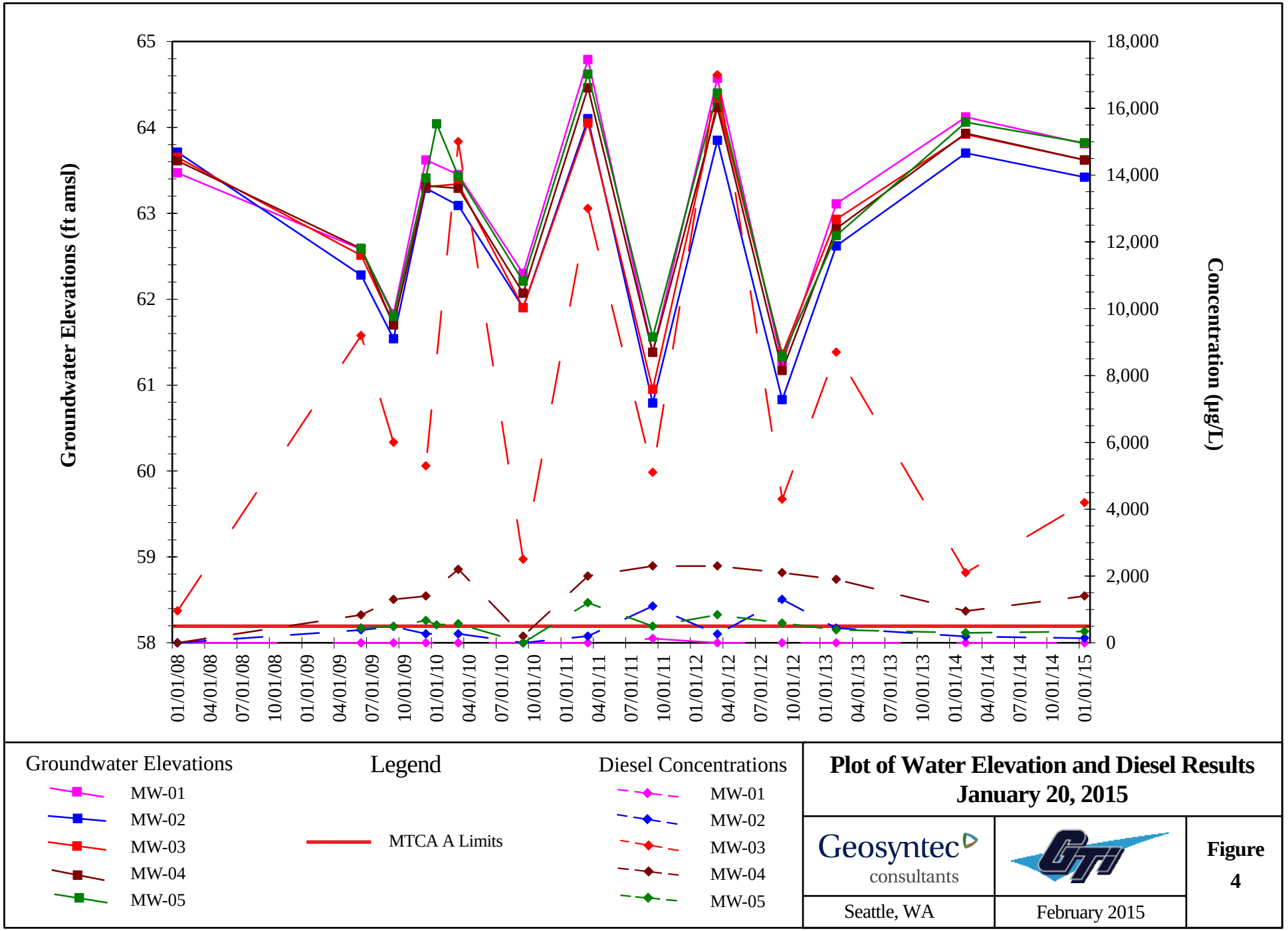
Plots of MW-02 through MW-05 Monitoring Results
Gordon Trucking, Pacific, WA
January 20, 2015

Geosyntec consultants

Seattle, WA

February 2015

Figure 3



Plot of Water Elevation and Diesel Results
January 20, 2015

Geosyntec consultants

Seattle, WA

February 2015

Figure 4

Attachment A

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 580-47121-1
Client Project/Site: Gordon Trucking (WA)

For:
Geosyntec Consultants, Inc.
520 Pike Street
Suite 1375
Seattle, Washington 98101

Attn: Adrianna Jarosz

Kristine D. Allen

Authorized for release by:
1/28/2015 3:33:54 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com

Table of Contents

Job ID: 580-47121-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-47121-1

Comments
No additional comments.

Receipt
The samples were received on 1/20/2015 3:27 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5º C.

Except:

The following sample has a sample collection time that is after the receipt time: MWDUP012015 (580-47121-6). The client confirmed the sample time for this sample is 15:00. The log in has been updated.

GC Semi VOA
Method(s) NWTPH-Dx: In analysis batch 181077, for the following sample(s) from preparation batch 181027: The following sample(s) contained a hydrocarbon pattern in the kerosene range (C8-C20); however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: MW01012015 (580-47121-1), MW02012015 (580-47121-2), MW03012015 (580-47121-3), MW04012015 (580-47121-4), MW05012015 (580-47121-5), MWDUP012015 (580-47121-6).

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

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

Qualifiers

GC Semi VOA

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

Glossary

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

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Client Sample ID: MW01012015
Date Collected: 01/20/15 10:20
Date Received: 01/20/15 15:27

Lab Sample ID: 580-47121-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kerosene (C8-C20)	**0.13**	**Y**	0.13		mg/L		01/26/15 14:57	01/27/15 11:17	1
#2 Diesel (C10-C24)	ND		0.13		mg/L		01/26/15 14:57	01/27/15 11:17	1
Motor Oil (>C24-C36)	ND		0.26		mg/L		01/26/15 14:57	01/27/15 11:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*01/26/15 14:57*	*01/27/15 11:17*	*1*

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Client Sample ID: MW02012015
Date Collected: 01/20/15 11:30
Date Received: 01/20/15 15:27

Lab Sample ID: 580-47121-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kerosene (C8-C20)	0.14	Y	0.12		mg/L		01/26/15 14:57	01/27/15 11:36	1
#2 Diesel (C10-C24)	0.14	Y	0.12		mg/L		01/26/15 14:57	01/27/15 11:36	1
Motor Oil (>C24-C36)	ND		0.24		mg/L		01/26/15 14:57	01/27/15 11:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*01/26/15 14:57*	*01/27/15 11:36*	*1*

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Client Sample ID: MW03012015
Date Collected: 01/20/15 14:25
Date Received: 01/20/15 15:27

Lab Sample ID: 580-47121-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kerosene (C8-C20)	3.5	Y	0.12		mg/L		01/26/15 14:57	01/27/15 11:54	1
#2 Diesel (C10-C24)	4.2	Y	0.12		mg/L		01/26/15 14:57	01/27/15 11:54	1
Motor Oil (>C24-C36)	1.0	Y	0.24		mg/L		01/26/15 14:57	01/27/15 11:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*91*		*50 - 150*	*01/26/15 14:57*	*01/27/15 11:54*	*1*

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Client Sample ID: MW04012015
Date Collected: 01/20/15 13:25
Date Received: 01/20/15 15:27

Lab Sample ID: 580-47121-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kerosene (C8-C20)	1.2	Y	0.12		mg/L		01/26/15 14:57	01/27/15 12:13	1
#2 Diesel (C10-C24)	1.4	Y	0.12		mg/L		01/26/15 14:57	01/27/15 12:13	1
Motor Oil (>C24-C36)	0.53	Y	0.24		mg/L		01/26/15 14:57	01/27/15 12:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*92*		*50 - 150*	*01/26/15 14:57*	*01/27/15 12:13*	*1*

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Client Sample ID: MW05012015
Date Collected: 01/20/15 12:35
Date Received: 01/20/15 15:27

Lab Sample ID: 580-47121-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kerosene (C8-C20)	0.30	Y	0.12		mg/L		01/26/15 14:57	01/27/15 12:32	1
#2 Diesel (C10-C24)	0.34	Y	0.12		mg/L		01/26/15 14:57	01/27/15 12:32	1
Motor Oil (>C24-C36)	ND		0.24		mg/L		01/26/15 14:57	01/27/15 12:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*01/26/15 14:57*	*01/27/15 12:32*	*1*

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Client Sample ID: MWDUP012015
Date Collected: 01/20/15 15:00
Date Received: 01/20/15 15:27

Lab Sample ID: 580-47121-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kerosene (C8-C20)	3.6	Y	0.12		mg/L		01/26/15 14:57	01/27/15 12:51	1
#2 Diesel (C10-C24)	4.3	Y	0.12		mg/L		01/26/15 14:57	01/27/15 12:51	1
Motor Oil (>C24-C36)	0.97	Y	0.24		mg/L		01/26/15 14:57	01/27/15 12:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*87*		*50 - 150*	*01/26/15 14:57*	*01/27/15 12:51*	*1*

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

Lab Sample ID: MB 580-181027/1-A
Matrix: Water
Analysis Batch: 181077

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 181027

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kerosene (C8-C20)	ND		0.13		mg/L		01/26/15 14:57	01/27/15 10:20	1
#2 Diesel (C10-C24)	ND		0.13		mg/L		01/26/15 14:57	01/27/15 10:20	1
Motor Oil (>C24-C36)	ND		0.25		mg/L		01/26/15 14:57	01/27/15 10:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*77*		*50 - 150*	*01/26/15 14:57*	*01/27/15 10:20*	*1*

Lab Sample ID: LCS 580-181027/2-A
Matrix: Water
Analysis Batch: 181077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 181027

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
#2 Diesel (C10-C24)			4.00	2.36		mg/L		59	59 - 120		
Motor Oil (>C24-C36)			4.02	3.04		mg/L		76	71 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*73*		*50 - 150*

Lab Sample ID: LCSD 580-181027/3-A
Matrix: Water
Analysis Batch: 181077

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 181027

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
#2 Diesel (C10-C24)			4.00	2.87		mg/L		72	59 - 120	19	27
Motor Oil (>C24-C36)			4.02	3.53		mg/L		88	71 - 140	15	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*83*		*50 - 150*

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Client Sample ID: MW01012015 — Lab Sample ID: 580-47121-1

Date Collected: 01/20/15 10:20 — **Matrix: Water**
Date Received: 01/20/15 15:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			181027	01/26/15 14:57	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	181077	01/27/15 11:17	JJP	TAL SEA

Client Sample ID: MW02012015 — Lab Sample ID: 580-47121-2

Date Collected: 01/20/15 11:30 — **Matrix: Water**
Date Received: 01/20/15 15:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			181027	01/26/15 14:57	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	181077	01/27/15 11:36	JJP	TAL SEA

Client Sample ID: MW03012015 — Lab Sample ID: 580-47121-3

Date Collected: 01/20/15 14:25 — **Matrix: Water**
Date Received: 01/20/15 15:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			181027	01/26/15 14:57	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	181077	01/27/15 11:54	JJP	TAL SEA

Client Sample ID: MW04012015 — Lab Sample ID: 580-47121-4

Date Collected: 01/20/15 13:25 — **Matrix: Water**
Date Received: 01/20/15 15:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			181027	01/26/15 14:57	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	181077	01/27/15 12:13	JJP	TAL SEA

Client Sample ID: MW05012015 — Lab Sample ID: 580-47121-5

Date Collected: 01/20/15 12:35 — **Matrix: Water**
Date Received: 01/20/15 15:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			181027	01/26/15 14:57	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	181077	01/27/15 12:32	JJP	TAL SEA

Client Sample ID: MWDUP012015 — Lab Sample ID: 580-47121-6

Date Collected: 01/20/15 15:00 — **Matrix: Water**
Date Received: 01/20/15 15:27

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			181027	01/26/15 14:57	RBL	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	181077	01/27/15 12:51	JJP	TAL SEA

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Laboratory References:

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

Certification Summary

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Laboratory: TestAmerica Seattle

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-04-15
California	State Program	9	2901	01-31-15
L-A-B	DoD ELAP		L2236	01-19-16
L-A-B	ISO/IEC 17025		L2236	01-19-16
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-15
US Fish & Wildlife	Federal		LE192332-0	02-28-16
USDA	Federal		P330-11-00222	04-08-17
Washington	State Program	10	C553	02-17-15

Sample Summary

Client: Geosyntec Consultants, Inc.
Project/Site: Gordon Trucking (WA)

TestAmerica Job ID: 580-47121-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-47121-1	MW01012015	Water	01/20/15 10:20	01/20/15 15:27
580-47121-2	MW02012015	Water	01/20/15 11:30	01/20/15 15:27
580-47121-3	MW03012015	Water	01/20/15 14:25	01/20/15 15:27
580-47121-4	MW04012015	Water	01/20/15 13:25	01/20/15 15:27
580-47121-5	MW05012015	Water	01/20/15 12:35	01/20/15 15:27
580-47121-6	MWDUP012015	Water	01/20/15 15:00	01/20/15 15:27

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

Client: GEOSYNTEC CONSULTANTS	Client Contact: ADRIANNA JAROSZ		Date: 1/20/15	Chain of Custody Number: 28049
Address: 520 Pike St, St 1375	Telephone Number (Area Code)/Fax Number: 206-496-1447		Lab Number: 47121	Page 1 of 1
City: Seattle; State: WA; Zip Code: 98101	Sampler: AJ	Lab Contact: K. Allen		
Project Name and Location (State): GORDON TRUCKING (WA)	Billing Contact: Lisa Curtis			
Contract/Purchase Order/Quote No.: 58004681				

	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 (kerosene, diesel + motor oil)	Special Instructions/ Conditions of Receipt
1-	MW01012015	1/20/15	1020		✓						✓			✓	
2-	MW02012015	↓	1130		↓						↓			↓	
3-	MW03012015	↓	1425		↓						↓			↓	
4-	MW04012015	↓	1325		↓						↓			↓	
5-	MW05012015	↓	1235		↓						↓			↓	
6-	MWDUP012015	↓	1600		↓						↓			↓	

580-47121 Chain of Custody

Cooler/IR Dig/IR cor 3.5 unc 4.0
Cooler Dsc WGOB/W @Lab
Wet Packs Packing BUBBLE
w/o CS CLIENT DROP

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: ADRIANNA JAROSZ [signature]	1/20/15	1527	1. Received By Sign/Print: [signature]	1/20/15	1527
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

TAL-8274-580 (0210)

Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 580-47121-1

Login Number: 47121

List Source: TestAmerica Seattle

List Number: 1

Creator: Abello, Andrea N

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