



REPORT

PERFORMANCE GROUNDWATER MONITORING REPORT – SPRING 2018 GROUNDWATER DATA

SUMMARY SEA-TAC DEVELOPMENT SITE (MASTERPARK LOT C)

Submitted to:

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073-93368-06.09A

June 18, 2019

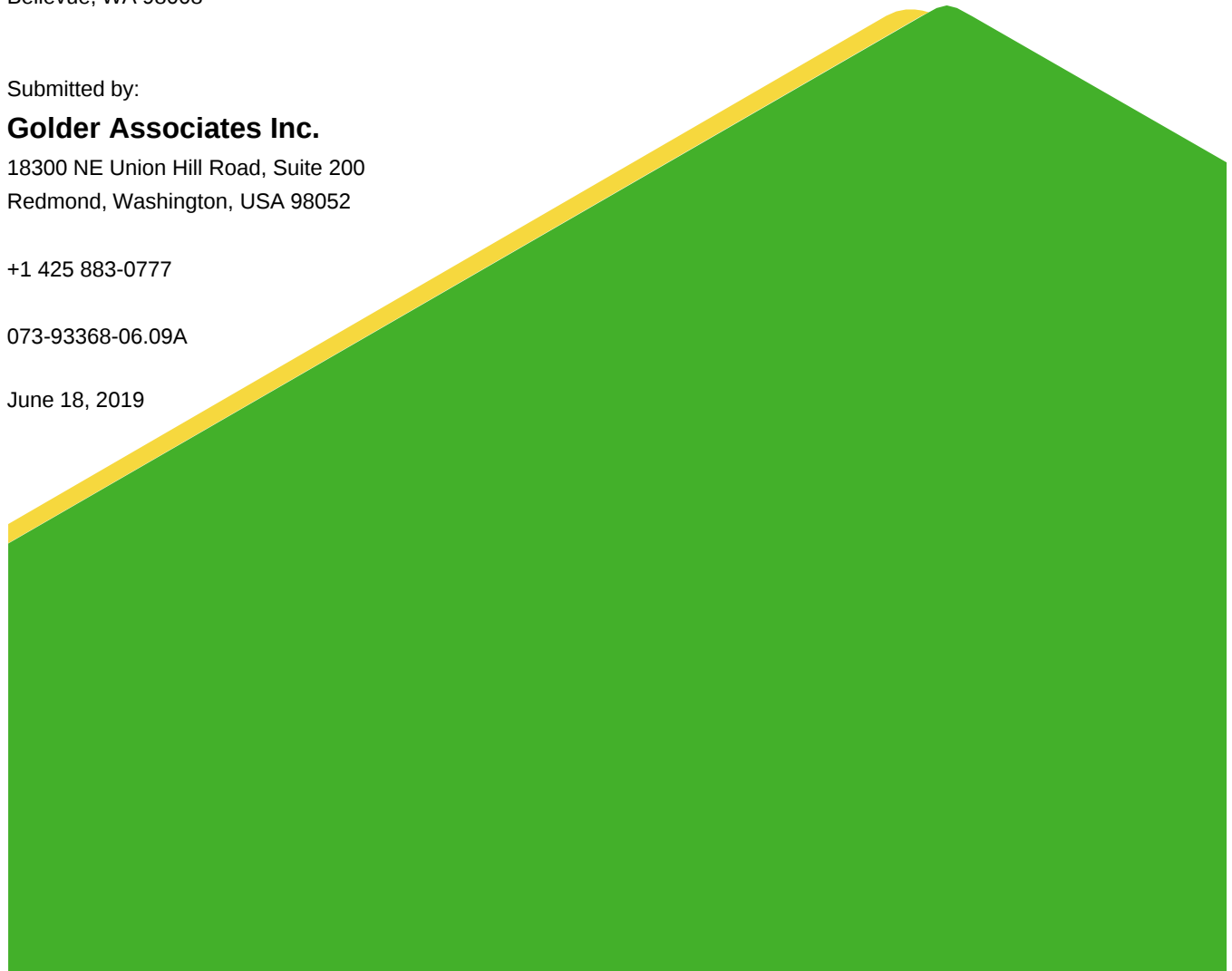


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1.0 INTRODUCTION

Golder Associates Inc. (Golder) completed performance groundwater monitoring event at the Sea-Tac Development Site (MasterPark Lot C) on May 15 and 16. All groundwater sampling was conducted in accordance with the Compliance Monitoring Plan for the Sea-Tac Development Site (Golder 2011)¹. Groundwater samples were collected from monitoring wells MW-06, MW-07, MW-09, MW-12, MW-13, MW-17A, MW-18, MW-19, MW-20, MW-21, MW-22, and PORT-MW-B (Figure 1). Monitoring wells MW-07, MW-09, MW-12, MW-13, MW-17A, MW-18, and MW-22 are completed to monitor the approximate groundwater plume boundary. Monitoring wells MW-06, MW-19, MW-20, MW-21, and PORT-MW-B are completed to monitor background concentrations. Static water elevations were collected at site wells this sampling round, including those previously listed above, MW-01, MW-05, MW-08A, MW-09, MW-10, MW-11, MW-14, MW-15, MW-16, and MW-23.

1.0 SAMPLING PROTOCOL

Groundwater sampling was conducted in accordance with the Compliance Monitoring Plan, Sea-Tac Development Site (Golder 2011), and included the following activities:

- Measurement of static water elevations at monitoring wells
- Well purging to ensure sample representativeness with the dedicated submersible bladder pumping systems
- Measurement of field parameters including pH, specific conductance, temperature, dissolved oxygen, and turbidity
- Collection of all purge water in appropriate containers for on-site storage prior to disposal
- Collection of representative and quality assurance / quality control (QA/QC) samples in appropriate containers
- Analyses of groundwater for volatile organic compounds (VOCs, EPA Method 8260C): gasoline range hydrocarbons, benzene, toluene, ethylbenzene, xylene, ethylene dibromide (EDB), naphthalene, and n-hexane; and for diesel and motor oil range Northwest Total Petroleum Hydrocarbons (Method NWTPH-D)

Sampling activities were documented on Sample Integrity Data Sheets (SIDS), which are provided in Appendix A for each sampling event. Appendix B provides data tables and trend graphs inclusive of groundwater results from both sampling events. Table 1 presents water depth measurements and elevations that were collected from wells during the spring 2018 sampling activities. Table 2 shows a summary of the field parameters and laboratory analytical results for all groundwater samples collected during the spring 2018 sampling event. A summary of all recent and historical data, including water level depths, groundwater elevations, field parameters, and analytical data is provided by sample location in Figures B-1 through B-12 (Appendix B).

2.0 SPRING 2018 GROUNDWATER SAMPLING RESULTS

Following sample collection, all bottles were sealed, labeled, and placed in an iced cooler until delivery to the laboratory. All groundwater samples from monitoring wells were transported under chain-of-custody procedures to Analytical Resources Incorporated (ARI), of Tukwila, Washington, for analysis. Upon receipt of laboratory data reports, data underwent a data validation review. Results were compared to State of Washington Model Toxics Control Act (MTCA) Method A or B clean-up levels and Secondary Maximum Contaminant Levels (MCLs), whichever value is lower.

The analytical results indicate that groundwater conditions have improved significantly from those observed during the historical groundwater monitoring during the Remedial Investigation (RI) and since the startup of the In-situ Air

Sparging (IAS)-Soil Vapor Extraction (SVE) system. Table 2 presents the field parameter measurements and laboratory analytical results for each groundwater sample collected in May 2018. In summary, the performance monitored groundwater locations that have any MTCA or MCL exceedances are from monitoring wells MW-07, MW-09, MW-12, MW-18, and MW-22. Below are more details on the detections during the spring 2018 monitoring event.

Results for NWTPH-Gasoline (gasoline) exceeded the MTCA Method A limit for groundwater when benzene is present (0.8 milligrams per liter [mg/L]) in wells MW-07, MW-12, MW-18, and MW-22, and the field duplicate at MW-22 (MW-32). Gasoline was not detected in wells MW-06, MW-09, MW-13, MW-17A, MW-19, MW-20, MW-21, and PORT-MW-B.

The MTCA Method A limit for benzene (5 µg/L) was exceeded in two wells MW-12 and MW-18. Benzene was detected in MW-07, MW-09, MW-22, and MW-32, but was less than the MTCA standard. Benzene was not detected in wells MW-06, MW-13, MW-17A, MW-19, MW-20, MW-21, and PORT-MW-B.

There were detections of toluene and/or ethylbenzene in wells MW-07, MW-12, MW-18, MW-22, and MW-32, but the values did not exceed the MTCA standard (640 µg/L for toluene and 700 µg/L for ethylbenzene). Toluene and ethylbenzene were not detected in wells MW-06, MW-09, MW-13, MW-17A, MW-19, MW-20, MW-21, and PORT-MW-B.

Results for total xylenes did not exceed the MTCA Method A standard (1,000 µg/L) in any wells. Xylenes were detected, but below the standard, in MW-07, MW-12, MW-18, MW-22, and MW-32, and were not detected in wells MW-06, MW-09, MW-13, MW-17A, MW-19, MW-20, MW-21, and PORT-MW-B.

N-hexane was detected at levels below the MTCA Method B clean-up level (480 µg/L) in wells MW-07, MW-12, MW-22, and MW-32. N-hexane was not detected in wells MW-06, MW-09, MW-13, MW-17A, MW-18, MW-19, MW-20, MW-21, and PORT-MW-B.

Naphthalene was detected above the MTCA limit (160 µg/L) in wells MW-22 and MW-32. Naphthalene was also detected, but below the MTCA limit, in MW-07, MW-12, and MW-17A. Naphthalene was not detected in wells MW-06, MW-09, MW-13, MW-19, MW-20, MW-21 and PORT-MW-B.

NWTPH-Diesel (diesel) was detected at levels above the MTCA Method A limit (0.5 mg/L) in wells MW-07, MW-09, MW-12, MW-18, MW-22, and MW-32. Diesel was not detected in MW-06, MW-12, MW-13, MW-17A, MW-19, MW-20, MW-21, and PORT-MW-B. MW-12 was also analyzed for diesel using acid silica gel clean-up during both sampling events. This analysis resulted in a non-detects, therefore the MW-12 diesel concentration is likely to be non-fuel organics in the diesel range.

NWTPH-Motor Oil (Motor Oil) did not exceed the MTCA Method A limit (0.5 mg/L) in any wells. During the spring 2018 sampling events, Motor Oil was not detected at any of the sample locations.

3.0 DATA QUALITY ASSURANCE / VALIDATION

No data qualifications were applied to the results from this sampling event. Results for QA/QC samples (field blanks, trip blanks, and field duplicate) were acceptable.

4.0 SUMMARY

The analytical results from the spring 2018 semi-annual groundwater sampling event indicate that there continues to be significant improvements to the groundwater conditions following the startup of the IAS-SVE system and since the first quarter (February 2014) groundwater sampling event. Prior to the temporary shutdown of the

treatment system during summer of 2017, the wells inside of the IAS and SVE system area had shown significant reductions and were almost meeting performance goals. The first sampling event in February 2014 had 24 results that were greater than the MTCA clean-up levels, while the most recent sampling event in May 2018 respectively had 13 out of 120 results above MTCA clean-up levels. This is a slight increase in MTCA clean-up level exceedances from the fall and winter groundwater sampling events. Overall, concentrations are still trending downward as shown in the historical data tables and graphs in Appendix B.

The only on-site performance monitoring wells containing compounds in groundwater with analytical results above MTCA clean-up levels in May 2018 were MW-07, MW-09, MW-12, and MW-18. A single on-site monitoring well (MW-11), which had detected contaminants over MTCA clean-up levels during the RI, is not sampled for performance monitoring and thus no new results from MW-11 are available for comparison. At MW-07, although there has been a continual decrease in gasoline, benzene and diesel concentrations over the last few sampling rounds, gasoline and diesel results remained above the MTCA clean-up levels.

MW-18, which was in the source area, had an increase in benzene level above the MTCA clean-up level in May 2016. However, benzene concentrations decreased in the last two sampling events (3.6 µg/L in November 2017; non-detect in January 2018), and not analyzed for during the March 2018 sampling. When compared to a former trending stabilization of lower benzene concentrations over the previous sampling events during 2014 and 2015, the May 2016 and May 2017 benzene levels were slightly above the MTCA clean-up level with concentrations of 8.0 and 6.8 µg/L, respectively. The May 2018 MW-18 Benzene concentration also exceeded the MTCA clean-up level with a concentration of 6.24 µg/L. MW-18 gasoline and diesel concentrations rebounded above MTCA clean-up levels during the November 2017, March 2018, and May 2018 sampling events.

The only off-site performance monitoring well that was sampled, and contained compounds in groundwater with analytical results above the MTCA clean-up levels in May 2018, was MW-22; although two off-site monitoring wells (MW-15 and MW-16), which had detected contaminants over MTCA clean-up levels during the RI, are not sampled for performance monitoring, and thus no new results from these locations are available for comparison.

Well MW-07 has shown a significant decrease in gasoline concentrations since the startup of the IAS-SVE system with levels reducing from 29 mg/L to 1.76 mg/L. Through May 2017, MW-12 and MW-13 have showed significant drops in gasoline concentrations from 8.6 mg/L to <0.10 mg/L and 14 mg/L to <0.10 mg/L, respectively. However, since temporary treatment system shutdown, gasoline concentrations at MW-12 were not only detected but have increased to above MTCA clean-up levels in the November 2017, January 2018, and May 2018 sampling events, which is likely indicative of early contaminant rebound. Benzene in MW-12 went from 79 µg/L in February 2014 to <0.20 µg/L in May 2017, however, more recently has rebounded to concentrations of 17.2 µg/L (Table and Figure B-4). Prior to the temporary system shut down, toluene, ethylbenzene, total xylenes, and naphthalene in MW-12 and MW-13 also showed significant decreases in concentrations. The concentrations of these analytes showed rebound in MW-12 during the last three sampling rounds, while have not changed significantly at MW-13.

Refer to Appendix B for data tables and trend graphs for comparisons of the March 2010 final RI monitoring event with the 2014-2018 performance monitoring results.

5.0 CONTAMINANT REBOUND OBSERVATIONS

Comparison of groundwater data from the most recent event with historical data shows some indication of rebound in wells MW-12 and MW-18.

At MW-13, there has been a significant decrease in dissolved oxygen, reducing from 10.71 mg/L in May 2017 to 1.87 May 2018 sampling event. A significant decrease in dissolved oxygen observed in site wells MW-07,

MW-12, MW-13, MW-18, and MW-19 is directly correlated with the temporary shutdown of the treatment system which injects ambient air into the aquifer and typically increases the dissolved oxygen concentrations around the IAS wells.

Contaminant rebound at MW-12 is more evident than at any other location, where prior to 2017 most analyte concentrations were below detections limits. However, in the last three rounds of monitoring there have been detections in most analytes, with exceedances of MTCA clean-up levels for gasoline (last 3 sampling events) and diesel (last 4 sampling events). MW-12 is located downgradient of a potential source on the Loudon property. The MW-12 benzene concentration of 17.2 ug/L exceeded the MTCA clean-up level during the May 2018 sampling event. Groundwater quality at MW-7 and MW-9 also shows a slight increase in diesel that also may be related to a potential Loudon property source.

Following temporary treatment system shutdown, MW-18 results from November 2017 showed some initial increases in the gasoline and diesel concentrations (Figure B-7). The May 2018 gasoline and diesel concentrations show continued rebound. However, MW-18 results from January 2018 show non-detections for gasoline, diesel, and benzene. Dissolved oxygen levels at MW-18 also differed significantly between the spring 2017 and winter 2018 events. Due to the differences at MW-18 with the water quality and field parameters results between the November 2017 and January 2018 events and recent historical data, an additional groundwater sample was collected on March 9, 2018. During the March 2018 event, the MW-18 was analyzed only for gasoline, diesel and motor oil. The gasoline and diesel concentrations in May 2018 were similar to the concentrations in November 2017 and March 2018. Thus, the January 2018 results for MW-18 were anomalous. The data indicate that rebound may be occurring at MW-18, near the former source area.

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JM/LKH/sb

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[https://golderassociates.sharepoint.com/sites/24606g/x06_09a/2018-q2_gw_sampling/report/final/073-93368-r-rev0-performance groundwater monitoring report may-061819.docx](https://golderassociates.sharepoint.com/sites/24606g/x06_09a/2018-q2_gw_sampling/report/final/073-93368-r-rev0-performance_groundwater_monitoring_report_may-061819.docx)

Tables

**Table 1: May 2018 Groundwater Elevation Data,
Sea-Tac Development Site, Seatac, Washington**

Sample Location ID	Date/Time Sampled	Well Data			Water Levels		
		Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Casing Diameter (inches)	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)
MW-01	5/15/2018 11:25	51.0	41-51	2	361.38	48.83	312.55
MW-05	5/15/2018 10:25	58.0	48-58	2	364.26	51.83	312.43
MW-06	5/15/2018 7:30	60.0	50-60	2	369.68	57.22	312.46
MW-07	5/15/2018 12:26	53.5	43.5-53.5	2	358.69	46.1	312.59
MW-08A	5/15/2018 11:53	54.0	44-54	2	359.16	46.59	312.57
MW-09 ^b	5/15/2018 10:38	57.0	47.5-57	2	362.13	49.68	312.45
MW-10	5/15/2018 11:40	90.0	80-90	2	360.18	47.89	312.29
MW-11	5/15/2018 12:12	57.0	42-57	2	357.53	44.81	312.72
MW-12	5/15/2018 12:34	67.0	52-67	2	364.83	52.31	312.52
MW-13	5/15/2018 11:15	65.0	50-65	2	365.42	52.96	312.46
MW-14	5/15/2018 11:05	65.0	50-65	2	363.76	51.29	312.47
MW-15	5/16/2018 11:17	65.0	50-65	2	364.67	52.06	312.61
MW-16	5/15/2018 10:10	73.7	64-74	2	377.63	65.3	312.33
MW-17A ^a	5/15/2018 9:55	95.0	80-95	2	394.00	82.21	311.79
MW-18	5/15/2018 12:51	62.0	47-62	2	360.45	47.94	312.51
MW-19	5/15/2018 12:05	58.0	43-58	2	356.61	43.92	312.69
MW-20	5/15/2018 9:30	113.1	103-113	2	416.61	104.65	311.96
MW-21	5/15/2018 9:05	109.8	95-110	2	412.85	100.66	312.19
MW-22	5/16/2018 10:02	95.0	80-95	2	393.31	80.92	312.39
MW-23	5/16/2018 11:23	57.5	42.5-57.5	2	354.94	42.29	312.65
PORT-MW-B ^a	5/16/2018 11:49	99.0	79-99	2	400.00	87.64	312.36

Notes:

- Not measured or not available
- feet bgs Feet below ground surface
- feet bmp Feet below measuring point
- feet msl Feet above mean sea level
- TOC Top of casing inside PVC well
- ^a Well not surveyed, elevation estimated.
- ^b Top of pump is above water level - not measured.

Table 2: May 2018 Groundwater Field Parameters and Analytical Data, Sea-Tac Development Site, Seatac, Washington

Sample Location ID	Date/Time Sampled	Field Parameters								Analytical Data											
		TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)	NWTPH-Diesel (mg/L) Acid-Silica Gel Clean-up ^p	NWTPH-Motor Oil (mg/L) Acid-Silica Gel Clean-up ^p
MW-06	5/15/18 8:15	369.7	57.2	312.5	5.94	13.8	200.0	8.76	0.15	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20	-	-
MW-07	5/16/18 9:05	358.7	46.1	312.6	6.15	15.2	248.0	0.25	2.25	1.76	0.41	0.35	1.1	3.4	<0.01	<0.20	6.06	0.781	<0.20	-	-
MW-09	5/15/18 16:25	362.1	49.7	312.4	5.86	15.0	193.0	0.67	0.61	<0.10	0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	0.342	<0.20	-	-
MW-12	5/16/18 13:50	364.8	52.3	312.5	7.06	15.3	374.0	0.27	3.02	2.82	17.2	2.05	23.8	43.0	<0.01	26.1	18.5	2.85	<0.20	<0.10	<0.20
MW-13	5/15/18 17:35	365.4	53.0	312.5	6.43	14.1	120.0	1.87	1.14	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20	-	-
MW-17A	5/15/18 12:30	394.0	82.2	311.8	6.14	12.9	106.0	8.57	1.43	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20	-	-
MW-18 ^b	5/16/18 8:05	360.5	47.9	312.5	6.42	15.2	405.0	0.21	1.41	1.48	6.24	2.23	19.8	19.3	<0.01	1.34	5.05	2.93	<0.20	-	-
MW-19	5/15/18 15:00	356.6	43.9	312.7	6.47	14.6	305.0	0.34	0.49	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20	-	-
MW-20	5/15/18 11:20	416.6	104.7	312.0	6.31	13.0	119.0	9.63	0.48	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20	-	-
MW-21	5/15/18 9:50	412.9	100.7	312.2	6.00	13.1	116.0	8.91	0.59	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20	-	-
MW-22	5/16/18 10:45	393.3	80.9	312.4	6.41	13.5	172.0	3.39	2.94	12.2	2.97	2.38	340	630	<0.01	4.82	268	2.01	<0.20	-	-
MW-22 Duplicate	5/16/18 10:55	-	-	-	-	-	-	-	-	12.3	3.02	2.53	344	651	<0.01	5.61	282	2.12	<0.20	-	-
PORT-MW-B	5/16/18 12:30	400.0	87.6	312.4	6.40	13.8	103.0	3.36	2.35	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20	-	-
Clean-up Level		MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5	0.5	0.5
		MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA	NSA	NSA

- Notes:
- feet bgs

Feet below ground surface

-

Not measured or not available
- feet bmp

Feet below measuring point

Result exceeds Clean-up Level (CUL)
- feet msl

Feet above mean sea level

mg/L

Milligrams per liter
- ^a

Well not surveyed, elevation estimated.

µg/L

Micrograms per liter
- ^b

IAS system not in operation.

NTU

Nephelometric Turbidity Unit
- ^c

Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.

µmhos/cm

Micromhos per centimeter
- ^d

When benzene is present.

<

Analyte not detected above the reporting limit shown
- ^e

When benzene is not present.

MTCA

Model Toxics Control Act
- ^f

Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.

MCL

Maximum Containment Level
- ^g

Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs

NSA

No Standard Available
- ^h

Value is more protective than Federal MCLs.

TOC

Top of casing inside PVC well
- ⁱ

MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.

°C

Degrees Celsius
- ^j

Top of pump is above water level - not measured.

J

The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
- ^k

Well not sampled, attempted to sample with bailer

UJ

The constituent was analyzed for, but was not detected above the reported sample quantitation limit; however, the value reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
- ^m

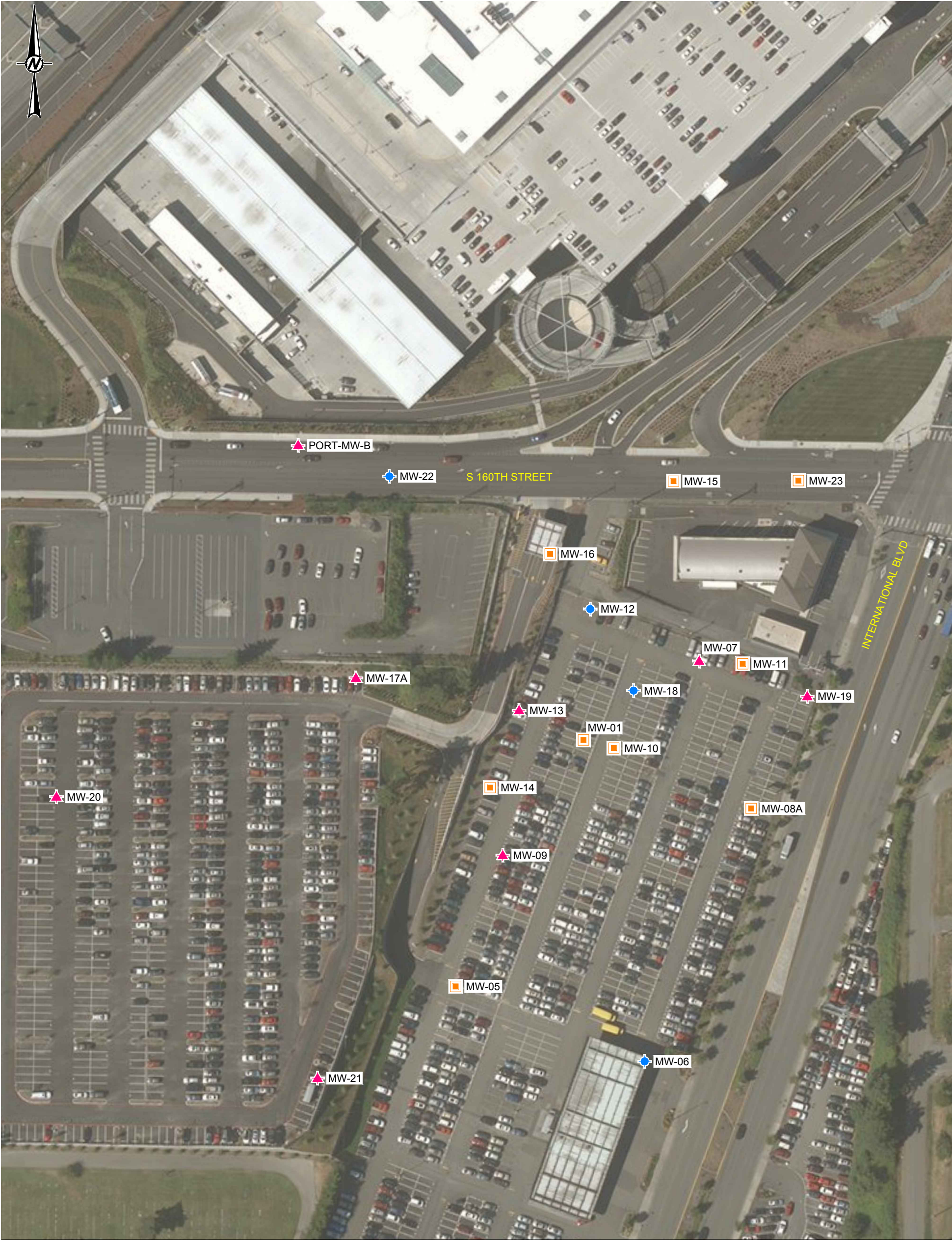
Well sampled with bailer, no field parameters collected

J+

The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased high.
- ⁿ

Well sampled with bailer with field parameters collected

Figures



MW-14

MONITORING WELL - GROUNDWATER ELEVATIONS MEASURED

MW-09

MONITORING WELL - COMPLIANCE

MW-01

MONITORING WELL - NATURAL ATTENUATION

NOTES

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.

REFERENCE

IMAGE COURTESY OF USGS EARTHSTAR GEOGRAPHICS

CLIENT
RIDDELL-WILLIAMS



CONSULTANT	YYYY-MM-DD	2019-05-03
	PREPARED	REDMOND
	DESIGN	JL
	REVIEW	DM
	APPROVED	

PROJECT
SEATAC DEVELOPMENT SITE
MASTER PARK LOT C

TITLE
GROUNDWATER MONITORING LOCATIONS

PROJECT No.
073-93368x06.09A

Rev.
B

FIGURE
1



APPENDIX A

**Sample Integrity Data Sheets
(SIDS)**

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-6-051518

Sampling Location At end of sample tubing

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/15/18 Time 0815

Media Water Station MW-6

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 57.22 Free Product Thickness: ✓

Date & Time of Measurement: 5/15/18 0730

Measurements are in feet below top of well casing.

Sample Intake Point: 60 ft below top of well casing

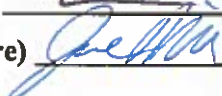
Sample Description Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature)  Date 5/15/18

Supervisor (signature)  Date 7/13/18

FIELD PARAMETERS SHEET

Well ID MW-6
Date 5/15/88
Time Begin Purge 0739
Time Collect Sample 0815

[illegible]**Comments:**

Nitrogen Tank: 110 psi
Throttle: 50 psi
Cycle ID: 100
CPM: 4
Purge Rate: 300 mL/min
PID: 0.0 ppm

Water level fluctuation with pump cycle:

Sampler's Initials DM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A
 Site Location SeaTac, WA Sample ID MPLOT-C-MW-7-051618
 Sampling Location At end of sample tubing (FB) MPLOT-C-MW-47-051618

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/16/18 Time 0905 / 0915

Media Water Station MW-7

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 46.05 Free Product Thickness: -

Date & Time of Measurement: 5/16/18 0825

Measurements are in feet below top of well casing.

Sample Intake Point: 52 ft below top of well casing

Sample Description Slight Odor noted

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(2x3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2x2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2x2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2x2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/16/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Well ID MLV-7
Date 5/16/18
Time Begin Purge 0826
Time Collect Sample 0905 / 0915 (FB)

[illegible]**Comments:**

Nitrogen Tank: 110 psi
Throttle: 40 psi
Cycle ID: 50
CPM: 2
Purge Rate: 300 mL/min
PID: 0.0 ppm

Field blank collected @ 0715

Water level fluctuation with pump cycle:

Sampler's Initials

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPLOTG-MW-9-051518

Sampling Location At end of sample tubing

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/15/18 Time 1625

Media Water Station MW-9

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 49.57 Free Product Thickness:

Date & Time of Measurement: 5/15/18 1545

Measurements are in feet below top of well casing.

Sample Intake Point: 54 ft below top of well casing

Sample Description Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/15/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Well ID MW-9
Date 5/15/18
Time Begin Purge 1547
Time Collect Sample 1625

[illegible]

Comments:

Nitrogen Tank: 110 psi
Throttle: 60 psi
Cycle ID: 34 103 50
CPM: 515 42
Purge Rate: 250 mL/min
PID: 0.0 ppm

Water level fluctuation with pump cycle:

Sampler's Initials JY

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-12-051618

Sampling Location At end of sample tubing

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/16/18 Time 1350

Media Water Station MW-12

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 52.28 Free Product Thickness: ✓

Date & Time of Measurement: 5/16/18 1254

Measurements are in feet below top of well casing.

Sample Intake Point: 59 ft below top of well casing

Sample Description Slight odor noted

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2) 500 mL	NWTPH-Dx	Amber Glass	none
(2) 500 mL	NWTPH-Dx w/ Acid-Silica Gel Cleanup	Amber Glass	none

Sampler (signature) [Signature] Date 5/16/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Well ID 114-12
Date 5/16/18
Time Begin Purge 1305
Time Collect Sample 1350

[illegible]**Comments:**

Nitrogen Tank: 110 psi
Throttle: ~~70~~ psi
Cycle ID: 50
CPM: 2
Purge Rate: 250 mL/min
PID: 0.0 ppm

⑤ 5/16/18

~~tubing 25 feet out of well casing~~

Pump was initially difficult to get all the way down well due to buoyancy

Water level fluctuation with pump cycle:

Sampler's Initials 54

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-13-051518

Sampling Location At end of sample tubing

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/15/18 Time 1735

Media Water Station MW-13

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 52.87 Free Product Thickness: -

Date & Time of Measurement: 5/15/18 1656

Measurements are in feet below top of well casing.

Sample Intake Point: 60 ft below top of well casing

Sample Description Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/15/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Well ID MW-13
Date 5/15/18
Time Begin Purge 1658
Time Collect Sample 1735

[illegible]**Comments:**

Nitrogen Tank: 110 psi
Throttle: 50 psi
Cycle ID: 50
CPM: 2
Purge Rate: 300 mL/min
PID: 0.0 ppm

Water level fluctuation with pump cycle:

Sampler's Initials SY

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-17A-051518

Sampling Location At end of sample tubing +MS/MSD

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/15/18 Time 1230

Media Water Station MW-17A

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 82.14 Free Product Thickness: -

Date & Time of Measurement: 5/15/18 1151

Measurements are in feet below top of well casing.

Sample Intake Point: 90 ft below top of well casing

Sample Description Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3x3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(3x2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(3x2) 40 mL	NWTPH-Gx	VOA vial	HCl
(3x2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/15/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Well ID MW-17A
Date 5/15/16
Time Begin Purge 1152
Time Collect Sample 1230

[illegible]

Comments:

Nitrogen Tank: 110 psi
Throttle: 60 psi
Cycle ID: 50
CPM: 2
Purge Rate: 250 mL/min
PID: 00 ppm

+ MS/MSD volume

Mistakenly Filled 3 additional VOC vials (total of 24 VOC vials)

Water level fluctuation with pump cycle:

Sampler's Initials JY

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPL0TC-MW-18-051618

Sampling Location At end of sample tubing

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/16/18 Time 0805

Media Water Station MW-18

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 47.81 Free Product Thickness: —

Date & Time of Measurement: 5/16/18 0726

Measurements are in feet below top of well casing.

Sample Intake Point: 54 ft below top of well casing

Sample Description Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/16/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Well ID MW-18
Date 5/16/18
Time Begin Purge 0728
Time Collect Sample 0805

[illegible]**Comments:**

Nitrogen Tank: 110 psi
Throttle: 40 psi
Cycle ID: 50
CPM: 2
Purge Rate: 260 mL/min
PID: 00 ppm

Water level fluctuation with pump cycle:

Sampler's Initials JY

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-19-051518

Sampling Location At end of sample tubing

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/15/18 Time 1500

Media Water Station MW-19

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 43.84 Free Product Thickness: —

Date & Time of Measurement: 5/15/18 1421

Measurements are in feet below top of well casing.

Sample Intake Point: 50 ft below top of well casing

Sample Description Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/15/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Well ID MW-19
Date 5/15/18
Time Begin Purge 1423
Time Collect Sample 1500

[illegible]**Comments:**

Nitrogen Tank: 110 psi
Throttle: 50 psi
Cycle ID: 50
CPM: 2
Purge Rate: 300 mL/min
PID: 0.0 ppm

Water level fluctuation with pump cycle:

Sampler's Initials 34

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPL0TC-MW-20-051518

Sampling Location At end of sample tubing

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/15/18 Time 1120

Media Water Station MW-20

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 104.65 Free Product Thickness: -

Date & Time of Measurement: 5/15/18 1035

Measurements are in feet below top of well casing.

Sample Intake Point: 111 ft below top of well casing

Sample Description Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/15/18

Supervisor (signature) [Signature] Date 7/13/18

Well ID

Well ID

Well ID

Well ID

Well ID

Well ID

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-21-051518

Sampling Location At end of sample tubing

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/15/18 Time 0950

Media Water Station MW-21

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 100.66 Free Product Thickness: -

Date & Time of Measurement: 5/15/18 0905

Measurements are in feet below top of well casing.

Sample Intake Point: 107 ft below top of well casing

Sample Description Clear, no odor

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/15/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Well ID MW-21
 Date 5/15/18
 Time Begin Purge 0913
 Time Collect Sample ~~0915~~ 0950
JY 5/15/18

Water Level feet bmp	Time	Volume Purged	pH	Conductivity (uS/cm)	Temp. (°C)	DO (mg/L)	Turbidity (NTU)
100.64	0923		6.08	115	13.19	9.07	1.02
100.66	0928		6.04	115	13.16	8.98	1.23
100.70	0933		6.02	116	13.12	9.01	0.90
100.69	0938		6.01	116	13.09	8.98	0.57
100.66	0943		5.99	116	13.09	8.98	0.71
100.69	0948		6.00	116	13.11	8.91	0.59

Comments:

Nitrogen Tank: 110 psi
 Throttle: 60 psi
 Cycle ID: 50
 CPM: 2
 Purge Rate: 225 mL/min
 PID: 0.0 ppm

Water level fluctuation with pump cycle:

Sampler's Initials JY

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID MPLOTTC-MW-22- 051618

Sampling Location At end of sample tubing (FD) MPLOTTC-MW-32- 051618

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/16/18 Time 1045/1055

Media Water Station MW-22

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 83.80, 92 Free Product Thickness: -

Date & Time of Measurement: 5/16/18 1002

Measurements are in feet below top of well casing.

Sample Intake Point: 89 ft below top of well casing

Sample Description TPH Order Noted

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(2x3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2x2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2x2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2x2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/16/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Well ID MW-22
Date 5/16/19
Time Begin Purge 1006
Time Collect Sample 1045/1055

[illegible]**Comments:**

Nitrogen Tank: 110 psi
Throttle: ~~75-60~~ psi
Cycle ID: 50
CPM: 2
Purge Rate: 300 mL/min
PID: 0.2 ppm

Water level fluctuation with pump cycle:

Sampler's Initials 34

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-93368-06.09A

Site Location SeaTac, WA Sample ID PORT-MW-B-051618

Sampling Location At end of sample tubing

Low Flow Sampling

Technical Procedure Reference(s) App E – Compliance Monitoring Plant Plan (Golder, Nov 2011)

Type of Sampler QED Controller and Bladder Pump – Dedicated Tubing

Date 5/16/18 Time 1230

Media Water Station PORT-MW-B

Sample Type: grab time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 87.64 Free Product Thickness: —

Date & Time of Measurement: 1149 on 5/16/18

Measurements are in feet below top of well casing.

Sample Intake Point: 89 ft below top of well casing

Sample Description Clear No Odor

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(3) 40 mL	BTEX, n-Hexane, Naphthalene	VOA vial	HCl
(2) 40 mL	EDB (ethylene dibromide)	VOA vial	HCl
(2) 40 mL	NWTPH-Gx	VOA vial	HCl
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 5/16/18

Supervisor (signature) [Signature] Date 7/13/18

FIELD PARAMETERS SHEET

Port-
 Well ID MW-B
 Date 5/16/18
 Time Begin Purge 1150
 Time Collect Sample 1230

Water Level feet bmp	Time	Volume Purged	pH	Conductivity (uS/cm)	Temp. (°C)	DO (mg/L)	Turbidity (NTU)
87.64	1200	1	6.48	102	13.89	2.86	3.65
87.64	1205	1	6.45	102	13.77	3.09	2.29
87.65	1210	1	6.41	102	13.73	3.26	3.51
87.69	1215	1	6.42	103	13.85	3.29	3.20
87.66	1220	1	6.40	103	13.91	3.33	2.91
87.65	1225	1	6.40	103	13.83	3.36	2.35

Comments:

Nitrogen Tank: 110 psi
 Throttle: 70 psi
 Cycle ID: 50
 CPM: 2
 Purge Rate: 300 mL/min
 PID: 0.0 ppm

Water level fluctuation with pump cycle:

Sampler's Initials JK

APPENDIX B

Data Tables and Trend Graphs

DATA TABLES

Table B-1: Summary of Groundwater Sampling Results - Well MW-06
Sea-Tac Development Site, Seatac WA

Date Sampled ^b	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
19-Mar-10	369.68	60.03	309.65	5.96	13.5	409	0.87	3.75	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 0.0096	< 1.0	< 5.0	-	-
11-Feb-14	369.68	59.03	310.65	6.13	12.1	139	0.91	16.4	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.08	< 0.20	< 0.50	< 0.10	< 0.20
28-May-14	369.68	-	-	6.14	14.3	454	1.03	3.71	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20 UJ	< 0.50	< 0.10	< 0.20
10-Sep-14	369.68	-	-	6.27	15.9	312	1.52	11.8	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
3-Dec-14	369.68	-	-	6.27	13.6	314	2.14	6.75	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
17-Jun-15	369.68	-	-	6.32	14.9	331	3.96	0.75	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
3-Dec-15	369.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-May-16	369.68	61.41	308.27	6.36	13.9	396	10.59	-	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	0.19 J	<0.50	<0.10	<0.20
15-Nov-16	369.68	59.51	310.17	6.34	13.7	352	7.42	418	0.11	<0.20	<0.20	<0.20	<0.40	<0.20	0.1 J	<0.50	0.17	<0.20
2-May-17	369.68	59.31	310.37	6.16	14.0	238.4	7.17	1.21	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.20
14-Nov-17	369.68	58.35	311.33	6.39	12.7	325.0	9.01	*	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.20
16-Jan-18	369.68	57.78	311.90	6.13	13.1	243.8	8.81	0.6	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.20
9-Mar-18	369.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15-May-18	369.68	57.22	312.46	5.94	13.8	200	8.76	0.15	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs Feet below ground surface
 feet bmp Feet below measuring point
 feet msl Feet above mean sea level

^a Well not surveyed, elevation estimated.

^b IAS system not in operation.

^c Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.

^d When benzene is present.

^e When benzene is not present.

^f Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.

^g Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs

^h Value is more protective than Federal MCLs.

ⁱ MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.

* Turbidity meter malfunction, no reading

- Not measured or not available

Result exceeds Clean-up Level (CUL)

mg/L Milligrams per liter

µg/L Micrograms per liter

NTU Nephelometric Turbidity Unit

µmhos/cm Micromhos per centimeter

< Analyte not detected above the reporting limit shown

MTCA Model Toxics Control Act

MCL Maximum Containment Level

NSA No Standard Available

TOC Top of casing inside PVC well

°C Degrees Celsius

J The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

UJ The constituent was analyzed for, but was not detected above the reported sample quantitation limit; however, the value reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

Table B-2: Summary of Groundwater Sampling Results - Well MW-07
Sea-Tac Development Site, Seatac WA

Date Sampled b,c	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
18-Mar-10	358.70	48.69	310.01	6.61	13.3	354	1.41	5.18	26	230	1,100	360	4,630	0.010	160	210	-	-
13-Feb-14	358.69	47.72	310.97	6.56	14.3	131	0.35	3.87	29	25	110	180	2,022	< 3.8	190	220	11 J	< 0.20
29-May-14	358.69	47.65	311.04	6.65	16.4	379	0.13	2.84	27	14	80	190	1,811	< 1.5	140	210 B	11 J	< 0.20
11-Sep-14	358.69	47.95	310.74	6.73	16.5	373	0.35	2.28	36	17	81	260	2,110	< 0.028	280	300 B J	11	0.41 J
4-Dec-14	358.69	47.95	310.74	6.70	15.7	333	0.20	2.95	26	21	66	200	1,507	< 0.07	170	180	11 J	0.32 J
18-Jun-15	358.69	48.01	310.68	6.64	16.1	371	0.25	1.57	15 J	6.4	28 J	110 J	533 J	< 0.07	93 J	96 J	5.4	0.24 J
3-Dec-15	358.69	49.96	308.73	6.44	15.9	526	0.14	2.91	23	77	1,200	270	1,550	< 1.5	160	69	4.9 J	< 0.20
4-May-16	358.69	49.05	309.64	6.68	16.0	640	1.02	4.57	12	30	500	170	970	<0.20	150	68 J	6.5 J	0.30 J
16-Nov-16	358.69	48.50	310.19	6.54	15.9	411	1.39	3.95	8.3	4.3	9.5	40	85	<0.20	11 J	37	2.4	<0.20
3-May-17	358.69	48.13	310.56	6.38	16.2	188	1.33	3.78	2.9	1.8	0.46	14	21	<0.20	1.9	32	1.4	0.20
14-Nov-17	358.69	47.15	311.54	6.39	15.1	278	0.98	*	2.2	0.70	0.42	1.1	5.9	<0.20	0.3	11	1.6	0.44
18-Jan-18	358.69	46.75	311.94	6.21	14.7	270	0.23	2.15	1.9	1.0	0.67	2.04 J+	7.3 J+	<0.20	0.5	10	1.5	<0.20
9-Mar-18	358.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16-May-18	358.69	46.10	312.59	6.15	15.2	248	0.25	2.25	1.8	0.41	0.35	1.1	3.4	<0.01	<0.20	6.06	0.781	<0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs Feet below ground surface

feet bmp Feet below measuring point

feet msl Feet above mean sea level

^a Well not surveyed, elevation estimated.^b IAS system not in operation.^c Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.^d When benzene is present.^e When benzene is not present.^f Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.^g Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs^h Value is more protective than Federal MCLs.ⁱ MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.^{*} Turbidity meter malfunction, no reading

- Not measured or not available

Result exceeds Clean-up Level (CUL)

mg/L Milligrams per liter

µg/L Micrograms per liter

NTU Nephelometric Turbidity Unit

µmhos/cm Micromhos per centimeter

< Analyte not detected above the reporting limit shown

MTCA Model Toxics Control Act

MCL Maximum Containment Level

NSA No Standard Available

TOC Top of casing inside PVC well

°C Degrees Celsius

J The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

B Analyte detected in an associated Method Blank at a concentration greater than one-half of laboratory's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

Table B-3: Summary of Groundwater Sampling Results - Well MW-09
Sea-Tac Development Site, Seatac WA

Date Sampled b,c	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
19-Mar-10	362.14	52.30	309.84	6.19	14.2	294	0.13	7.18	16	170	65	400	1,434	0.016	100	160	-	-
12-Feb-14	362.13	51.45	310.68	6.49	12.6	99.5	0.28	3.10	7.5	30	8.1	150	98	< 0.08	16	120	1.6 J	< 0.20
29-May-14	362.13	51.41	310.72	6.44	15.0	295	0.14	1.01	7.8	32	9.4	170	112	< 0.37	5.60	92 B	2.3 J	< 0.20
10-Sep-14	362.13	-	-	6.49	15.7	310	0.20	3.85	5.6	17	4.6	100	47.2	< 0.010 ^a	< 0.20	74	2.8	< 0.20
3-Dec-14	362.13	51.68	310.45	6.47	13.6	307	0.18	2.37	4.1	14	2.8	76	8.8	< 0.07	< 0.20	44	1.9	< 0.20
17-Jun-15	362.13	51.67	310.46	6.48	15.1	331	0.18	0.75	1.7	7.2	1.3	40	1.6	< 0.07	< 0.20	18	1.5	< 0.20
3-Dec-15	362.13	-	-	6.37	14.1	477	0.96	3.91	2.2 J	8.4	1.5 J+	73	1.45 J+	< 0.07	< 0.20	5.7	1.0 J	< 0.20
3-May-16	362.13	-	-	6.51	18.3	221	4.68	1.08	<0.10	0.15 J	<0.20	0.71	<0.40	<0.20	<0.20	<0.50	0.22 J	<0.20
15-Nov-16	362.13	52.15	309.98	5.94	14.5	234	1.41	0.80	<0.10	0.23	0.23	0.56	0.32	<0.20	<0.20	<0.50	0.20	<0.20
3-May-17	362.13	-	-	5.94	15.5	165	3.09	1.43	<0.10	0.23	0.05 J	0.42	<0.40	<0.20	<0.20	<0.50	0.28	<0.20
14-Nov-17	362.13	50.74	311.39	5.98	13.9	211	2.14	*	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	0.22	<0.20
16-Jan-18	362.13	50.33	311.80	5.94	13.6	202	1.10	1.02	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	0.26	<0.20
9-Mar-18	362.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15-May-18	362.13	49.68	312.45	5.86	15.0	193	0.67	0.61	<0.10	0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	0.342	<0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs Feet below ground surface

feet bmp Feet below measuring point

feet msl Feet above mean sea level

^a Well not surveyed, elevation estimated.^b IAS system not in operation.^c Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.^d When benzene is present.^e When benzene is not present.^f Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.^g Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs^h Value is more protective than Federal MCLs.ⁱ MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.^{*} Turbidity meter malfunction, no reading^{*} Reported at the Limit of Quantitation (LOQ). The LOQ is less than MTCA CULs.

- Not measured or not available

Result exceeds Clean-up Level (CUL)

mg/L Milligrams per liter

µg/L Micrograms per liter

NTU Nephelometric Turbidity Unit

µmhos/cm Micromhos per centimeter

< Analyte not detected above the reporting limit shown

MTCA Model Toxics Control Act

MCL Maximum Containment Level

NSA No Standard Available

TOC Top of casing inside PVC well

°C Degrees Celsius

J The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

J+ The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased high.

B Analyte detected in an associated Method Blank at a concentration greater than one-half of laboratory's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

Table B-4: Summary of Groundwater Sampling Results - Well MW-12
Sea-Tac Development Site, Seatac WA

	Field Parameters								Analytical Data											
Date Sampled b,c	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L) ¹	NWTPH-Motor Oil (mg/L)	NWTPH-Diesel (mg/L) Acid-Silica Gel Clean-up ²	NWTPH-Motor Oil (mg/L) Acid-Silica Gel Clean-up ²
15-Mar-10	364.88	54.99	309.89	6.38	14.5	472	0.03	40.8	36	230	2,400	1,300	5,140	0.16	210	520	-	-	-	-
13-Feb-14	364.83	55.02	309.81	7.76	14.1	125	10.50	3.43	8.6	79	410	79	970	< 3.8	< 10	25	1.1 J	< 0.20	-	-
29-May-14	364.83	51.58	313.25	7.87	16.7	252	11.77	5.99	0.12	2.0	4.3	1.6	4.2	< 0.07	< 0.20	< 0.50	0.34 J	< 0.20	-	-
11-Sep-14	364.83	54.87	309.96	8.04	18.1	255	11.80	38.8	0.11	2.5	2.6	1.5	5.3	< 0.010*	0.78	0.53 B J+	0.35	< 0.20	-	-
4-Dec-14	364.83	54.87	309.96	8.04	15.1	258	11.51	153	< 0.10	< 0.25	< 0.25	0.73	6.0	< 0.07	0.18 J	0.68	0.20	< 0.20	-	-
18-Jun-15	364.83	-	-	8.09	16.3	208	9.90	2.44	< 0.25	< 0.20	< 0.20	0.10 J	2.1	< 0.07	0.26	< 0.50	0.45	< 0.20	-	-
3-Dec-15	364.83	56.74	308.09	-	-	-	-	-	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	0.29	< 0.20	-	-
4-May-16	364.83	55.53	309.30	7.68	15.1	226	7.72	3.48	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	0.18 J	< 0.20	-	-
16-Nov-16	364.83	55.20	309.63	7.84	14.9	199	8.45	13.4	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	0.16	< 0.20	-	-
3-May-17	364.83	59.02	305.81	7.53	15.9	80	8.01	4.96	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	0.89	< 0.215	-	-
15-Nov-17	364.83	53.37	311.46	7.69	14.9	301	0.99	18.9	2.2	1.8	18	11	113	< 0.20	29	33	1.0	0.30	< 0.10	< 0.20
18-Jan-18	364.83	53.13	311.70	7.29	14.4	314	0.35	30.1	2.2	1.7	12	26	90	< 0.20	29	30	1.6	< 0.20	< 0.10	< 0.20
9-Mar-18	364.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16-May-18	364.83	52.31	312.52	7.06	15.3	374	0.27	3.0	2.8	17.2	2.05	23.8	43	< 0.01	26.1	18.5	2.85	< 0.20	< 0.10	< 0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA	NSA	NSA

Notes:		
feet bgs	Feet below ground surface	-
feet bmp	Feet below measuring point	Result exceeds Clean-up Level (CUL)
feet msl	Feet above mean sea level	mg/L
^a	Well not surveyed, elevation estimated.	µg/L
^b	IAS system not in operation.	NTU
^c	Water levels collected at various times prior to sampling (see Table 1).	µmhos/cm
	Date/time is sampling time.	
^d	When benzene is present.	<
^e	When benzene is not present.	MTCA
^f	Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.	MCL
^g	Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs	NSA
^h	Value is more protective than Federal MCLs.	TOC
ⁱ	MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.	°C
¹	The MW-12 diesel detection at 0.89 µg/L from the 3-May-17 sample event was noted by the laboratory analyst as likely non-fuel organics in the diesel range and did not match the diesel standard.	J
²	Acid-Silica Gel Clean-up was applied to prior to analysis.	J+
[*]	Reported at the Limit of Quantitation (LOQ). The LOQ is less than MTCA CULs.	B

Table B-5: Summary of Groundwater Sampling Results - Well MW-13
Sea-Tac Development Site, Seatac WA

Date Sampled b,c	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btp)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
19-Mar-10	365.42	55.66	309.76	6.28	12.8	271	0.16	72.1	33	14	230	890	4,500	0.029	130	410	-	-
12-Feb-14	365.42	54.35	311.07	6.57	13.2	73.3	1.41	4.28	14	< 0.25	3.9	240	2,070	< 0.08	< 0.20	33	1.4 J	< 0.20
29-May-14	365.42	55.62	309.80	6.84	14.7	182	10.59	4.24	0.14	< 0.25	< 0.25	0.85	19	< 0.07	0.11 J	< 0.50	0.32	< 0.20
10-Sep-14	365.42	54.86	310.56	7.06	14.9	137	11.06	2.41	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.010*	< 0.20	< 0.50	0.29	< 0.20
4-Dec-14	365.42	54.86	310.56	7.06	13.9	163	10.10	2.32	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	0.31	< 0.20
18-Jun-15	365.42	54.70	310.72	7.13	14.7	174	10.71	1.32	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	0.61	0.27	< 0.20
2-Dec-15	365.42	56.43	308.99	7.27	14.2	164	10.20	0.90	< 0.25	< 0.20	< 0.20	0.23	1.10 J+	< 0.07	< 0.20	< 0.50	0.26	< 0.20
3-May-16	365.42	56.30	309.12	7.79	15.8	194	14.18	1.14	<0.10	<0.20	<0.20	<0.20	0.44	<0.20	<0.20	<0.50	0.12 J	<0.20
15-Nov-16	365.42	55.81	309.61	7.25	14.1	195	10.64	0.73	<0.10	<0.20	<0.20	<0.20	0.46	<0.20	<0.20	<0.50	0.19	<0.20
3-May-17	365.42	55.14	310.28	7.03	14.5	116	10.71	1.45	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	0.18	<0.20
14-Nov-17	365.42	54.05	311.37	6.75	13.6	136	1.72	*	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	0.13	<0.20
16-Jan-18	365.42	53.62	311.80	6.93	13.4	159	0.85	2.02	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.20
9-Mar-18	365.42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15-May-18	365.42	52.96	312.46	6.43	14.1	120	1.87	1.14	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs Feet below ground surface

feet btp Feet below measuring point

feet msl Feet above mean sea level

^a Well not surveyed, elevation estimated.^b IAS system not in operation.^c Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.^d When benzene is present.^e When benzene is not present.^f Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.^g Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs^h Value is more protective than Federal MCLs.ⁱ MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.^{*} Turbidity meter malfunction, no reading^{*} Reported at the Limit of Quantitation (LOQ). The LOQ is less than MTCA CULs.

- Not measured or not available

Result exceeds Clean-up Level (CUL)

mg/L Milligrams per liter

µg/L Micrograms per liter

NTU Nephelometric Turbidity Unit

µmhos/cm Micromhos per centimeter

< Analyte not detected above the reporting limit shown

MTCA Model Toxics Control Act

MCL Maximum Containment Level

NSA No Standard Available

TOC Top of casing inside PVC well

°C Degrees Celsius

J The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

J+ The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased high.

Table B-6: Summary of Groundwater Sampling Results - Well MW-17A
Sea-Tac Development Site, Seatac WA

Date Sampled b,c	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
17-Mar-10	385.81	76.29	309.52	6.51	9.3	145	0.52	142	1.70	< 1.0	< 1.0	4.0	27	< 0.0095	< 1.0	63	-	-
11-Feb-14	394.00	83.80	310.20	6.36	11.3	82.5	1.06	137	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.08	< 0.20	0.74	< 0.10	< 0.20
29-May-14	394.00	84.00	310.00	6.22	12.2	175	2.06	39.7	< 0.10	0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	0.62 J+	< 0.10	< 0.20
10-Sep-14	394.00	84.18	309.82	6.28	12.4	162	1.42	18.8	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	0.64 J	< 0.10	< 0.20
5-Dec-14	394.00	84.18	309.82	6.42	11.7	167	1.09	31.8	< 0.10 UJ	0.54 J	< 0.25 UJ	< 0.25 UJ	0.63 J	< 0.07	< 0.20 UJ	2.8	< 0.10	< 0.20
17-Jun-15	394.00	84.16	309.84	6.29	12.9	158	3.13	29.6	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
18-Dec-15	394.00	85.95	308.05	6.57	11.8	127	0.20	23.7	0.05 J	0.75	< 0.20	0.08 J	< 0.40	< 0.07	< 0.20	0.98 J	< 0.10	< 0.20
3-May-16	394.00	85.21	308.79	6.51	13.1	132	4.60	8.41	<0.10	0.33	<0.20	<0.20	<0.40	<0.20	0.11 J	0.71 J	<0.10	<0.20
15-Nov-16	394.00	84.57	309.43	6.46	12.6	122	3.76	10.2	<0.10	0.14 J	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.20
3-May-17	394.00	84.24	309.76	6.08	12.4	76	7.25	7.57	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.20
15-Nov-17	394.00	83.17	310.83	6.62	12.1	105	7.05	*	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	0.54	<0.10	<0.20
16-Jan-18	394.00	82.95	311.05	6.27	12.0	111	8.55	4.2	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.20
9-Mar-18	394.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15-May-18	394.00	82.21	311.79	6.14	12.9	106.0	8.57	1.43	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs Feet below ground surface

feet bmp Feet below measuring point

feet msl Feet above mean sea level

^a Well not surveyed, elevation estimated.^b IAS system not in operation.^c Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.^d When benzene is present.^e When benzene is not present.^f Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.^g Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs^h Value is more protective than Federal MCLs.ⁱ MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.^{*} Turbidity meter malfunction, no reading

- Not measured or not available

Result exceeds Clean-up Level (CUL)

mg/L Milligrams per liter

µg/L Micrograms per liter

NTU Nephelometric Turbidity Unit

µmhos/cm Micromhos per centimeter

< Analyte not detected above the reporting limit shown

MTCA Model Toxics Control Act

MCL Maximum Containment Level

NSA No Standard Available

TOC Top of casing inside PVC well

°C Degrees Celsius

J The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

UJ The constituent was analyzed for, but was not detected above the reported sample quantitation limit; however, the value reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

J+ The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased high.

Table B-7: Summary of Groundwater Sampling Results - Well MW-18
Sea-Tac Development Site, Seatac WA

Date Sampled b,c	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
18-Mar-10	360.45	50.58	309.87	6.69	14.2	586	0.11	5.39	52	2,600	6,000	1,700	6,690	2.5	350	420	-	-
12-Feb-14	360.45	49.01	311.44	7.62	13.8	175	8.11	2.89	1.0	27	13	17	91	< 0.08	1.1	4.0	0.77 J	<0.20
29-May-14	360.45	49.75	310.70	7.98	15.2	369	10.60	7.95	0.14	6.6	1.5	4.7	9.2	< 0.07	0.64	0.84 J+	0.33 J	<0.20
11-Sep-14	360.45	49.83	310.62	8.23	15.2	498	11.23	13.1	< 0.10	0.72	0.27	0.40	0.72	< 0.010*	< 0.20	< 0.50	0.14	< 0.20
4-Dec-14	360.45	49.83	310.62	7.84	14.4	470	10.78	81.6	< 0.10	0.69	< 0.25	0.63	0.93	< 0.07	0.10 J	< 0.50	0.24	< 0.20
18-Jun-15	360.45	49.51	310.94	8.05	15.2	515	10.89	49.6	< 0.25	0.67	0.54	0.24	1.1	< 0.07	< 0.20	< 0.50	0.38	< 0.20
3-Dec-15	360.45	-	-	8.28	14.8	455	10.21	14.6	< 0.25	0.57	4.8	0.34	9.8	< 0.07	0.25	0.67	0.13	< 0.20
4-May-16	360.45	51.12	309.33	7.27	14.8	513	4.53	4.77	0.22	8.0	5.5	8.2	29	<0.20	1.5	1.5 J	0.37 J	<0.20
16-Nov-16	360.45	50.63	309.82	7.55	15.0	503	6.97	2.44	0.12	3.6	1.2	2.1	9.0	<0.20	0.39	<0.50	0.48	<0.20
3-May-17	360.45	50.12	310.33	7.19	15.6	313	4.54	3.57	0.28	6.9	3.1	6.8	21	<0.20	1.4	2.7	0.29	0.30
14-Nov-17	360.45	49.00	311.45	6.78	15.2	454	0.71	*	1.3	3.6	1.6	7.4	8.7	<0.20	0.33	<0.50	4.4	0.43
16-Jan-18	360.45	48.62	311.83	6.12	14.4	23	6.23	18.1	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.20
9-Mar-18	360.45	48.35	312.10	6.69	14.4	479	0.28	1.9	1.9	-	-	-	-	-	-	-	4.66	<0.20
16-May-18	360.45	47.94	312.51	6.42	15.2	405	0.21	1.41	1.5	6.24	2.23	19.8	19	<0.01	1.34	5.05	2.93	<0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs Feet below ground surface

feet bmp Feet below measuring point

feet msl Feet above mean sea level

^a Well not surveyed, elevation estimated.^b IAS system not in operation.^c Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.^d When benzene is present.^e When benzene is not present.^f Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.^g Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs^h Value is more protective than Federal MCLs.ⁱ MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.^{*} Turbidity meter malfunction, no reading^{*} Reported at the Limit of Quantitation (LOQ). The LOQ is less than MTCA CULs.

- Not measured or not available

Result exceeds Clean-up Level (CUL)

mg/L Milligrams per liter

µg/L Micrograms per liter

NTU Nephelometric Turbidity Unit

µmhos/cm Micromhos per centimeter

< Analyte not detected above the reporting limit shown

MTCA Model Toxics Control Act

MCL Maximum Containment Level

NSA No Standard Available

TOC Top of casing inside PVC well

°C Degrees Celsius

J The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

J+ The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased high.

Table B-8: Summary of Groundwater Sampling Results - Well MW-19
Sea-Tac Development Site, Seatac WA

Date Sampled b,c	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
18-Mar-10	356.61	46.60	310.01	7.04	12.5	275	0.07	84.0	1.3	8.9	1.8	43	6.0	< 0.0096	2.8	< 5.0	-	-
11-Feb-14	356.61	45.46	311.15	6.98	12.7	105	0.15	3.20	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.08	4.3	< 0.50	< 0.10	< 0.20
29-May-14	356.61	45.74	310.87	6.96	13.7	290	0.04	0.42	< 0.10	< 0.25	0.40	< 0.25	0.58	< 0.07	0.30	< 0.50	< 0.10	< 0.20
10-Sep-14	356.61	45.73	310.88	6.93	14.5	379	0.16	0.30	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
3-Dec-14	356.61	45.73	310.88	6.82	13.3	380	0.20	0.86	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
17-Jun-15	356.61	45.94	310.67	6.75	14.3	400	0.26	0.86	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
2-Dec-15	356.61	47.72	308.89	6.87	13.6	530	0.09	2.60	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
3-May-16	356.61	46.81	309.80	6.79	15.2	390	0.87	1.23	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
15-Nov-16	356.61	46.15	310.46	6.88	14.1	586	0.37	0.81	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
2-May-17	356.61	45.90	310.71	6.46	13.9	268	2.04	0.36	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.106	< 0.213
14-Nov-17	356.61	45.04	311.57	6.73	13.7	456	0.98	0.79	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
16-Jan-18	356.61	44.57	312.04	6.79	13.5	414	0.20	0.64	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
9-Mar-18	356.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15-May-18	356.61	43.92	312.69	6.47	14.6	305	0.34	0.49	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.01	< 0.20	< 0.50	< 0.10	< 0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs Feet below ground surface

feet bmp Feet below measuring point

feet msl Feet above mean sea level

^a Well not surveyed, elevation estimated.^b IAS system not in operation.^c Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.^d When benzene is present.^e When benzene is not present.^f Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.^g Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs^h Value is more protective than Federal MCLs.ⁱ MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.

- Not measured or not available

Result exceeds Clean-up Level (CUL)

mg/L Milligrams per liter

µg/L Micrograms per liter

NTU Nephelometric Turbidity Unit

µmhos/cm Micromhos per centimeter

< Analyte not detected above the reporting limit shown

MTCA Model Toxics Control Act

MCL Maximum Containment Level

NSA No Standard Available

TOC Top of casing inside PVC well

°C Degrees Celsius

Table B-9: Summary of Groundwater Sampling Results - Well MW-20
Sea-Tac Development Site, Seatac WA

	Field Parameters								Analytical Data									
Date Sampled b,c	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
17-Mar-10	430.98	121.79	309.19	6.63	10.8	359	4.82	4.37	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 0.0095	< 1.0	< 5.0	-	-
20-Mar-14	416.61	106.13	310.48	6.74	11.4	377	7.82	3.32	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50 UJ	< 0.10	< 0.2
29-May-14	416.61	106.66	309.95	6.73	12.3	257	6.37	0.82	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.2
10-Sep-14	416.61	106.53	310.08	6.83	13.2	355	7.55	0.69	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.2
3-Dec-14	416.61	106.53	310.08	6.79	12.4	355	7.67	1.30	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.2
17-Jun-15	416.61	106.68	309.93	6.77	13.3	350	7.41	1.06	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	< 0.10	< 0.2
3-Dec-15	416.61	108.61	308.00	7.66	12.4	290	6.76	4.28	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	< 0.10	< 0.2
3-May-16	416.61	107.56	309.05	6.58	13.3	138	5.31	3.55	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.2
15-Nov-16	416.61	106.97	309.64	6.75	13.0	241	7.12	0.41	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.2
3-May-17	416.61	106.66	309.95	6.63	12.8	118	8.97	1.35	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.2
14-Nov-17	416.61	105.76	310.85	6.60	12.7	192	9.06	1.76	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.2
16-Jan-18	416.61	105.48	311.13	6.67	12.8	165	9.46	0.66	<0.10	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.50	<0.10	<0.2
9-Mar-18	416.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15-May-18	416.61	104.65	311.96	6.31	13.0	119	9.63	0.48	<0.10	<0.20	<0.20	<0.20	<0.40	<0.01	<0.20	<0.50	<0.10	<0.2
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs	Feet below ground surface
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
^a	Well not surveyed, elevation estimated.
^b	IAS system not in operation.
^c	Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.
^d	When benzene is present.
^e	When benzene is not present.
^f	Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.
^g	Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs
^h	Value is more protective than Federal MCLs.
ⁱ	MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.

-	Not measured or not available
	Result exceeds Clean-up Level (CUL)
mg/L	Milligrams per liter
µg/L	Micrograms per liter
NTU	Nephelometric Turbidity Unit
µmhos/cm	Micromhos per centimeter
<	Analyte not detected above the reporting limit shown
MTCA	Model Toxics Control Act
MCL	Maximum Containment Level
NSA	No Standard Available
TOC	Top of casing inside PVC well
°C	Degrees Celsius
UJ	The constituent was analyzed for, but was not detected above the reported sample quantitation limit; however, the value reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

Table B-10: Summary of Groundwater Sampling Results - Well MW-21
Sea-Tac Development Site, Seatac WA

Date Sampled b,c	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
17-Mar-10	390.79	81.26	309.53	5.97	11.5	257	3.21	5.13	< 0.10	< 1.0	< 1.0	< 1.0	< 1.0	< 0.0096	< 1.0	< 5.0	-	-
11-Feb-14	412.85	102.34	310.51	6.09	11.9	110	6.31	11.2	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.08	< 0.20	< 0.50	< 0.10	< 0.20
29-May-14	412.85	102.61	310.24	6.15	12.5	277	6.28	1.71	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
10-Sep-14	412.85	102.66	310.19	6.15	13.5	283	6.25	1.95	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
3-Dec-14	412.85	102.66	310.19	6.20	12.3	304	5.54	13.1	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
17-Jun-15	412.85	102.81	310.04	6.12	13.5	326	6.12	1.98	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
3-Dec-15	412.85	104.70	308.15	5.17	12.6	341	6.21	1.39	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
3-May-16	412.85	104.40	308.45	6.28	13.7	315	9.30	3.86	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
15-Nov-16	412.85	102.97	309.88	6.30	13.4	290	6.29	4.51	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
3-May-17	412.85	102.68	310.17	6.08	13.0	134	7.33	1.12	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.109	< 0.217
14-Nov-17	412.85	101.84	311.01	6.21	12.9	165	8.39	1.76	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
16-Jan-18	412.85	101.45	311.40	6.19	12.9	157	8.61	1.33	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
9-Mar-18	412.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15-May-18	412.85	100.66	312.19	6.00	13.1	116	8.91	0.59	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.01	< 0.20	< 0.50	< 0.10	< 0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs	Feet below ground surface
feet bmp	Feet below measuring point
feet msl	Feet above mean sea level
^a	Well not surveyed, elevation estimated.
^b	IAS system not in operation.
^c	Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.
^d	When benzene is present.
^e	When benzene is not present.
^f	Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.
^g	Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs
^h	Value is more protective than Federal MCLs.
ⁱ	MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.

-	Not measured or not available
Result exceeds Clean-up Level (CUL)	
mg/L	Milligrams per liter
µg/L	Micrograms per liter
NTU	Nephelometric Turbidity Unit
µmhos/cm	Micromhos per centimeter
<	Analyte not detected above the reporting limit shown
MTCA	Model Toxics Control Act
MCL	Maximum Containment Level
NSA	No Standard Available
TOC	Top of casing inside PVC well
°C	Degrees Celsius

Table B-11: Summary of Groundwater Sampling Results - Well MW-22
Sea-Tac Development Site, Seatac WA

Date Sampled b,c	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
16-Mar-10	393.31	83.63	309.68	6.65	12.5	586	0.25	82.0	15	23	74	1,400	2,420	< 0.0095	15	380	-	-
20-Mar-14	393.31	82.93	310.38	6.68	12.2	381	0.87	64.8	17	5.7	12	990	1,503	< 0.07	7.8	400 J	1.2 J	< 0.20
28-May-14	393.31	82.72	310.59	6.73	13.2	383	0.30	2.26	18	3.9	9.7	940	1,900	< 0.07	8.6	420 B	1.7 J	< 0.20
12-Sep-14	393.31	82.98	310.33	6.81	13.7	423	0.29	1.03	16	4.8	9.3	690	1,103	< 1.5	9.8	460 B J	1.1 J	< 0.20
5-Dec-14	393.31	82.98	310.33	6.81	12.8	378	0.26	3.71	16	8.7	11	740	1,103	< 1.5	7.2	380	0.86 J	< 0.20
25-Jun-15	393.31	82.95	310.36	6.82	13.6	354	0.52	3.34	19	5.9	7.4	750	1,402	< 0.74	4.7	310	1.0 J	< 0.20
2-Dec-15	393.31	84.83	308.48	6.87	13.0	325	0.25	3.42	19	4.4	6.2	840	1,503	< 1.5	3.0 J	240	1.5 J	< 0.20
4-May-16	393.31	83.85	309.46	6.84	13.3	294	0.39	3.61	15	3.8	5.0	780	1,403	<0.20	8.6	470 Q	2.8 J	<0.20
16-Nov-16	393.31	83.43	309.88	6.89	13.1	246	1.00	5.50	11	4.0	3.9	631	882	<0.20	5.9 J+	438	1.9	<0.20
2-May-17	393.31	82.95	310.36	6.67	13.3	172	0.41	1.87	13	4.2	4.4	651	960	<0.20	5.7	389	2.8	<0.222
15-Nov-17	393.31	81.93	311.38	7.09	13.1	215	1.72	3.72	11	4.2	3.3	481	583	<2.0	5.4	326	2.4	<0.20
18-Jan-18	393.31	81.43	311.88	6.67	12.9	196	0.81	3.08	17	4.9	3.9	530	731	<2.0	7.9	349	2.9	<0.20
9-Mar-18	393.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16-May-18	393.31	80.92	312.39	6.41	13.5	172	3.39	2.94	12	2.97	2.38	340	630	<0.01	4.82	268	2.01	<0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

feet bgs Feet below ground surface

feet bmp Feet below measuring point

feet msl Feet above mean sea level

^a Well not surveyed, elevation estimated.^b IAS system not in operation.^c Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.^d When benzene is present.^e When benzene is not present.^f Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.^g Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs^h Value is more protective than Federal MCLs.ⁱ MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.

- Not measured or not available

Result exceeds Clean-up Level (CUL)

mg/L Milligrams per liter

µg/L Micrograms per liter

NTU Nephelometric Turbidity Unit

µmhos/cm Micromhos per centimeter

< Analyte not detected above the reporting limit shown

MTCA Model Toxics Control Act

MCL Maximum Containment Level

NSA No Standard Available

TOC Top of casing inside PVC well

°C Degrees Celsius

J The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

J+ The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased high.

B Analyte detected in an associated Method Blank at a concentration greater than one-half of laboratory's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

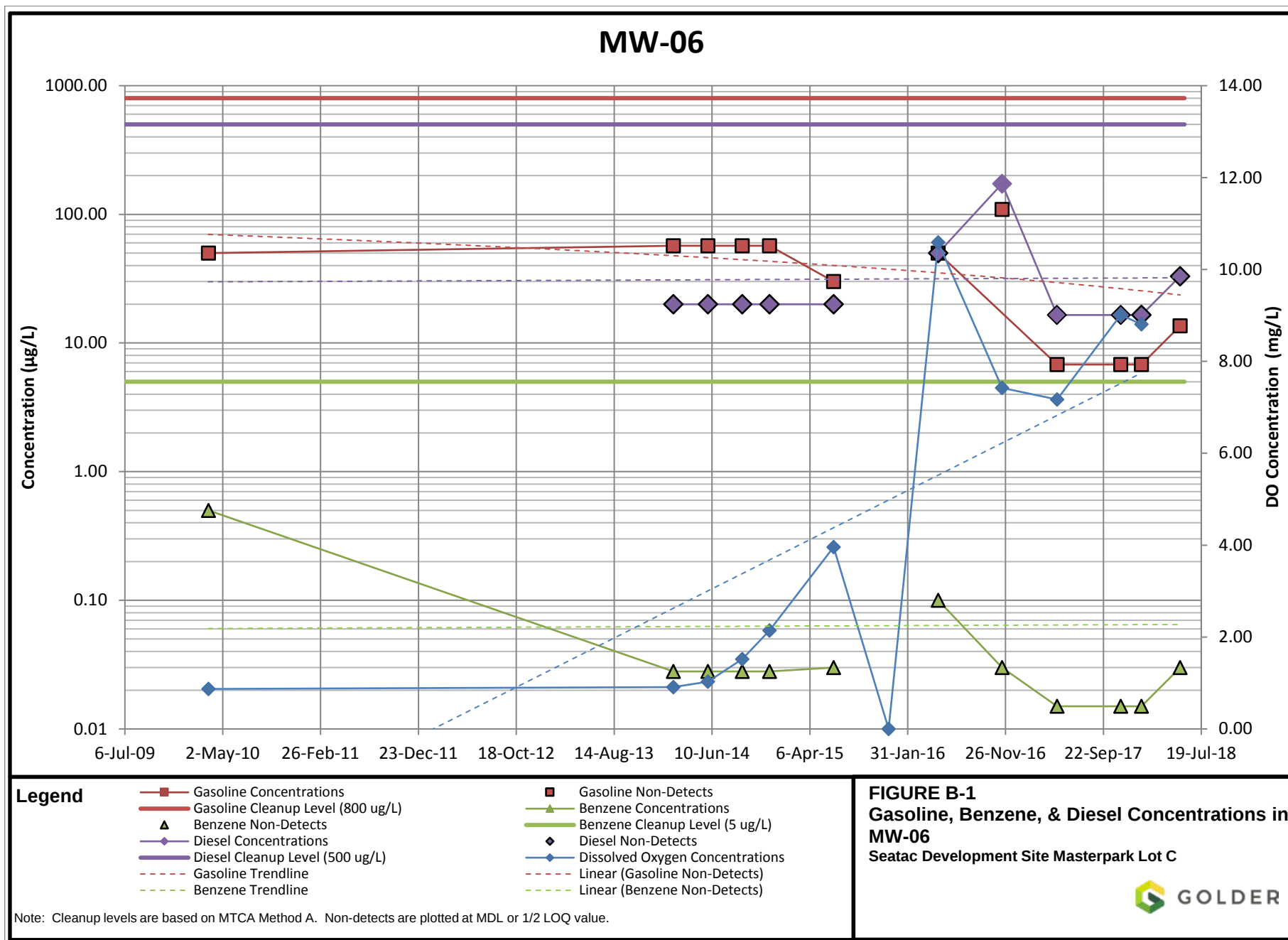
Table B-12: Summary of Groundwater Sampling Results - Well PORT-MW-B
Sea-Tac Development Site, Seatac WA

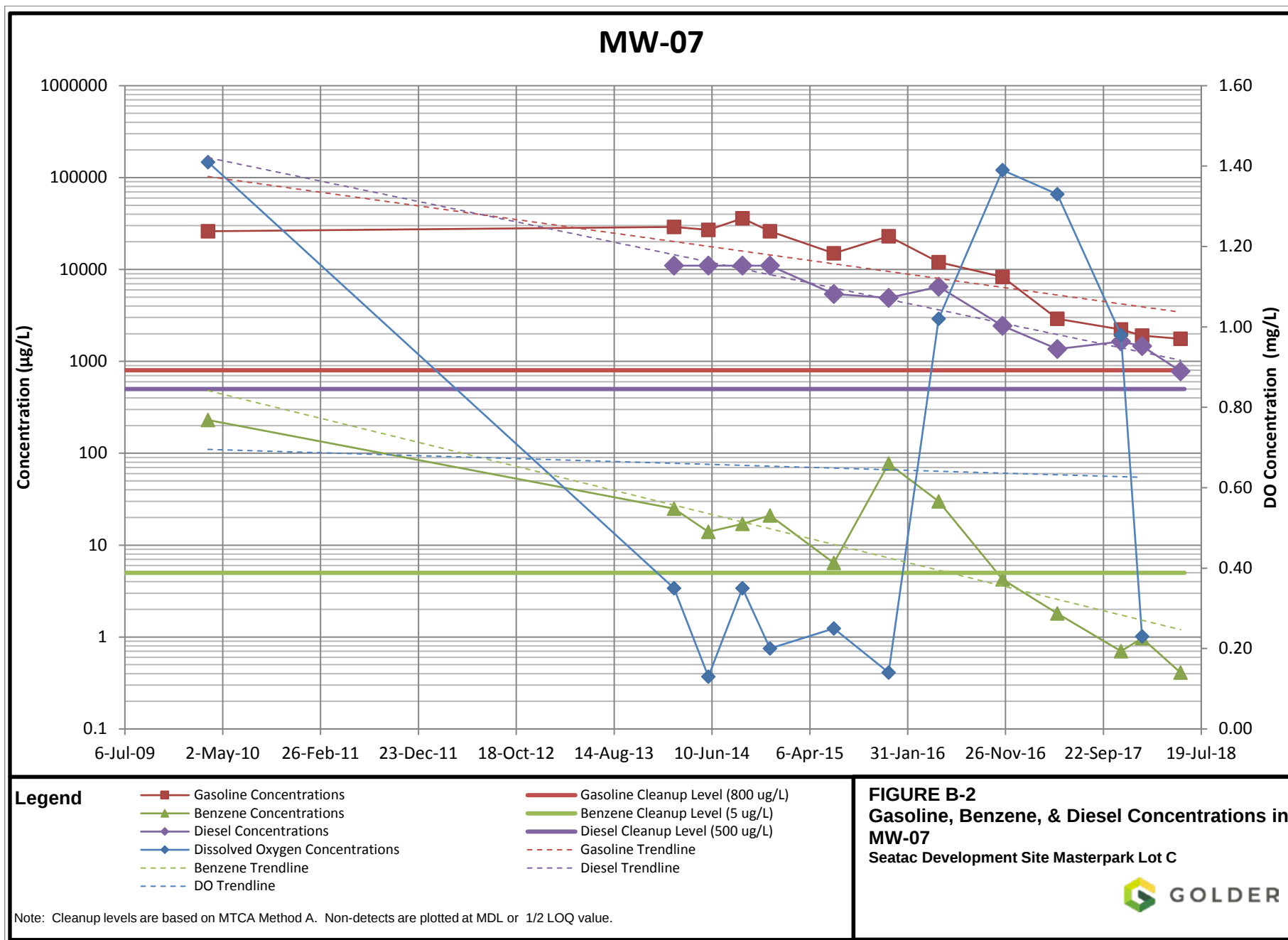
Date Sampled ^{b,c}	Field Parameters								Analytical Data									
	TOC Elevation (feet msl)	Depth to Water (feet btoc)	Groundwater Elevation (feet msl)	pH (standard units)	Temperature (°C)	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	NWTPH-Gasoline (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	EDB (ethylene dibromide) (µg/L) ^f	N-hexane (µg/L)	Naphthalene (µg/L)	NWTPH-Diesel (mg/L)	NWTPH-Motor Oil (mg/L)
3-Aug-11	400.00	-	-	-	-	-	-	-	0.20	1.3	< 1.0	13	3.4	< 0.01	< 1.0	13	0.28	< 0.25
20-Mar-14	400.00	89.70	310.30	6.55	12.3	267	6.16	J	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50 UJ	< 0.10	< 0.20
28-May-14	400.00	89.50	310.50	6.50	14.2	317	4.63	98.3	< 0.10	< 0.25	< 0.25	< 0.25	< 0.50	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
12-Sep-14	400.00	89.71	310.29	6.56	14.0	266	3.56	6.18	< 0.10	< 0.25	< 0.25	1.1	1.9	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
5-Dec-14	400.00	89.71	310.29	6.57	12.6	265	4.07	84.1	0.11	< 0.25	< 0.25	1.1	1.0	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
25-Jun-15	400.00	89.67	310.33	6.51	14.3	290	3.80	4.2	< 0.25	< 0.20	< 0.20	< 0.20	< 0.40	< 0.07	< 0.20	< 0.50	< 0.10	< 0.20
2-Dec-15	400.00	91.61	308.39	6.56	13.0	267	2.34	1.8	< 0.25	< 0.20	< 0.20	0.26	0.40 J+	< 0.07	< 0.20	2.3 J+	< 0.10	0.49
4-May-16	400.00	90.55	309.45	6.72	13.2	219	2.59	7.4	< 0.10	0.08 J	< 0.20	0.74	0.50	< 0.20	< 0.20	0.83 J	< 0.10	< 0.20
16-Nov-16	400.00	90.31	309.69	6.70	13.1	192	3.97	11.7	< 0.10	0.03 J	< 0.20	0.04 J	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
2-May-17	400.00	89.65	310.35	6.54	12.9	107	3.85	2.6	< 0.10	0.21	< 0.20	1.2	< 0.40	< 0.20	< 0.20	1.4	< 0.10	< 0.20
15-Nov-17	400.00	88.67	311.33	6.78	13.0	199	5.09	2.4	< 0.10	< 0.20	< 0.20	0.36	< 0.40	< 0.20	< 0.20	< 0.50	< 0.10	< 0.20
18-Jan-18	400.00	88.17	311.83	6.82	12.6	173	1.39	3.4	0.15	0.47	< 0.20	2.7	< 0.40	< 0.20	< 0.20	3.2	0.17	< 0.20
9-Mar-18	400.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16-May-18	400.00	87.64	312.36	6.40	13.8	103	3.36	2.35	< 0.10	< 0.20	< 0.20	< 0.20	< 0.40	< 0.01	< 0.20	< 0.50	< 0.10	< 0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^e	5 ^g	1000 ^g	700 ^g	1000 ^h	0.01 ^h	NSA	160	0.5	0.5
	MTCA Method B for Groundwater (unrestricted landuse)								NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

Notes:

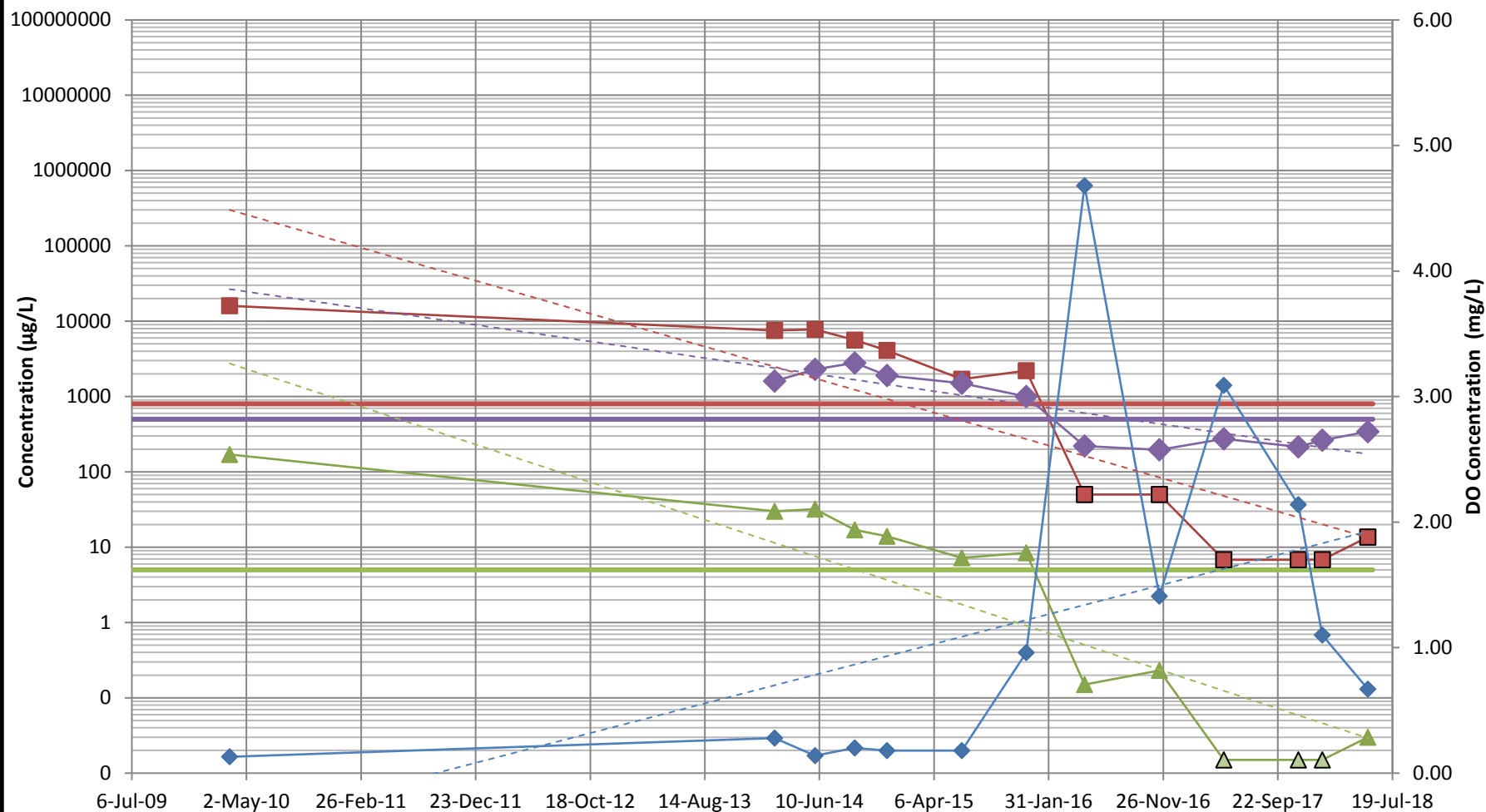
feet bgs	Feet below ground surface	-	Not measured or not available
feet bmp	Feet below measuring point		Result exceeds Clean-up Level (CUL)
feet msl	Feet above mean sea level	mg/L	Milligrams per liter
^a	Well not surveyed, elevation estimated.	µg/L	Micrograms per liter
^b	IAS system not in operation.	NTU	Nephelometric Turbidity Unit
^c	Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.	µmhos/cm	Micromhos per centimeter
^d	When benzene is present.	<	Analyte not detected above the reporting limit shown
^e	When benzene is not present.	MTCA	Model Toxics Control Act
^f	Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.	MCL	Maximum Containment Level
^g	Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs	NSA	No Standard Available
^h	Value is more protective than Federal MCLs.	TOC	Top of casing inside PVC well
ⁱ	MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.	°C	Degrees Celsius
^j	Turbidity out of range. Well was purged using a bailer.	J	The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
		UJ	The constituent was analyzed for, but was not detected above the reported sample quantitation limit; however, the value reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.
		J+	The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased high.

TREND GRAPHS





MW-09



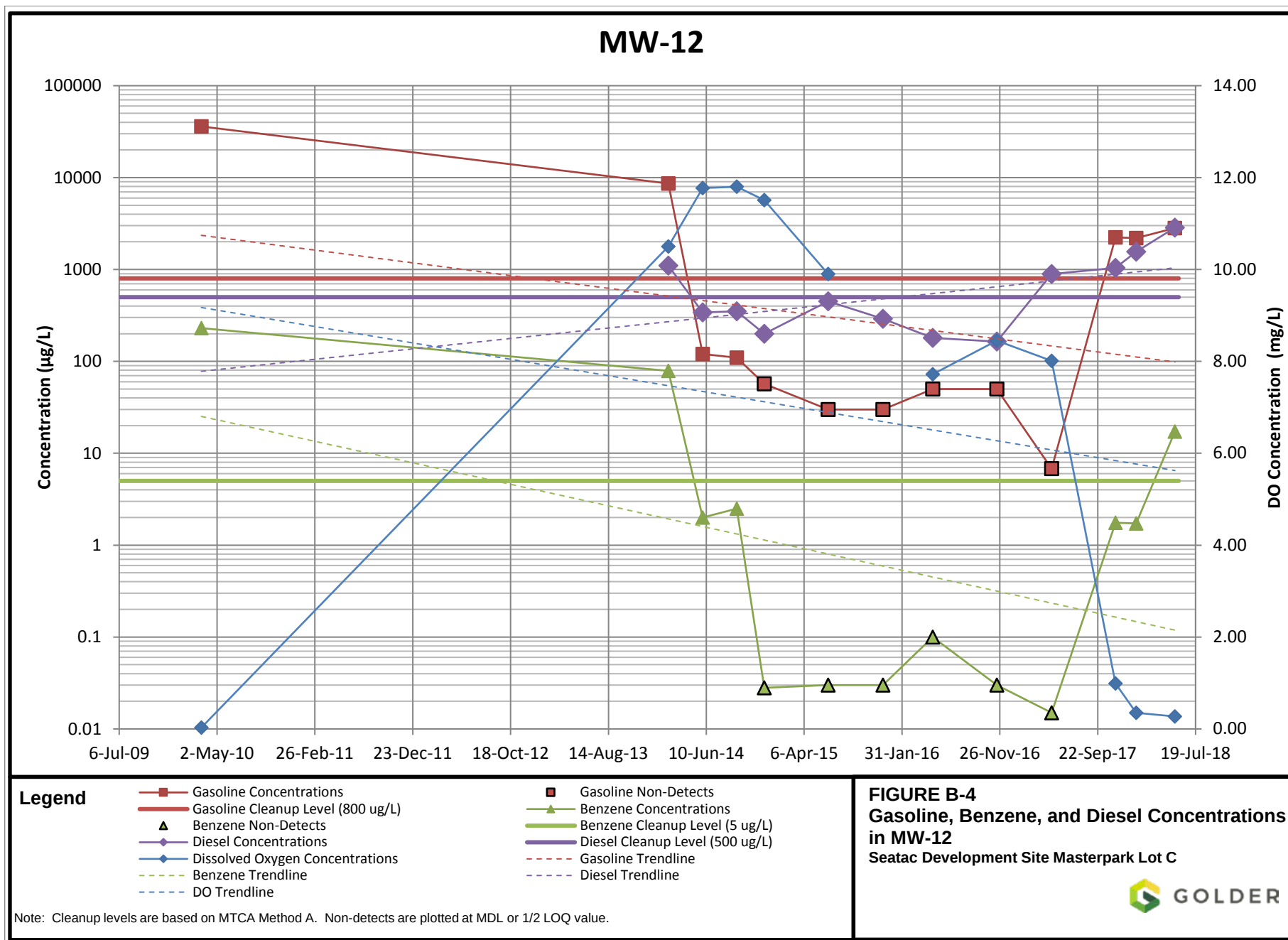
Legend

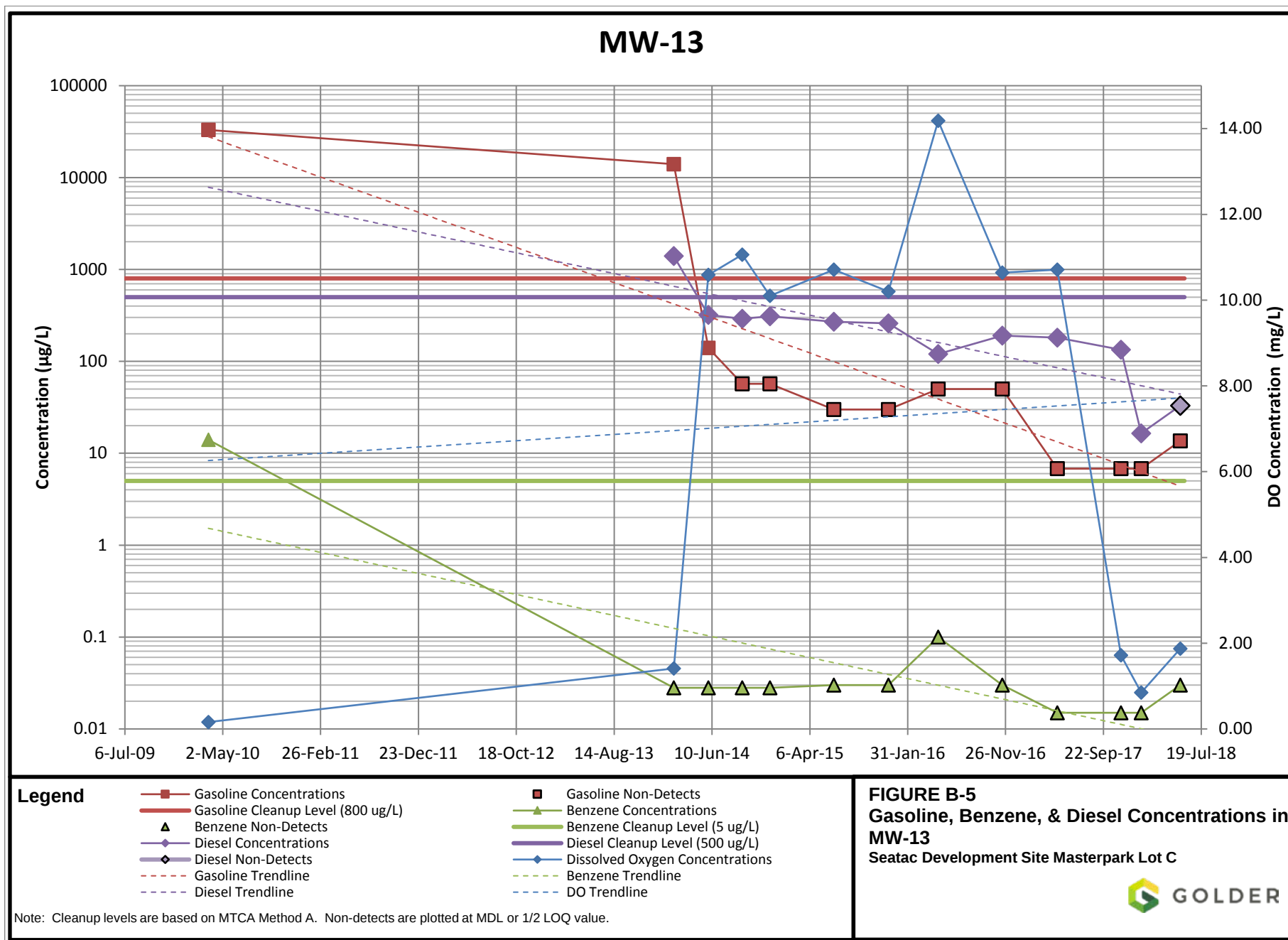
- Gasoline Concentrations
- Gasoline Cleanup Level (800 µg/L)
- ▲ Benzene Non-Detects
- ◆— Diesel Concentrations
- ◆— Dissolved Oxygen Concentrations
- Benzene Trendline
- DO Trendline
- Gasoline Non-Detects
- ▲— Benzene Concentrations
- Benzene Cleanup Level (5 µg/L)
- ◆— Diesel Cleanup Level (500 µg/L)
- Gasoline Trendline
- Diesel Trendline

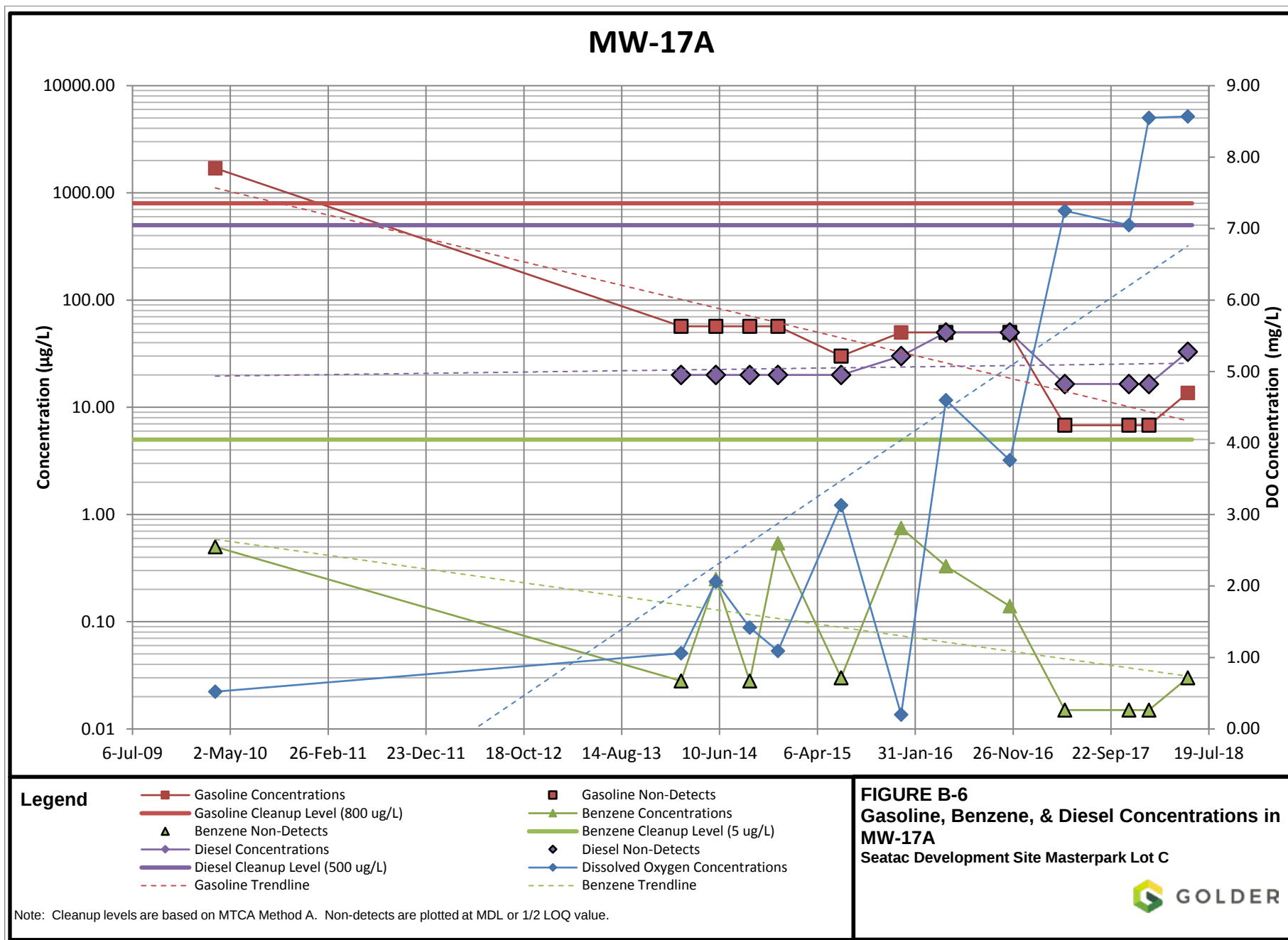
Note: Cleanup levels are based on MTCA Method A. Non-detects are plotted at MDL or 1/2 LOQ value.

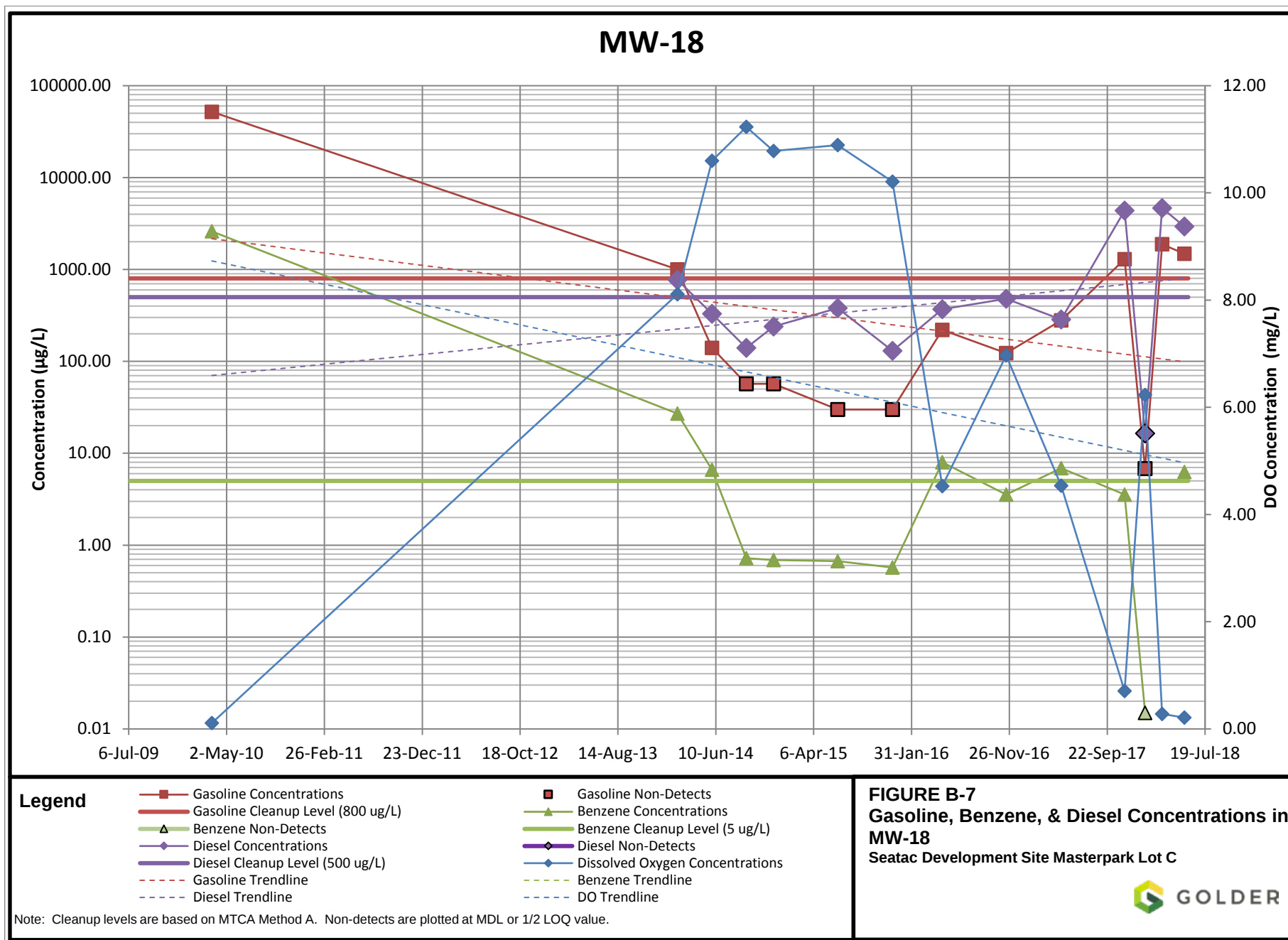
FIGURE B-3
Gasoline, Benzene, & Diesel Concentrations in MW-09
 Seatac Development Site Masterpark Lot C

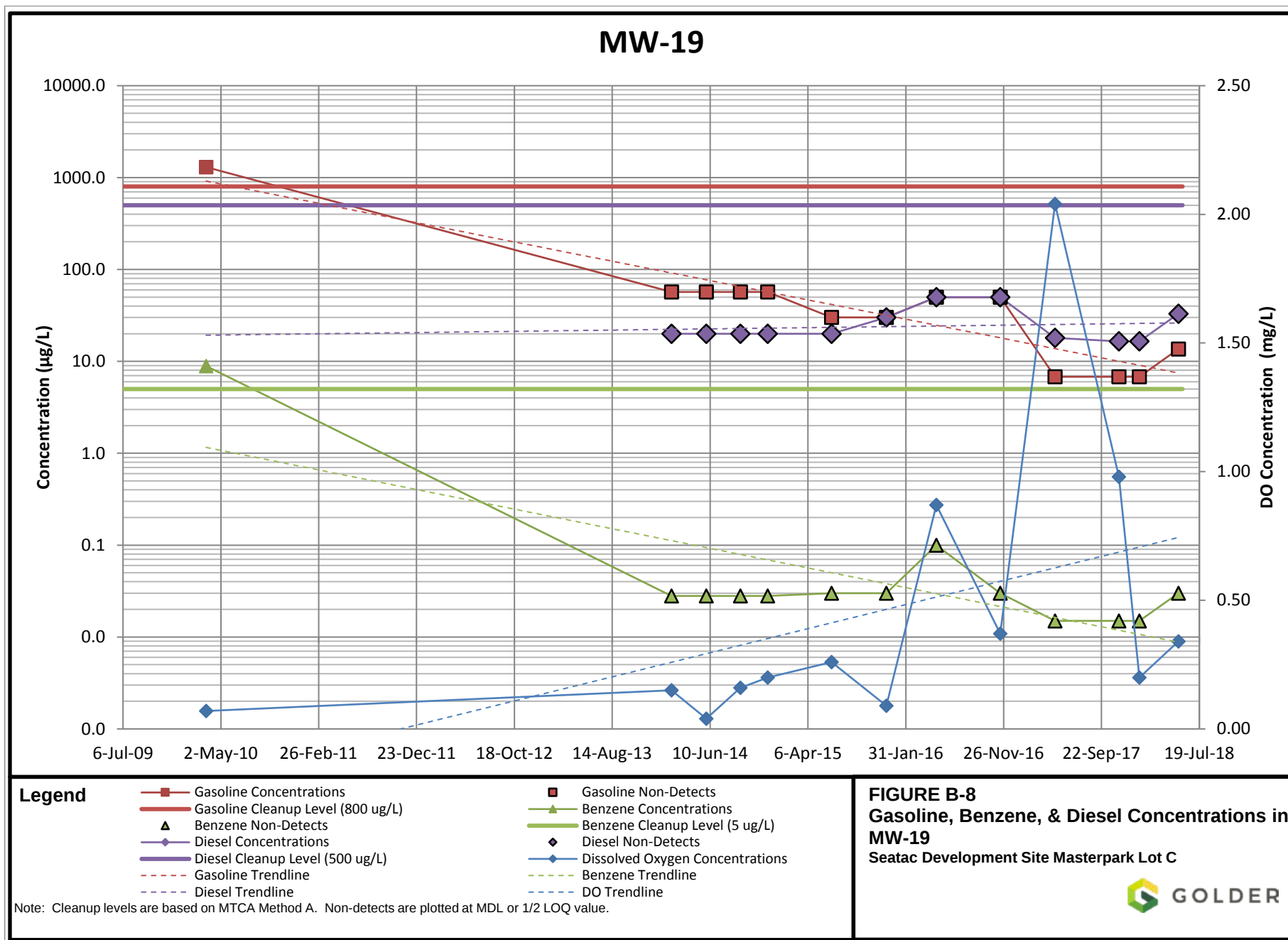


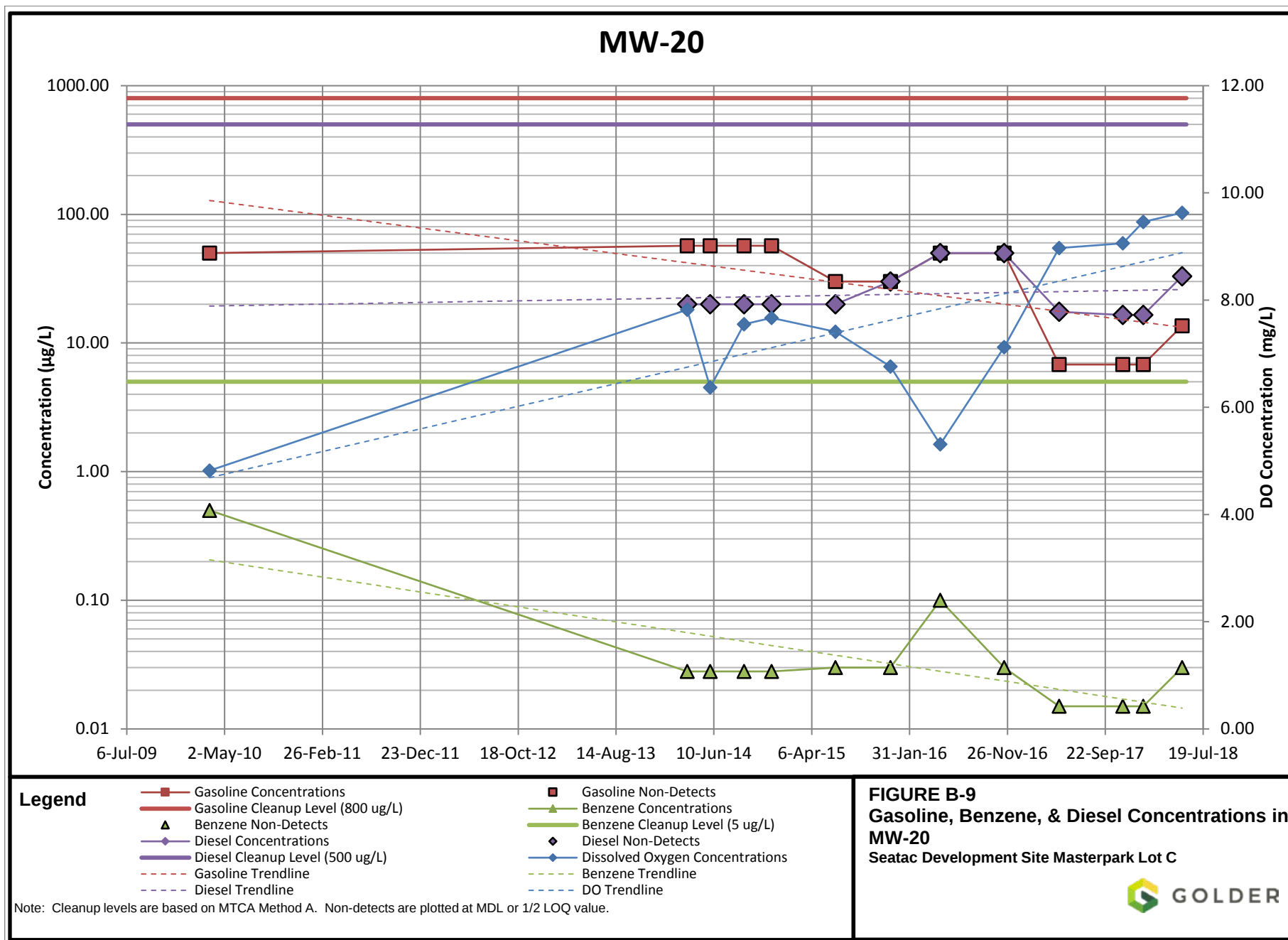


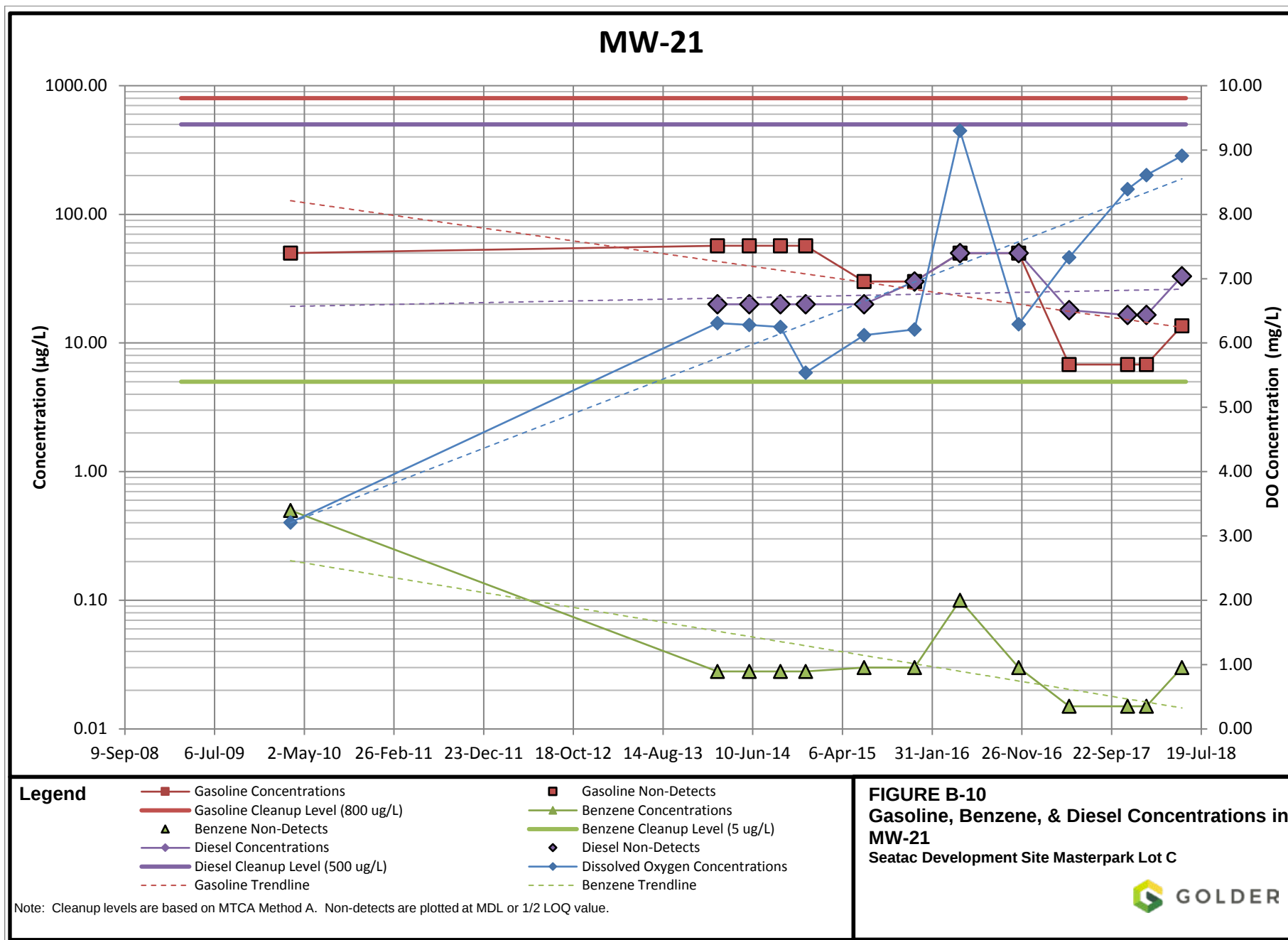




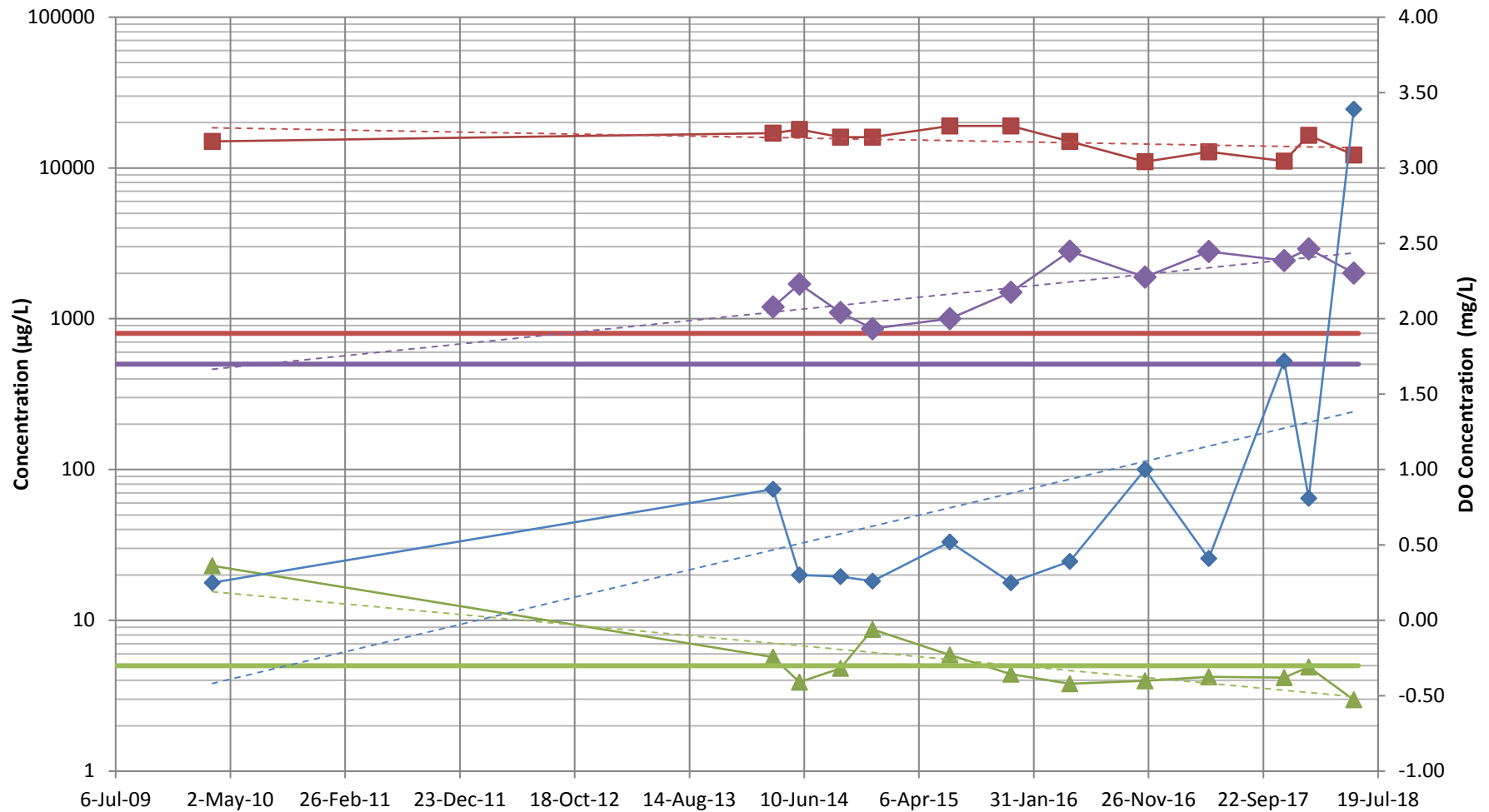








MW-22



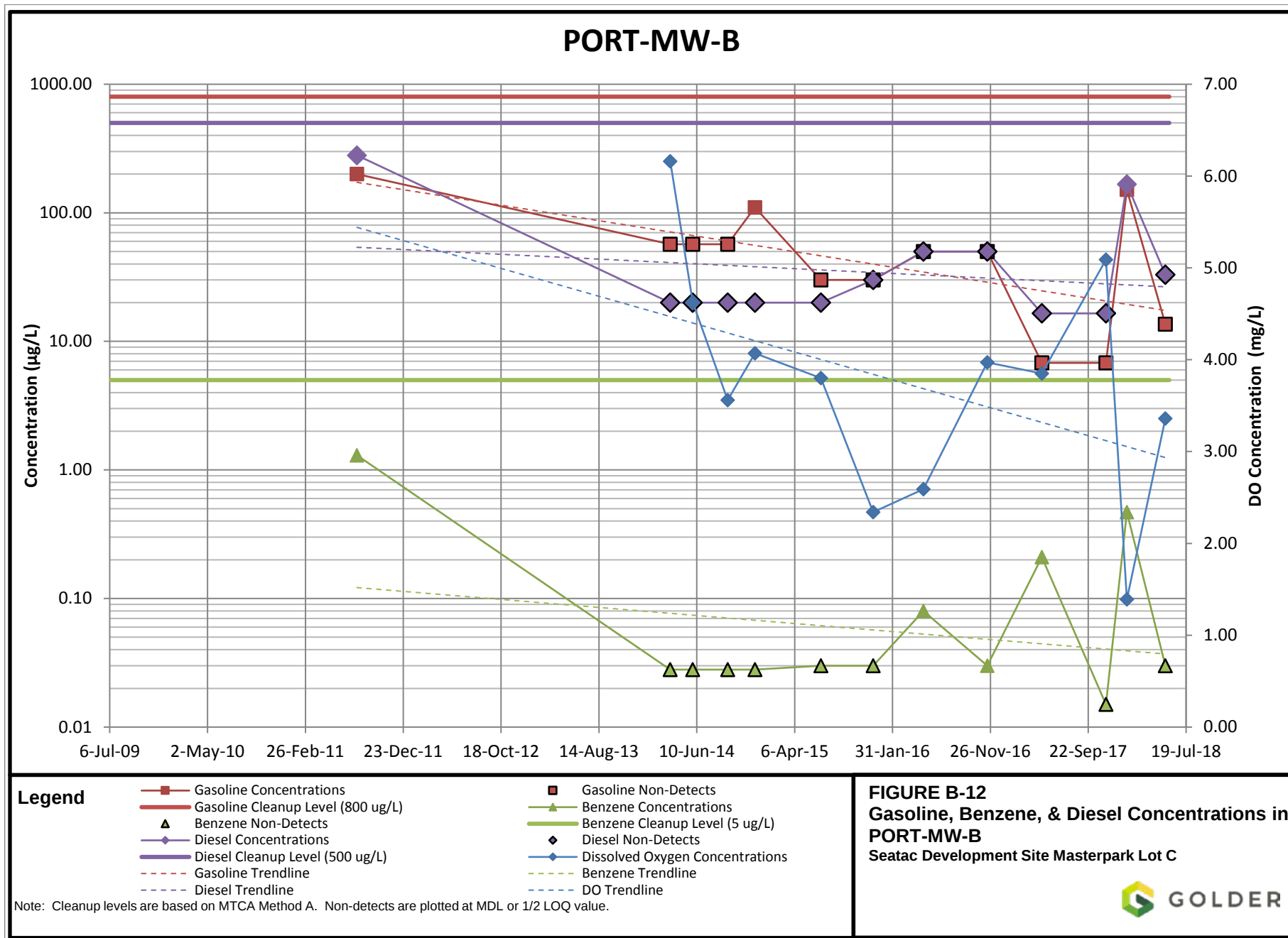
Legend

- Gasoline Concentrations
- ▲ Benzene Concentrations
- ◆ Diesel Concentrations
- ◆ Dissolved Oxygen Concentrations
- Benzene Trendline
- DO Trendline
- Gasoline Cleanup Level (800 µg/L)
- Benzene Cleanup Level (5 µg/L)
- Diesel Cleanup Level (500 µg/L)
- Gasoline Trendline
- Diesel Trendline

Note: Cleanup levels are based on MTCA Method A. Non-detects are plotted at MDL or 1/2 LOQ value.

FIGURE B-11
Gasoline, Benzene, & Diesel Concentrations in MW-22
 Seatac Development Site Masterpark Lot C







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