

March 17, 2016

Project No. 073-93368-06.09A

Harry Grant
Riddell Williams P.S.
1001 Fourth Avenue, Suite 4500
Seattle, WA 98154

**RE: PERFORMANCE GROUNDWATER MONITORING REPORT – FALL 2015 SEMI-ANNUAL
SEA-TAC DEVELOPMENT SITE (MASTERPARK LOT C)**

Dear Harry:

Golder Associates Inc. (Golder) completed performance groundwater monitoring at the Sea-Tac Development Site (MasterPark Lot C) December 2, 3, and 18, 2015. Groundwater sampling was conducted in accordance with the Compliance Monitoring Plan, Sea-Tac Development Site (Golder 2011)¹. Groundwater samples were collected from monitoring wells, 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). No sample could be collected from monitoring well MW-06 due to lack of water in the well. 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 all site wells, which also include MW-01, MW-05, MW-08A, MW-10, MW-11, MW-14, MW-15, and MW-16.

1.0 SAMPLING PROTOCOL

Groundwater sampling was conducted in accordance with the Compliance Monitoring Plan, Sea-Tac Development Site (Golder 2011)¹, and included the following activities:

- Measurement of static water elevations at monitoring wells.
- Well purging to ensure sample representativeness with the newly installed 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).

¹Golder Associates Inc. (Golder). 2011. Attachment E: Compliance Monitoring Plan Sea-Tac Development Site, SeaTac Washington. November 2.



Appendix A presents the laboratory analytical reports for all analyses. Sampling activities were documented on Sample Integrity Data Sheets (SIDS), which are provided in Appendix B. Appendix C presents the Data Validation Memorandum. Appendix D provides data tables and trend graphs for all sampling events. Table 1 presents water depth measurements and elevations that were collected from wells prior to sampling activities. Table 2 shows a summary of the field parameters and laboratory analytical results for each groundwater sample collected in December 2015.

2.0 FALL 2015 SEMI-ANNUAL 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 Containment 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 December 2015.

Results for NWTPH-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-09, MW-22, and the field duplicate at MW-22 (MW-22-DUP). NWTPH-Gasoline was detected in MW-17A, but was less than the MTCA standard. NWTPH-Gx was not detected in wells MW-12, MW-13, MW-18, MW-19, MW-20, MW-21, and PORT-MW-B.

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

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

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

Ethylene dibromide (EDB) results were not detected for all samples. The reporting limits were raised for samples from MW-07, MW-22 and MW-22-DUP due to high levels of BTEX. More information is provided in the Data Validation Memorandum in Appendix C. The method detection limits (MDLs) for EDB for all samples were greater than the MTCA clean-up levels.

N-hexane was detected, and below the MTCA Method B level (480 µg/L) in wells MW-07, MW-18, MW-22, and MW-22-DUP. N-hexane was not detected in wells, MW-09, MW-12, MW-13, MW-17A, 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-22-DUP. Naphthalene was also detected, but below the MTCA limit, in wells MW-07, MW-09, MW-17A, MW-18, and PORT-MW-B. Naphthalene was not detected in wells MW-12, MW-13, MW-19, MW-20, and MW-21.

Results for NWTPH-Diesel were detected above the MTCA Method A limit (0.5 mg/L) in wells MW-07, MW-09, MW-22, and MW-22-DUP. NWTPH-Diesel was detected, but below the MTCA limit in wells MW-12, MW-13, and MW-18. NWTPH-Diesel was not detected in MW-17A, MW-19, MW-20, MW-21, and PORT-MW-B. The highest concentrations of diesel were detected in groundwater from monitoring well MW-07 at 4.9 mg/L, while all other diesel concentrations were less than 1.5 mg/L or not detected. NWTPH-Motor Oil was not detected (<0.20 mg/L) for all samples except for sample PORT-MW-B, which was detected below the MTCA limits.

3.0 DATA QUALITY ASSURANCE / VALIDATION

Data underwent a data validation review and is presented in detail in Appendix C. In general, the data were acceptable, except for the following:

- Samples MW-07, MW-22, and MW-22-DUP had to be diluted due to high levels of analytes.
- Gasoline results for samples MW-09 and MW-17A were qualified as estimated (J) due to unidentifiable hydrocarbons.
- Diesel results for samples MW-22, MW-22-DUP, MW-09, and MW-07 were qualified as estimated (J) due to unidentifiable hydrocarbons.
- Lab noted that the continuing calibration standard (CCAL) was out of control below the control limits for naphthalene. The lab flagged affected results as "Q". Golder's data validation applied an estimated (J) qualifier to affected samples.
- Trip Blank-121815 and Field Blank 120315 contained detections of various analytes. Associated samples with detections between the Detection Limit (DL) and Limit of Quantification (LOQ) were qualified as "U" (non-detect) at the LOQ. Associated samples with detections <10X the blank contamination were qualified as estimated with a positive bias (J+). No action was taken for results greater than 10X the blank contamination. Refer to Appendix C for details.
- Results for QA/QC samples (field blanks, trip blanks, and field duplicate) were acceptable except as discussed above. No other issues were noted.

4.0 SUMMARY

The analytical results for the fall 2015 semi-annual groundwater sampling 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. 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 December 2015 had only 14 results above MTCA clean-up levels out of 120 results. Overall, concentrations are trending downward as shown in the historical data tables and graphs in Appendix D.

The only on-site wells containing compounds with results above MTCA clean-up levels in December 2015 were MW-07 and MW-09. Wells MW-07 and MW-09 had an increase in concentrations from the June 2015 sampling to the December 2015, but most concentrations were still less than the December 2014 sampling. The only off-site well that was sampled and contained compounds with results above the MTCA clean-up levels in December 2015 was MW-22; although, two off-site monitoring wells (MW-15 and MW-16) that had detected contaminants over MTCA clean-up levels during the RI are not sampled for performance monitoring.

Wells MW-12 and MW-13 showed the greatest drop in concentrations since the startup of the IAS-SVE system with NWTPH-Gx levels going from 8.6 mg/L to <0.10 mg/L and 14 mg/L to <0.10 mg/L, respectively. Benzene in MW-12 went from 79 µg/L to <0.20 µg/L. Toluene, ethylbenzene, total xylenes, and naphthalene in MW-12 and MW-13 also showed significant decreases in concentrations. MW-18 that was in the source leak area is also showing significant improvements with all results being below detection limits or detected much lower than the MTCA clean-up levels.

The wells inside of the IAS and SVE system area have significant reductions and are almost meeting performance goals. Refer to Appendix D for data tables and trend graphs for comparisons of the March 2010 final RI monitoring event with the 2014-2015 performance monitoring results.

If you have any questions or require any additional information, please contact Lee Holder at (425) 883-0777.

Sincerely,

GOLDER ASSOCIATES INC.



Jill Lamberts
Project Environmental Scientist



Lee K. Holder, PE
Associate Environmental Engineer

cc: Roger McCracken, McCracken Group
Tamarah Knapp-Hancock, Scarsella Bros. Inc.
Doug Rigoni, SeaTac Investments LLC

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Appendix D	Data Tables and Trend Graphs

TABLES

Table 1: Fall 2015 Semi-Annual Groundwater Elevation Data Sea-Tac Development Site, 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	12/2/2015 14:17	51.0	41-51	2	361.38	48.78	312.60
MW-05	12/2/2015 13:15	58.0	48-58	2	364.26	55.86	308.40
MW-06 ^c	12/2/2015 12:56	60.0	50-60	2	369.68	-	-
MW-07 ^b	12/2/2015 15:04	53.5	43.5-53.5	2	358.69	49.96	308.73
MW-08A	12/2/2015 14:35	54.0	44-54	2	359.16	50.49	308.67
MW-09 ^{b,c}	12/2/2015 13:57	57.0	47.5-57	2	362.13	-	-
MW-10	12/2/2015 14:25	90.0	80-90	2	360.18	51.39	308.79
MW-11 ^b	12/2/2015 14:59	57.0	42-57	2	357.53	48.63	308.90
MW-12 ^b	12/2/2015 14:46	67.0	52-67	2	364.83	56.74	308.09
MW-13	12/2/2015 14:11	65.0	50-65	2	365.42	56.43	308.99
MW-14	12/2/2015 14:05	65.0	50-65	2	363.76	54.73	309.03
MW-15	12/2/2015 11:09	65.0	50-65	2	364.67	56.02	308.65
MW-16	12/2/2015 13:25	73.7	64-74	2	377.63	69.09	308.54
MW-17A ^a	12/18/2015 8:38	95.0	80-95	2	394.00	85.95	308.05
MW-18	12/2/2015 14:45	62.0	47-62	2	360.45	-	-
MW-19	12/2/2015 14:52	58.0	43-58	2	356.61	47.72	308.89
MW-20 ^b	12/2/2015 13:45	113.1	103-113	2	416.61	108.61	308.00
MW-21 ^b	12/2/2015 13:34	109.8	95-110	2	412.85	104.70	308.15
MW-22	12/2/2015 9:55	95.0	80-95	2	393.31	84.83	308.48
MW-23	12/2/2015 11:18	57.5	42.5-57.5	2	354.94	46.15	308.79
PORT-MW-B ^a	12/2/2015 11:45	99.0	79-99	2	400.00	91.61	308.39

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 IAS/SVE in operation. Blowing may be affecting WLs.
- ^c Top of pump is above water level - not measured.

Table 2: Fall 2015 Semi-Annual Groundwater Field Parameters and Analytical Data, Sea-Tac Development Site, Seatac, Washington

Sample Location ID	Date/Time Sampled ^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)
MW-06 ^{i,k}	12/3/2015 12:56	369.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-07 ^b	12/3/2015 13:45	358.7	50.0	308.7	6.44	15.9	526	0.14	2.91	23	77	1200	270	1550	< 1.5	160	69	4.9 J	< 0.20
MW-09 ^{b,j}	12/3/2015 11:25	362.1	-	-	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
MW-12 ^{b,m}	12/3/2015 15:00	364.8	56.7	308.1	-	-	-	-	-	< 0.25	< 0.20	< 0.20	< 0.20	<0.40	< 0.07	< 0.20	< 0.50	0.29	< 0.20
MW-13	12/2/2015 15:00	365.4	56.4	309.0	7.27	14.2	164	10.20	0.9	< 0.25	< 0.20	< 0.20	0.23	1.10 J+	< 0.07	< 0.20	< 0.50	0.26	< 0.20
MW-17A ^a	12/18/2015 9:35	394.0	86.0	308.1	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
MW-18	12/3/2015 12:35	360.5	-	-	8.28	14.8	455	10.21	14.6	< 0.25	0.57	4.80	0.34	9.8	< 0.07	0.25	0.67	0.13	< 0.20
MW-19	12/2/2015 14:10	356.6	47.7	308.9	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
MW-20 ^b	12/3/2015 9:55	416.6	108.6	308.0	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	< 0.20
MW-21 ^b	12/3/2015 9:00	412.9	104.7	308.2	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
MW-22	12/2/2015 10:40	393.3	84.8	308.5	6.87	13.0	325	0.25	3.42	19	4.4	6.2	840	1503	< 1.5	3.0 J	240	1.5 J	< 0.20
MW-22 Duplicate	12/2/2015 10:45	-	-	-	-	-	-	-	-	20	4.4	6.6	860	1603	< 1.5	6.8	280	1.5 J	< 0.20
PORT-MW-B ^a	12/2/2015 12:25	400.0	91.6	308.4	6.56	13.0	267	2.34	1.79	< 0.25	< 0.20	< 0.20	0.26	0.40 J+	< 0.07	< 0.20	2.3 J+	< 0.10	0.49
Clean-up Level			MTCA Method A for Groundwater (unrestricted land use)							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 land use)							NSA	5 ⁱ	640	800	1600	0.022	480	160	NSA	NSA

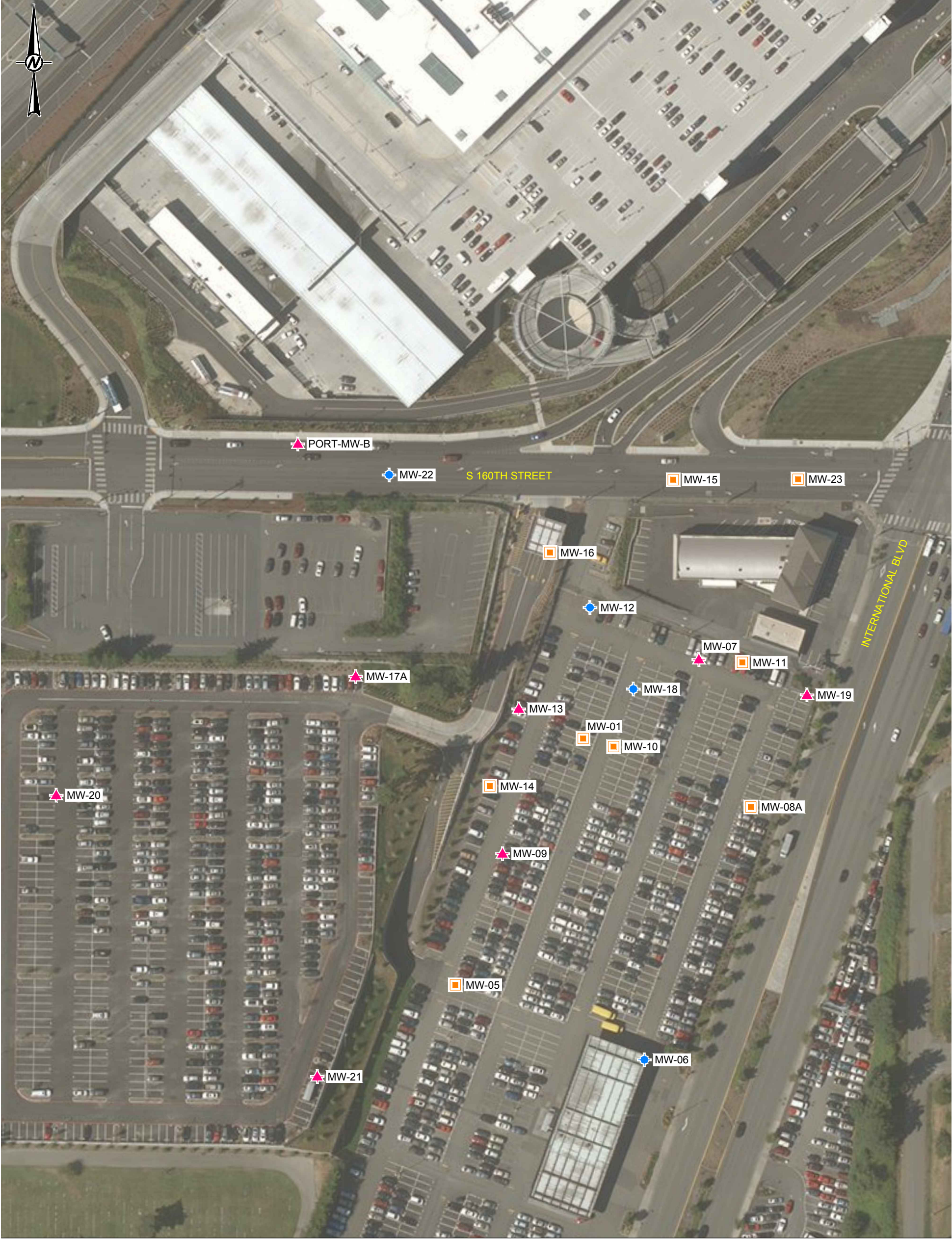
Notes:

- feet bgs
feet bmp
feet msl
a
b
c
d
e
f
g
h
i
j
k
m
- Feet below ground surface
Feet below measuring point
Feet above mean sea level
Well not surveyed, elevation estimated.
IAS/SVE in operation. Blowing may be affecting WLs.
Water levels collected at various times prior to sampling (see Table 1). Date/time is sampling time.
When benzene is present.
When benzene is not present.
Reported at Method Detection Limit (MDL). The MDL is greater than the MTCA CULs.
Inclusive of 40 CFR 141.61 Federal Law for drinking water MCLs
Value is more protective than Federal MCLs.
MTCA 173-340-705(5): Adjustments to cleanup levels based on applicable laws.
Top of pump is above water level - not measured.
Well not sampled, attempted to sample with bailer
Well sampled with bailer, no field parameters collected

- mg/L
µg/L
NTU
µmhos/cm
<
MTCA
MCL
NSA
TOC
°C
J
UJ
J+
- Not measured or not available
Result exceeds Clean-up Level (CUL)
Milligrams per liter
Micrograms per liter
Nephelometric Turbidity Unit
Micromhos per centimeter
Analyte not detected above the reporting limit shown
Model Toxics Control Act
Maximum Containment Level
No Standard Available
Top of casing inside PVC well
Degrees Celsius
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.
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.
The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased high.



FIGURE



LEGEND

MW-14

MW-09

MW-01

MONITORING WELL - GROUNDWATER ELEVATIONS MEASURED

MONITORING WELL - COMPLIANCE

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	2014-04-01
PREPARED	REDMOND
DESIGN	JL
REVIEW	DM
APPROVED	

PROJECT
SEATAC DEVELOPMENT SITE
MASTER PARK LOT C

TITLE
GROUNDWATER MONITORING LOCATIONS

PROJECT No. 073-93368x06.09A

U+0000

Rev.
B

FIGURE
1



APPENDIX A
LABORATORY ANALYTICAL RESULTS



Analytical Resources, Incorporated
Analytical Chemists and Consultants

December 30, 2015

Jill Lamberts
Golder Associates Inc.
18300 NE Union Hill Road
Suite 200
Redmond, WA 98052

Re: Project: Master Park Lot C
ARI Job Nos.: ASB8

Dear Jill:

Please find enclosed chain of custody records (COC) and the final results for the project referenced above. Analytical Resources, Inc. (ARI) accepted twelve water samples and two trip blanks in good condition on December 3, 2015.

The samples were analyzed for NWTPH-Dx VOCs and NWTPH-Gx plus BTEX, as requested on the COC. Quality control analyses are included for your review.

There were no anomalies associated with these analyses.

A copy of these reports and all associated raw data will remain electronically on file at ARI. Please feel free to contact me if you have any questions or require any additional information.

Respectfully,
ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com

Please analyze under current USA bitcoin Golden + ARZ

Page: 1	of 2
Date: 12/2/2015	Ice Present?
No. of Coolers:	Cooler Temps:

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

[illegible]

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Page: 2 of 2	
Date: 12/3/15	Ice Present?
No. of Coolers:	Cooler Temps:

ARI Assigned Number: ASB8	Turn-around Requested: Standard
ARI Client Company: Colder	Phone: 425-583-0777
Client Contact: L. Holder J. Lamberts	
Client Project Name: Master-back Lot C	
Client Project #: 073-93368-06-04A	Samplers: Lamberts Miller

[illegible]

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Sample ID Cross Reference Report



ARI Job No: ASB8
Client: Golder Associates
Project Event: 073-93368-06-09A
Project Name: Masterpark Lot C

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. Trip Blank-120215	ASB8A	15-23531	Water	12/02/15	12/03/15 16:08
2. MPLOT-MW-22-120215	ASB8B	15-23532	Water	12/02/15 10:40	12/03/15 16:08
3. MPLOT-MW-22-DUP-120215	ASB8C	15-23533	Water	12/02/15 10:45	12/03/15 16:08
4. PORT-MW-B-120215	ASB8D	15-23534	Water	12/02/15 12:25	12/03/15 16:08
5. MPLOT-MW-19-120215	ASB8E	15-23535	Water	12/02/15 14:10	12/03/15 16:08
6. MPLOT-MW-13-120215	ASB8F	15-23536	Water	12/02/15 15:00	12/03/15 16:08
7. MPLOT-MW-21-120315	ASB8G	15-23537	Water	12/03/15 09:00	12/03/15 16:08
8. MPLOT-MW-20-120315	ASB8H	15-23538	Water	12/03/15 09:55	12/03/15 16:08
9. MPLOT-MW-09-120315	ASB8I	15-23539	Water	12/03/15 11:25	12/03/15 16:08
10. MPLOT-MW-18-120315	ASB8J	15-23540	Water	12/03/15 12:35	12/03/15 16:08
11. MPLOT-MW-07-120315	ASB8K	15-23541	Water	12/03/15 13:45	12/03/15 16:08
12. MPLOT-FB-120315	ASB8L	15-23542	Water	12/03/15 13:30	12/03/15 16:08
13. MPLOT-MW-12-120315	ASB8M	15-23543	Water	12/03/15 15:00	12/03/15 16:08
14. Trip Blank 120315	ASB8N	15-23544	Water	12/03/15	12/03/15 16:08



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Gold
COC No(s): _____ (NA)
Assigned ARI Job No: ASB8

Project Name: Masterpark Lot C
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)
Time: 33 1-3 2-1

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 202565

Cooler Accepted by: CA Date: 12-3-15 Time: 1000

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: _____ (NA)

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: CA Date: 12-7-15 Time: 1000

** Notify Project Manager of discrepancies or concerns **

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Small Air Bubbles ~2mm 	Peabubbles 2-4 mm 	LARGE Air Bubbles > 4 mm 	Small → "sm" (< 2 mm) Peabubbles → "pb" (2 to < 4 mm) Large → "lg" (4 to < 6 mm) Headspace → "hs" (> 6 mm)
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ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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Sample ID: Trip Blank-120215

SAMPLE

Lab Sample ID: ASB8A

LIMS ID: 15-23531

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 16:39

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	98.8%
Bromofluorobenzene	97.3%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: MPLOTG-MW-22-120215

SAMPLE

Lab Sample ID: ASB8B

LIMS ID: 15-23532

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 17:06

Sample Amount: 0.50 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.53	4.0	4.4	
108-88-3	Toluene	0.80	4.0	6.2	
100-41-4	Ethylbenzene	0.74	4.0	840	
179601-23-1	m,p-Xylene	1.0	8.0	1,500	
95-47-6	o-Xylene	0.70	4.0	2.6 J	
106-93-4	1,2-Dibromoethane	1.5	4.0	< 4.0 U	
91-20-3	Naphthalene	2.4	10	240	
110-54-3	Hexane	1.9	4.0	3.0 J	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.58	5.0	19	GAS
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	99.3%
Bromofluorobenzene	99.9%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: MPLOTG-MW-22-DUP-120215
SAMPLE

Lab Sample ID: ASB8C

LIMS ID: 15-23533

Matrix: Water

Data Release Authorized: *B*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 17:34

Sample Amount: 0.50 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.53	4.0	4.4	
108-88-3	Toluene	0.80	4.0	6.6	
100-41-4	Ethylbenzene	0.74	4.0	860	
179601-23-1	m,p-Xylene	1.0	8.0	1,600	
95-47-6	o-Xylene	0.70	4.0	2.8 J	
106-93-4	1,2-Dibromoethane	1.5	4.0	< 4.0 U	
91-20-3	Naphthalene	2.4	10	280	
110-54-3	Hexane	1.9	4.0	6.8	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.58	5.0	20	GAS
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	100%
Bromofluorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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Sample ID: PORT-MW-B-120215

SAMPLE

Lab Sample ID: ASB8D

LIMS ID: 15-23534

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 18:00

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	0.26	
179601-23-1	m,p-Xylene	0.05	0.40	0.40	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	2.3	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	102%
Bromofluorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: MPLOTG-MW-19-120215

SAMPLE

Lab Sample ID: ASB8E

LIMS ID: 15-23535

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 18:25

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	0.14 J	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	0.32 J	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	97.9%
Bromofluorobenzene	98.4%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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Sample ID: MPlotC-MW-13-120215
SAMPLE

Lab Sample ID: ASB8F

LIMS ID: 15-23536

Matrix: Water

Data Release Authorized: *AS*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 18:51

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	0.23	
179601-23-1	m,p-Xylene	0.05	0.40	0.99	
95-47-6	o-Xylene	0.03	0.20	0.11 J	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	0.12 J	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	100%
Bromofluorobenzene	97.7%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: MPLOTG-MW-21-120315

SAMPLE

Lab Sample ID: ASB8G

LIMS ID: 15-23537

Matrix: Water

Data Release Authorized: *B*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 19:16

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	101%
Bromofluorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: MPLOTG-MW-20-120315

SAMPLE

Lab Sample ID: ASB8H

LIMS ID: 15-23538

Matrix: Water

Data Release Authorized:

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 19:42

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	98.2%
Bromofluorobenzene	100%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: MPLOTG-MW-09-120315
SAMPLE

Lab Sample ID: ASB8I

LIMS ID: 15-23539

Matrix: Water

Data Release Authorized:

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 20:07

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	8.4	
108-88-3	Toluene	0.04	0.20	1.5	
100-41-4	Ethylbenzene	0.04	0.20	73	
179601-23-1	m,p-Xylene	0.05	0.40	1.2	
95-47-6	o-Xylene	0.03	0.20	0.25	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	5.7	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	2.2	GRO
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	102%
Bromofluorobenzene	102%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: MPLOTG-MW-18-120315

SAMPLE

Lab Sample ID: ASB8J

LIMS ID: 15-23540

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 20:33

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	0.57	
108-88-3	Toluene	0.04	0.20	4.8	
100-41-4	Ethylbenzene	0.04	0.20	0.34	
179601-23-1	m,p-Xylene	0.05	0.40	7.8	
95-47-6	o-Xylene	0.03	0.20	2.0	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	0.67	
110-54-3	Hexane	0.10	0.20	0.25	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	98.8%
Bromofluorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: MPLOTG-MW-07-120315

SAMPLE

Lab Sample ID: ASB8K

LIMS ID: 15-23541

Matrix: Water

Data Release Authorized: *M*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 21:00

Sample Amount: 0.50 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.53	4.0	77	
108-88-3	Toluene	0.80	4.0	1,200	
100-41-4	Ethylbenzene	0.74	4.0	270	
179601-23-1	m,p-Xylene	1.0	8.0	1,300	
95-47-6	o-Xylene	0.70	4.0	250	
106-93-4	1,2-Dibromoethane	1.5	4.0	< 4.0 U	
91-20-3	Naphthalene	2.4	10	69	
110-54-3	Hexane	1.9	4.0	160	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.58	5.0	23	GAS
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	101%
Bromofluorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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Sample ID: MPL0TC-FB-120315

SAMPLE

Lab Sample ID: ASB8L

LIMS ID: 15-23542

Matrix: Water

Data Release Authorized: *BB*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 21:26

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	0.18 J	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	0.42	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	0.48 J	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	101%
Bromofluorobenzene	99.6%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: MPLOTG-MW-12-120315
SAMPLE

Lab Sample ID: ASB8M

LIMS ID: 15-23543

Matrix: Water

Data Release Authorized: *AS*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 21:52

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	99.2%
Bromofluorobenzene	99.4%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

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ANALYTICAL
RESOURCES
INCORPORATEDSample ID: Trip Blank 120315
SAMPLE

Lab Sample ID: ASB8N

LIMS ID: 15-23544

Matrix: Water

Data Release Authorized: *JB*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 22:18

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	101%
Bromofluorobenzene	99.7%

ORGANICS ANALYSIS DATA SHEET
Volatiles by P&T GC/MS
Page 1 of 1



Sample ID: MB-121615A
METHOD BLANK

Lab Sample ID: MB-121615A
LIMS ID: 15-23532
Matrix: Water
Data Release Authorized: *[Signature]*
Reported: 12/30/15

QC Report No: ASB8-Golder Associates
Project: Masterpark Lot C
073-93368-06-09A
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/PKC
Date Analyzed: 12/16/15 16:13

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	98.4%
Bromofluorobenzene	100%

VOA SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: ASB8-Golder Associates
Project: Masterpark Lot C
073-93368-06-09A

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
ASB8A	Trip Blank-120215	10	NA	98.8%	97.3%	NA	0
MB-121615A	Method Blank	10	NA	98.4%	100%	NA	0
LCS-121615A	Lab Control	10	NA	99.7%	102%	NA	0
LCSD-121615A	Lab Control Dup	10	NA	102%	101%	NA	0
ASB8B	MPLUTC-MW-22-120215	10	NA	99.3%	99.9%	NA	0
LCS-121615A	Lab Control	10	NA	100%	98.9%	NA	0
LCSD-121615A	Lab Control Dup	10	NA	96.9%	101%	NA	0
ASB8C	MPLUTC-MW-22-DUP-120215	10	NA	100%	101%	NA	0
ASB8D	PORT-MW-B-120215	10	NA	102%	101%	NA	0
ASB8E	MPLUTC-MW-19-120215	10	NA	97.9%	98.4%	NA	0
ASB8F	MPLUTC-MW-13-120215	10	NA	100%	97.7%	NA	0
ASB8G	MPLUTC-MW-21-120315	10	NA	101%	101%	NA	0
ASB8H	MPLUTC-MW-20-120315	10	NA	98.2%	100%	NA	0
ASB8I	MPLUTC-MW-09-120315	10	NA	102%	102%	NA	0
ASB8J	MPLUTC-MW-18-120315	10	NA	98.8%	101%	NA	0
ASB8K	MPLUTC-MW-07-120315	10	NA	101%	101%	NA	0
ASB8L	MPLUTC-FB-120315	10	NA	101%	99.6%	NA	0
ASB8M	MPLUTC-MW-12-120315	10	NA	99.2%	99.4%	NA	0
ASB8N	Trip Blank 120315	10	NA	101%	99.7%	NA	0

LCS/MB LIMITS

QC LIMITS

SW8260C

(DCE) = d4-1,2-Dichloroethane
(TOL) = d8-Toluene
(BFB) = Bromofluorobenzene
(DCB) = d4-1,2-Dichlorobenzene(80-129)
(80-120)
(80-120)
(80-120)(80-129)
(80-120)
(80-120)
(80-120)Prep Method: SW5030B
Log Number Range: 15-23531 to 15-23544

ASB8 : 00021

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C/NWTPHG

Sample ID: LCS-121615A

Page 1 of 1

LAB CONTROL SAMPLE

Lab Sample ID: LCS-121615A

QC Report No: ASB8-Golder Associates

LIMS ID: 15-23532

Project: Masterpark Lot C

Matrix: Water

073-93368-06-09A

Data Release Authorized: *AB*

Date Sampled: NA

Reported: 12/30/15

Date Received: NA

Instrument/Analyst LCS: NT3/PKC

Sample Amount LCS: 10.0 mL

LCSD: NT3/PKC

LCSD: 10.0 mL

Date Analyzed LCS: 12/16/15 14:05

Purge Volume LCS: 10.0 mL

LCSD: 12/16/15 14:30

LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	10.1	10.0	101%	10.3	10.0	103%	2.0%
Toluene	10.0	10.0	100%	10.0	10.0	100%	0.0%
Ethylbenzene	10.0	10.0	100%	9.83	10.0	98.3%	1.7%
m,p-Xylene	20.2	20.0	101%	19.9	20.0	99.5%	1.5%
o-Xylene	10.4	10.0	104%	10.1	10.0	101%	2.9%
1,2-Dibromoethane	10.0	10.0	100%	10.3	10.0	103%	3.0%
Naphthalene	7.36	10.0	73.6%	7.89	10.0	78.9%	7.0%
Hexane	19.0	20.0	95.0%	18.2	20.0	91.0%	4.3%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	99.7%	102%
Bromofluorobenzene	102%	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C/NWTPHG

Page 1 of 1



Sample ID: LCS-121615A

LAB CONTROL SAMPLE

Lab Sample ID: LCS-121615A

LIMS ID: 15-23533

Matrix: Water

Data Release Authorized: *B*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: NA

Date Received: NA

Instrument/Analyst LCS: NT3/PKC

LCSD: NT3/PKC

Date Analyzed LCS: 12/16/15 14:56

LCSD: 12/16/15 15:21

Sample Amount LCS: 10.0 mL

LCSD: 10.0 mL

Purge Volume LCS: 10.0 mL

LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	7.23	7.04	103%	7.38	7.04	105%	2.1%
Toluene	52.3	49.4	106%	52.1	49.4	105%	0.4%
Ethylbenzene	13.2	12.3	107%	14.0	12.3	114%	5.9%
m,p-Xylene	42.8	40.0	107%	44.6	40.0	112%	4.1%
o-Xylene	16.9	15.3	110%	17.5	15.3	114%	3.5%

Reported in µg/L (ppb)

Gasoline Range Hydrocarbons	1.00	1.00	100%	1.03	1.00	103%	3.0%
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Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	100%	96.9%
Bromofluorobenzene	98.9%	101%

**ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS**

NWTPHD by GC/FID
Extraction Method: SW3510C
Page 1 of 2

QC Report No: ASB8-Golder Associates
Project: Masterpark Lot C
073-93368-06-09A

Matrix: Water

Date Received: 12/03/15

Data Release Authorized: 
Reported: 12/15/15

ARI ID	Sample ID	Analysis Date	DF	Range	Result	LOQ	DL
MB-120815 15-23532	Method Blank	12/14/15 FID3B	1.0	Diesel Range Motor Oil Range HC ID o-Terphenyl	< 0.10 U < 0.20 U --- 81.7%	0.10 0.20	0.03 0.06
ASB8B 15-23532	MPLOT-MW-22-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	1.5 < 0.20 U DRO 80.7%	0.10 0.20	0.03 0.06
ASB8C 15-23533	MPLOT-MW-22-DUP-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	1.5 < 0.20 U DRO 76.0%	0.10 0.20	0.03 0.06
ASB8D 15-23534	PORT-MW-B-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	< 0.10 U 0.49 MOTOR OIL 86.4%	0.10 0.20	0.03 0.06
ASB8E 15-23535	MPLOT-MW-19-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	< 0.10 U < 0.20 U --- 80.1%	0.10 0.20	0.03 0.06
ASB8F 15-23536	MPLOT-MW-13-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	0.26 < 0.20 U DIESEL 80.4%	0.10 0.20	0.03 0.06
ASB8G 15-23537	MPLOT-MW-21-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	< 0.10 U < 0.20 U --- 79.6%	0.10 0.20	0.03 0.06
ASB8H 15-23538	MPLOT-MW-20-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	< 0.10 U < 0.20 U --- 75.1%	0.10 0.20	0.03 0.06
ASB8I 15-23539	MPLOT-MW-09-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	1.0 < 0.20 U DRO 77.1%	0.10 0.20	0.03 0.06
ASB8J 15-23540	MPLOT-MW-18-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	0.13 < 0.20 U DIESEL 70.6%	0.10 0.20	0.03 0.06
ASB8K 15-23541	MPLOT-MW-07-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	5.3 E < 0.20 U DRO 86.4%	0.10 0.20	0.03 0.06

**ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS**

NWTPHD by GC/FID
Extraction Method: SW3510C
Page 2 of 2

QC Report No: ASB8-Golder Associates
Project: Masterpark Lot C
073-93368-06-09A

Matrix: Water

Date Received: 12/03/15

Data Release Authorized: *[Signature]*
Reported: 12/15/15

ARI ID	Sample ID	Analysis Date	DF	Range	Result	LOQ	DL
ASB8K DL 15-23541	MPLOT-MW-07-120315	12/15/15 FID3B	5.0	Diesel	4.9	0.50	0.16
				Motor Oil	< 1.0 U	1.0	0.28
				HC ID	DRO		
				o-Terphenyl	79.3%		
ASB8L 15-23542	MPLOT-MW-12-120315	12/14/15 FID3B	1.0	Diesel	< 0.10 U	0.10	0.03
				Motor Oil	< 0.20 U	0.20	0.06
				HC ID	---		
				o-Terphenyl	85.1%		
ASB8M 15-23543	MPLOT-MW-12-120315	12/14/15 FID3B	1.0	Diesel	0.29	0.10	0.03
				Motor Oil	< 0.20 U	0.20	0.06
				HC ID	DIESEL		
				o-Terphenyl	76.1%		

Reported in mg/L (ppm)

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ORGANICS ANALYSIS DATA SHEET

NWTPHD by GC/FID

Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED Sample ID: LCS-120815
LCS/LCSD

Lab Sample ID: LCS-120815

LIMS ID: 15-23532

Matrix: Water

Data Release Authorized: *AB*

Reported: 12/15/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 12/08/15

Sample Amount LCS: 500 mL

LCSD: 500 mL

Date Analyzed LCS: 12/14/15 14:55

Final Extract Volume LCS: 1.0 mL

LCSD: 12/14/15 15:17

LCSD: 1.0 mL

Instrument/Analyst LCS: FID3B/ML

Dilution Factor LCS: 1.00

LCSD: FID3B/ML

LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	2.50	3.00	83.3%	2.54	3.00	84.7%	1.6%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	88.1%	90.4%

Results reported in mg/L

RPD calculated using sample concentrations per SW846.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ASB8-Golder Associates
Project: Masterpark Lot C
073-93368-06-09A

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-120815	81.7%	0
LCS-120815	88.1%	0
LCSD-120815	90.4%	0
MPLOT-MW-22-120215	80.7%	0
MPLOT-MW-22-DUP-120215	76.0%	0
PORT-MW-B-120215	86.4%	0
MPLOT-MW-19-120215	80.1%	0
MPLOT-MW-13-120215	80.4%	0
MPLOT-MW-21-120315	79.6%	0
MPLOT-MW-20-120315	75.1%	0
MPLOT-MW-09-120315	77.1%	0
MPLOT-MW-18-120315	70.6%	0
MPLOT-MW-07-120315	86.4%	0
MPLOT-MW-07-120315 DL	79.3%	0
MPLOT-FB-120315	85.1%	0
MPLOT-MW-12-120315	76.1%	0

LCS/MB LIMITS QC LIMITS

(OTER) = o-Terphenyl

(50-150)

(50-150)

Prep Method: SW3510C
Log Number Range: 15-23532 to 15-23543

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: ASB8
Project: Masterpark Lot C
073-93368-06-09A

Matrix: Water
Date Received: 12/03/15

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
15-23532-120815MB1	Method Blank	500 mL	1.00 mL	12/08/15
15-23532-120815LCS1	Lab Control	500 mL	1.00 mL	12/08/15
15-23532-120815LCSD1	Lab Control Dup	500 mL	1.00 mL	12/08/15
15-23532-ASB8B	MPLUTC-MW-22-120215	500 mL	1.00 mL	12/08/15
15-23533-ASB8C	MPLUTC-MW-22-DUP-120	500 mL	1.00 mL	12/08/15
15-23534-ASB8D	PORT-MW-B-120215	500 mL	1.00 mL	12/08/15
15-23535-ASB8E	MPLUTC-MW-19-120215	500 mL	1.00 mL	12/08/15
15-23536-ASB8F	MPLUTC-MW-13-120215	500 mL	1.00 mL	12/08/15
15-23537-ASB8G	MPLUTC-MW-21-120315	500 mL	1.00 mL	12/08/15
15-23538-ASB8H	MPLUTC-MW-20-120315	500 mL	1.00 mL	12/08/15
15-23539-ASB8I	MPLUTC-MW-09-120315	500 mL	1.00 mL	12/08/15
15-23540-ASB8J	MPLUTC-MW-18-120315	500 mL	1.00 mL	12/08/15
15-23541-ASB8K	MPLUTC-MW-07-120315	500 mL	1.00 mL	12/08/15
15-23542-ASB8L	MPLUTC-FB-120315	500 mL	1.00 mL	12/08/15
15-23543-ASB8M	MPLUTC-MW-12-120315	500 mL	1.00 mL	12/08/15



Analytical Resources, Incorporated
Analytical Chemists and Consultants

January 4, 2016

Jill Lamberts
Golder Associates Inc.
18300 NE Union Hill Road
Suite 200
Redmond, WA 98052

Re: Project: Master Park Lot C
ARI Job Nos.: ATC4

Dear Jill:

Please find enclosed chain of custody records (COC) and the final results for the project referenced above. Analytical Resources, Inc. (ARI) accepted one water sample and trip blanks in good condition on December 18, 2015.

The samples were analyzed for NWTPH-Dx VOCs and NWTPH-Gx plus BTEX, as requested on the COC. Quality control analyses are included for your review.

The VOCs CCAL is out of control low for naphthalene. All associated samples that contain analyte have been flagged with a "Q" qualifier.

There were no other anomalies associated with these analyses.

A copy of these reports and all associated raw data will remain electronically on file at ARI. Please feel free to contact me if you have any questions or require any additional information.

Respectfully,
ANALYTICAL RESOURCES, INC.



Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

[illegible]

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co- signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Sample ID Cross Reference Report



ARI Job No: ATC4
Client: Golder Associates
Project Event: 073-93368-06-09A
Project Name: Master Park Lot C

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. MPLOT-MW-17A-121815	ATC4A	15-24809	Water	12/18/15 09:35	12/18/15 10:54
2. Trip Blank 121815	ATC4B	15-24810	Water	12/18/15	12/18/15 10:54
3. MPLOT-MW-17A-121815	ATC4C	15-24902	Water	12/18/15 09:35	12/18/15 10:54
4. Trip Blank 121815	ATC4D	15-24903	Water	12/18/15	12/18/15 10:54



Cooler Receipt Form

ARI Client: Golder

Project Name: Master Park Lot C

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: ATC4

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3-6

Time: _____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DC05276

Cooler Accepted by: CA Date: 12-18-15 Time: 1059

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI... (NA)

Was Sample Split by ARI : NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: A Date: 12/18/15 Time: 1618

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm

Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C

Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATED

Sample ID: MPlotC-MW-17A-121815

SAMPLE

Lab Sample ID: ATC4A

LIMS ID: 15-24809

Matrix: Water

Data Release Authorized: *B*

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 13:37

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
71-43-2	Benzene	0.03	0.20	0.75
108-88-3	Toluene	0.04	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	0.08 J
179601-23-1	m,p-Xylene	0.05	0.40	0.17 J
95-47-6	o-Xylene	0.03	0.20	0.13 J
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U
91-20-3	Naphthalene	0.12	0.50	0.98 Q
110-54-3	Hexane	0.10	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	97.9%
Bromofluorobenzene	99.0%
d4-1,2-Dichlorobenzene	102%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C

Page 1 of 1



Sample ID: Trip Blank 121815

SAMPLE

Lab Sample ID: ATC4B

LIMS ID: 15-24810

Matrix: Water

Data Release Authorized: *JB*

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 12:46

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
71-43-2	Benzene	0.03	0.20	< 0.20 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	0.07 J
95-47-6	o-Xylene	0.03	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
110-54-3	Hexane	0.10	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	96.8%
Bromofluorobenzene	98.3%
d4-1,2-Dichlorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MPLOTG-MW-17A-121815

SAMPLE

Lab Sample ID: ATC4C

LIMS ID: 15-24902

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 14:03

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	0.05 J	GRO

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	99.3%
Bromofluorobenzene	99.8%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: Trip Blank 121815
SAMPLE

Lab Sample ID: ATC4D

LIMS ID: 15-24903

Matrix: Water

Data Release Authorized: *B*

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 13:12

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	97.3%
Bromofluorobenzene	100%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C

Page 1 of 1



Sample ID: MB-122915A

METHOD BLANK

Lab Sample ID: MB-122915A

LIMS ID: 15-24809

Matrix: Water

Data Release Authorized: *AB*

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: NA

Date Received: NA

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 12:21

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
71-43-2	Benzene	0.03	0.20	< 0.20 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U
95-47-6	o-Xylene	0.03	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
110-54-3	Hexane	0.10	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	97.7%
Bromofluorobenzene	98.8%
d4-1,2-Dichlorobenzene	103%

VOA SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-122915A	Method Blank	10	NA	97.7%	98.8%	103%	0
LCS-122915A	Lab Control	10	NA	98.5%	102%	100%	0
LCSD-122915A	Lab Control Dup	10	NA	99.0%	104%	101%	0
ATC4A	MPLOT-MW-17A-121815	10	NA	97.9%	99.0%	102%	0
ATC4AMS	MPLOT-MW-17A-121815	10	NA	100%	101%	98.4%	0
ATC4AMSD	MPLOT-MW-17A-121815	10	NA	98.1%	101%	101%	0
ATC4B	Trip Blank 121815	10	NA	96.8%	98.3%	101%	0

LCS/MB LIMITS

QC LIMITS

SW8260C

(DCE) = d4-1,2-Dichloroethane	(80-129)	(80-129)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B

Log Number Range: 15-24809 to 15-24810

VOA SURROGATE RECOVERY SUMMARY



Matrix: Water

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-122915A	Method Blank	10	NA	97.7%	98.8%	NA	0
LCS-122915A	Lab Control	10	NA	98.5%	100%	NA	0
LCSD-122915A	Lab Control Dup	10	NA	97.8%	102%	NA	0
ATC4C	MPLOT-MW-17A-121815	10	NA	99.3%	99.8%	NA	0
ATC4CMS	MPLOT-MW-17A-121815	10	NA	101%	99.2%	NA	0
ATC4CMSD	MPLOT-MW-17A-121815	10	NA	98.5%	102%	NA	0
ATC4D	Trip Blank 121815	10	NA	97.3%	100%	NA	0

LCS/MB LIMITS

QC LIMITS

SW8260C

(DCE) = d4-1,2-Dichloroethane	(80-129)	(80-129)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B

Log Number Range: 15-24902 to 15-24903

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C

Page 1 of 1

Sample ID: MPLOT-C-MW-17A-121815

MATRIX SPIKE

Lab Sample ID: ATC4A

LIMS ID: 15-24809

Matrix: Water

Data Release Authorized: 

Reported: 12/31/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst MS: NT3/LH

MSD: NT3/LH

Date Analyzed MS: 12/29/15 14:29

MSD: 12/29/15 14:54

Sample Amount MS: 10.0 mL

MSD: 10.0 mL

Purge Volume MS: 10.0 mL

MSD: 10.0 mL

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Benzene	0.75	10.8	10.0	100%	10.6	10.0	98.5%	1.9%
Toluene	< 0.20 U	9.88	10.0	98.8%	9.73	10.0	97.3%	1.5%
Ethylbenzene	0.08 J	9.94	10.0	98.6%	10.1	10.0	100%	1.6%
m,p-Xylene	0.17 J	19.9	20.0	98.6%	20.2	20.0	100%	1.5%
o-Xylene	0.13 J	10.2	10.0	101%	10.3	10.0	102%	1.0%
1,2-Dibromoethane	< 0.20 U	9.80	10.0	98.0%	9.79	10.0	97.9%	0.1%
Naphthalene	0.98 Q	8.42 Q	10.0	74.4%	9.83 Q	10.0	88.5%	15.5%
Hexane	< 0.20 U	20.2	20.0	101%	18.8	20.0	94.0%	7.2%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C

Page 1 of 1

Sample ID: MPL0TC-MW-17A-121815

MATRIX SPIKE

Lab Sample ID: ATC4A

LIMS ID: 15-24809

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 14:29

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
71-43-2	Benzene	0.03	0.20	---
108-88-3	Toluene	0.04	0.20	---
100-41-4	Ethylbenzene	0.04	0.20	---
179601-23-1	m,p-Xylene	0.05	0.40	---
95-47-6	o-Xylene	0.03	0.20	---
106-93-4	1,2-Dibromoethane	0.07	0.20	---
91-20-3	Naphthalene	0.12	0.50	---
110-54-3	Hexane	0.10	0.20	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	100%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	98.4%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C

Page 1 of 1

Sample ID: MPLOTG-MW-17A-121815

MATRIX SPIKE DUPLICATE

Lab Sample ID: ATC4A

LIMS ID: 15-24809

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 14:54

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
71-43-2	Benzene	0.03	0.20	---
108-88-3	Toluene	0.04	0.20	---
100-41-4	Ethylbenzene	0.04	0.20	---
179601-23-1	m,p-Xylene	0.05	0.40	---
95-47-6	o-Xylene	0.03	0.20	---
106-93-4	1,2-Dibromoethane	0.07	0.20	---
91-20-3	Naphthalene	0.12	0.50	---
110-54-3	Hexane	0.10	0.20	---

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	98.1%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C

Page 1 of 1

Sample ID: LCS-122915A

LAB CONTROL SAMPLE

Lab Sample ID: LCS-122915A

LIMS ID: 15-24809

Matrix: Water

Data Release Authorized: *B*

Reported: 12/31/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: NA

Date Received: NA

Instrument/Analyst LCS: NT3/LH

LCSD: NT3/LH

Date Analyzed LCS: 12/29/15 10:12

LCSD: 12/29/15 10:38

Sample Amount LCS: 10.0 mL

LCSD: 10.0 mL

Purge Volume LCS: 10.0 mL

LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	9.81	10.0	98.1%	9.88	10.0	98.8%	0.7%
Toluene	9.54	10.0	95.4%	9.74	10.0	97.4%	2.1%
Ethylbenzene	9.97	10.0	99.7%	9.88	10.0	98.8%	0.9%
m,p-Xylene	20.3	20.0	102%	20.2	20.0	101%	0.5%
o-Xylene	10.1	10.0	101%	10.2	10.0	102%	1.0%
1,2-Dibromoethane	9.85	10.0	98.5%	9.81	10.0	98.1%	0.4%
Naphthalene	8.19 Q	10.0	81.9%	8.31 Q	10.0	83.1%	1.5%
Hexane	20.0	20.0	100%	19.4	20.0	97.0%	3.0%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	98.5%	99.0%
Bromofluorobenzene	102%	104%
d4-1,2-Dichlorobenzene	100%	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C/NWTPHG

Sample ID: MPlotC-MW-17A-121815

Page 11

Lab Sample ID: ATC4C

QC Report No: ATC4-Golder Associates

LIMS ID: 15-24902

Project: Master Park Lot C

Matrix: Water

073-93368-06-09A

Data Release Authorized: *[Signature]*

Date Sampled: 12/18/15

Reported: 12/30/15

Date Received: 12/18/15

Instrument/Analyst MS: NT3/LH

Sample Amount MS: 10.0 mL

MSD: NT3/LH

MSD: 10.0 mL

Date Analyzed MS: 12/29/15 15:20

Purge Volume MS: 10.0 mL

MSD: 12/29/15 15:45

MSD: 10.0 mL

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Gasoline Range Hydrocarbons	0.05 J	0.97	1.00	92.0%	0.98	1.00	93.0%	1.0%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1



Sample ID: MPlotC-MW-17A-121815

MATRIX SPIKE

Lab Sample ID: ATC4C

LIMS ID: 15-24902

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 15:20

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	101%
Bromofluorobenzene	99.2%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MPLOTG-MW-17A-121815

MATRIX SPIKE DUPLICATE

Lab Sample ID: ATC4C

LIMS ID: 15-24902

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 15:45

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	98.5%
Bromofluorobenzene	102%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MB-122915A

METHOD BLANK

Lab Sample ID: MB-122915A

LIMS ID: 15-24902

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: NA

Date Received: NA

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 12:21

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	97.7%
Bromofluorobenzene	98.8%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C/NWTPHG

Sample ID: LCS-122915A

Page 11

Lab Sample ID: LCS-122915A

QC Report No: ATC4-Golder Associates

LIMS ID: 15-24902

Project: Master Park Lot C

Matrix: Water

073-93368-06-09A

Data Release Authorized: *R*

Date Sampled: NA

Reported: 12/30/15

Date Received: NA

Instrument/Analyst LCS: NT3/LH

Sample Amount LCS: 10.0 mL

LCSD: NT3/LH

LCSD: 10.0 mL

Date Analyzed LCS: 12/29/15 11:04

Purge Volume LCS: 10.0 mL

LCSD: 12/29/15 11:29

LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	0.89	1.00	89.0%	0.90	1.00	90.0%	1.1%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d8-Toluene	98.5%	97.8%
Bromofluorobenzene	100%	102%

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS

NWTPHD by GC/FID
Extraction Method: SW3510C
Page 1 of 1



QC Report No: ATC4-Golder Associates
Project: Master Park Lot C
073-93368-06-09A

Matrix: Water

Date Received: 12/18/15

Data Release Authorized: *mw*
Reported: 12/31/15

ARI ID	Sample ID	Analysis Date	DF	Range	Result	LOQ	DL
MB-122415	Method Blank	12/30/15	1.0	Diesel Range	< 0.10 U	0.10	0.03
15-24809		FID4A		Motor Oil Range	< 0.20 U	0.20	0.06
				HC ID	---		
				o-Terphenyl	84.8%		
ATC4A	MPLOTG-MW-17A-121815	12/30/15	1.0	Diesel	< 0.10 U	0.10	0.03
15-24809		FID4A		Motor Oil	< 0.20 U	0.20	0.06
				HC ID	---		
				o-Terphenyl	81.5%		

Reported in mg/L (ppm)

Diesel quantitation on total peaks in the range from C12 to C24.

Motor Oil quantitation on total peaks in the range from C24 to C38.

HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ATC4-Golder Associates
Project: Master Park Lot C
073-93368-06-09A

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-122415	84.8%	0
LCS-122415	63.0%	0
LCSD-122415	92.6%	0
MPLOT-MW-17A-121815	81.5%	0
MPLOT-MW-17A-121815 MS	84.6%	0
MPLOT-MW-17A-121815 MSD	84.7%	0

	<u>LCS/MB LIMITS</u>	<u>QC LIMITS</u>
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 15-24809 to 15-24809

ORGANICS ANALYSIS DATA SHEET

NWTPHD by GC/FID

Page 1 of 1



Sample ID: MPLOTG-MW-17A-121815

MS/MSD

Lab Sample ID: ATC4A

LIMS ID: 15-24809

Matrix: Water

Data Release Authorized: *mm*

Reported: 12/31/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Date Extracted MS/MSD: 12/24/15

Sample Amount MS: 500 mL

MSD: 500 mL

Date Analyzed MS: 12/30/15 16:34

Final Extract Volume MS: 1.0 mL

MSD: 12/30/15 16:58

MSD: 1.0 mL

Instrument/Analyst MS: FID4A/ML

Dilution Factor MS: 1.00

MSD: FID4A/ML

MSD: 1.00

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	< 0.10 U	2.35	3.00	78.3%	2.38	3.00	79.3%	1.3%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	84.6%	84.7%

Results reported in mg/L

RPD calculated using sample concentrations per SW846.

ORGANICS ANALYSIS DATA SHEET

NWTPHD by GC/FID

Page 1 of 1

Sample ID: LCS-122415
LCS/LCSD

Lab Sample ID: LCS-122415

LIMS ID: 15-24809

Matrix: Water

Data Release Authorized: YMW

Reported: 12/31/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: NA

Date Received: NA

Date Extracted LCS/LCSD: 12/24/15

Sample Amount LCS: 500 mL

LCSD: 500 mL

Date Analyzed LCS: 12/30/15 15:23

Final Extract Volume LCS: 1.0 mL

LCSD: 12/30/15 15:47

LCSD: 1.0 mL

Instrument/Analyst LCS: FID4A/ML

Dilution Factor LCS: 1.00

LCSD: FID4A/ML

LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	1.63	3.00	54.3%	2.52	3.00	84.0%	42.9%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	63.0%	92.6%

Results reported in mg/L

RPD calculated using sample concentrations per SW846.

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Water
Date Received: 12/18/15

ARI Job: ATC4
Project: Master Park Lot C
073-93368-06-09A

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
15-24809-122415MB1	Method Blank	500 mL	1.00 mL	12/24/15
15-24809-122415LCS1	Lab Control	500 mL	1.00 mL	12/24/15
15-24809-122415LCSD1	Lab Control Dup	500 mL	1.00 mL	12/24/15
15-24809-ATC4A	MPLOT-MW-17A-121815500	500 mL	1.00 mL	12/24/15
15-24809-ATC4AMS	MPLOT-MW-17A-121815500	500 mL	1.00 mL	12/24/15
15-24809-ATC4AMSD	MPLOT-MW-17A-121815500	500 mL	1.00 mL	12/24/15

APPENDIX B
SAMPLE INTEGRITY DATA SHEETS (SIDS)

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPL0TC-FB-120315

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 12/3/15 Time 1330

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: — Free Product Thickness: —

Date & Time of Measurement: —

Measurements are in feet below top of well casing.

Sample Intake Point: —

Sample Description Field Blank

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

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 12-3-15

Supervisor (signature) [Signature] Date 12-4-15

FIELD PARAMETERS SHEET

Well ID 11PLOT-EB-120315

Date 12/3/15

Time Begin Purge Time Collect Sample 1330[illegible]

Comments:

Nitrogen Tank: _____ psi

Throttle: psi

Cycle ID: _____

CPM: _____

Purge Rate: _____ mL/min

PID: ppm

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-6- 12/2/15

Sampling Location At end of sample tubing No Sample.

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 12/2/2015 Time No sample

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: — Free Product Thickness: none

Date & Time of Measurement: 12/2/2015 12:54 - Top of pump above WL.

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>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 12/2/2015

Supervisor (signature) [Signature] Date 12/4/15

FIELD PARAMETERS SHEET

Well ID MW-06
Date 12/2/2015
Time Begin Purge 12:56
Time Collect Sample 13:35 no sample

(pH)

[illegible]

*

Comments:

Nitrogen Tank: 110 psi
Throttle: 50 psi
Cycle ID: 103 (10/5)
CPM: 4
Purge Rate: --- mL/min
PID: 0.5 ppm

* ~~Pump~~^{Well} went dry. Pulled pump + attempted to collect sample with a bailer - No water could be collected. Water level is too low.

PID@TOC

Water level fluctuation with pump cycle: n/a Not collected WL meter in use.

Sampler's Initials JSL

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-7-120315

Sampling Location At end of sample tubing MPLOT-C-FB- 120315 @ 1330

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 12/03/15 Time 1345

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: 4499 Free Product Thickness: —

Date & Time of Measurement: 1303 on 12/03/15

Measurements are in feet below top of well casing.

Sample Intake Point: 52 ft below top of well casing

Sample Description Clear Odor Volatile - Petroleum

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

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(5) 40 mL	NWTPH-gasoline & BTEX	VCA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 12-3-15

Supervisor (signature) [Signature] Date 12-4-15

FIELD PARAMETERS SHEET

Well ID MW-07
Date 12-3-15
Time Begin Purge 1305
Time Collect Sample 1345

[illegible]

Comments:

Nitrogen Tank: 110 psi
Throttle: 40 psi
Cycle ID: sp (20/10)
CPM: 2

Purge Rate: 140 mL/min
PID: 1292 ppm

PID: 1292 ppm

PID@TOC

+ ~~1~~ MPLOTC-FB-120315

Water level fluctuation with pump cycle:

NA

Sampler's Initials

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-9-120315

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 12-3-15 Time 1125

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: — Free Product Thickness: —

Date & Time of Measurement: — Pump obstructing Meter

Measurements are in feet below top of well casing.

Sample Intake Point: 54 ft below top of well casing

Sample Description Clear Color water - Petroleum

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

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature]

Date 12-3-15

Supervisor (signature) [Signature]

Date 12-4-15

FIELD PARAMETERS SHEET

Well ID MLW-#1
Date 12/3/15
Time Begin Purge 1045
Time Collect Sample 1125

[illegible]

Comments:

Nitrogen Tank: 110 psi
Throttle: 60 psi
Cycle ID: 103 (10/5)
CPM: 4
Purge Rate: 120 mL/min
PID: 222.1 ppm

Water level fluctuation with pump cycle: *NA*

Sampler's Initials

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-12-12/3/15

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 12/3/15 Time 1500

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: 48.20 Free Product Thickness: _____

Date & Time of Measurement: 1419 12/3/15

Measurements are in feet below top of well casing. _____

Sample Intake Point: 59 ft below top of well casing

Sample Description Cloudy Rust colored 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>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature]

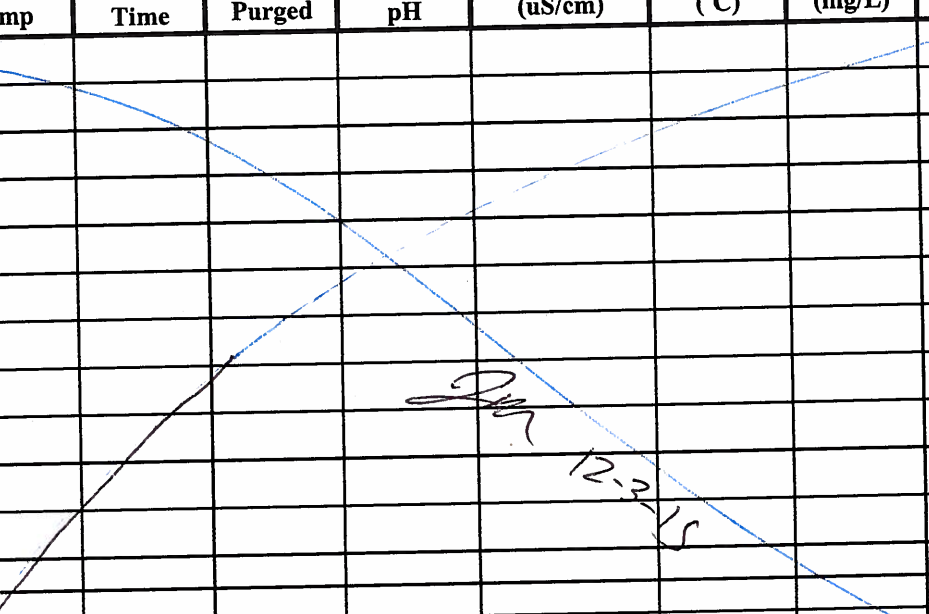
Date 12/3/15

Supervisor (signature) [Signature]

Date 12/4/15

FIELD PARAMETERS SHEET

Well ID MW-12
Date 12-3-15
Time Begin Purge 1420
Time Collect Sample 1500

Water Level feet bmp	Time	Volume Purged	pH	Conductivity (uS/cm)	Temp. (°C)	DO (mg/L)	Turbidity (NTU)
							

Comments:

Nitrogen Tank: 110 psi
Throttle: 40 psi
Cycle ID: 50 (20/10)
CPM: 2
Purge Rate: _____ mL/min
PID: 100 ppm

Water level fluctuating from system
Had to Bail to get Sample
Cleared 3 Baiters Before Sampling
@ TOC

Water level fluctuation with pump cycle:

Sampler's Initials SM

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-13- 12/2/15

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 12/2/2015 Time 1500

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: Free Product Thickness: none

Date & Time of Measurement:

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>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 12/2/15

Supervisor (signature) [Signature] Date 12-4-15

FIELD PARAMETERS SHEET

Well ID MW-13
Date 12/2/2015
Time Begin Purge 1423
Time Collect Sample 1500

(рн)

[illegible]

Comments:

Nitrogen Tank: 110 psi
Throttle: 50 psi
Cycle ID: 30 (20/10)
CPM: 2

Purge Rate: 300 mL/min
PID: 0.0 ppm

IAS/SVE System in operation, + blowing air from well.

Water level fluctuation with pump cycle: n/a - Not collected w/ meter in use

Sampler's Initials jel

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPLOTG-MW-17A-121815

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 12-18-15 Time 0935

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: 85.45 Free Product Thickness: —

Date & Time of Measurement: 0838 on 12-18-15

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>
15 vials 3 X (5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
6 3 X (2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 12-18-15

Supervisor (signature) _____ Date _____

FIELD PARAMETERS SHEET

Well ID MW-17A
Date 12-18-15
Time Begin Purge 2853
Time Collect Sample 0935

[illegible]

Comments:

Nitrogen Tank: 110 psi
Throttle: 6.0 psi
Cycle ID: 50 (20/40)
CPM: 2
Purge Rate: 250 mL/min
PID: 0.0 ppm @ TOC

Water level fluctuation with pump cycle: 85.96 - 86.02

Sampler's Initials

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPL0TC-MW-18- 120315

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 12-3-15 Time 1235

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: NA Free Product Thickness: —

Date & Time of Measurement: Contacted Pump

Measurements are in feet below top of well casing.

Sample Intake Point: 54 ft below top of well casing

Sample Description Slightly Gray, odor noted - Petroleum

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

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 12-3-15

Supervisor (signature) [Signature] Date 12-4-15

FIELD PARAMETERS SHEET

Well ID MW-18

Date 12-3-15

Time Begin Purge 1156

Time Collect Sample 1235[illegible]

Comments:

Nitrogen Tank: 110 psi

Throttle: 40 psi

Cycle ID: 50 (20/10)

CPM: 2

Purge Rate: 180 mL/min

PID: 249.2 ppm

PID reading at TOC

Water level fluctuation with pump cycle:

Sampler's Initials_

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-19- 12/2/15

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 12/2/2015 Time 14:10

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: Free Product Thickness: none

Date & Time of Measurement:

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>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 12/2/2015

Supervisor (signature) [Signature] Date 12-4-15

FIELD PARAMETERS SHEET

Well ID MW-19
Date 12/2/2015
Time Begin Purge 1330
Time Collect Sample 1410

split

[illegible]

Comments:

Nitrogen Tank: 110 psi

Throttle: 50 psi

Cycle ID: 50 (20/10)

CPM: 2.

Purge Rate: ~180 mL/min

PID: 0.7 ppm

ⁱⁿ PID @ TOC

Water level fluctuation with pump cycle: n/a Not collected w/ meter in use.

Sampler's Initials JS

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-20-120315

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 12-3-15 Time 0955

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: 108.40 Free Product Thickness: —

Date & Time of Measurement: 0920 on 12-3-15

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>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 12-3-15

Supervisor (signature) [Signature] Date 12-4-15

FIELD PARAMETERS SHEET

Well ID MW-20
Date 12/3/15
Time Begin Purge 17921
Time Collect Sample 0455

(PH)

[illegible]

Comments:

Nitrogen Tank: 110 psi

Throttle: 70 psi

Cycle ID: 50 (20s/10s)

CPM: 2

Purge Rate: ~ 250 mL/min

PID: 0.0 ppm

PID @ TOC

Water level fluctuation with pump cycle:

Sampler's Initials.

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID MPLOT-C-MW-21-12/3/15

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 12/3/15 Time 0900

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: 104.70 Free Product Thickness: —

Date & Time of Measurement: 12/2/15 1334

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>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature]

Date 12/3/15

Supervisor (signature) [Signature]

Date 12-4-15

FIELD PARAMETERS SHEET

Well ID ML-21
Date ASD 12/3/15
Time Begin Purge 0820
Time Collect Sample 0900

(pH)

[illegible]

Comments:

Nitrogen Tank: 110 psi
Throttle: 60 psi
Cycle ID: 50 (205/10.)
CPM: 2
Purge Rate: 220 mL/min
PID: 9.0 ppm PFD@TOC

Water level fluctuation with pump cycle: 104.52 - 104.60

Sampler's Initials 2/11

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C

Project No. 073-96668-06.09A

Site Location SeaTac, WA

Sample ID MPLOT-C-MW-22-120215

Sampling Location At end of sample tubing

MPLOT-C-MW-22-DUP-120215

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 12/2/2015

Time 10:40 10:45 (dup)

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: 84.83 Free Product Thickness: none

Date & Time of Measurement: 12/2/15 @ 9:55

Measurements are in feet below top of well casing.

Sample Intake Point: 89 ft below top of well casing

Sample Description clear, TPH 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>
(5 x 2) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature]

Date 12/2/2015

Supervisor (signature) [Signature]

Date 12-4-15

FIELD PARAMETERS SHEET

Well ID MW-22

Date 12/2/2015

Time Begin Purge 10:00

Time Begin Purge 10:30
Time Collect Sample 10:40, 10:45

(pH)

[illegible]

Comments:

Nitrogen Tank: 110 psi

Throttle: 65 psi

Cycle ID: 50(20/10)

CPM: 2

Purge Rate: 320 mL/min

PID: 1.62 ppm

in PIDE TOC

Water level fluctuation with pump cycle: 84.83' - 84.87' btoL

Sampler's Initials jse

SAMPLE INTEGRITY DATA SHEET

Plant/Site Master Park Lot C Project No. 073-96668-06.09A

Site Location SeaTac, WA Sample ID PORT-MW-B- 120215

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 12/2/2015 Time 12:25

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: 91.61' Free Product Thickness: none

Date & Time of Measurement: 12/2/2015 11:45

Measurements are in feet below top of well casing.

Sample Intake Point: 89 ft below top of well casing

Sample Description clear, no odor - grey color, black particles

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

See Field Parameters Sheet

<u>Aliquot Amount</u>	<u>Analysis</u>	<u>Container</u>	<u>Preservative</u>
(5) 40 mL	NWTPH-gasoline & BTEX	VOA vial	HCl
	EDB (ethylene dibromide)		
	N-hexane		
	Naphthalene		
(2) 500 mL	NWTPH-Dx	Amber Glass	none

Sampler (signature) [Signature] Date 12/2/2015

Supervisor (signature) [Signature] Date 12-4-15

FIELD PARAMETERS SHEET

Well ID PORT-MW-B
Date 12/2/2015
Time Begin Purge 11:47
Time Collect Sample 12:25

(pitt)

[illegible]

Comments:

Nitrogen Tank: 110 psi

Throttle: 70 psi

Cycle ID: 50 (20/10)

CPM: 2

Purge Rate: 250 mL/min

PID: 0.0 ppm

1
PIDE TOC

Water level fluctuation with pump cycle: 91.64-91.68 'b to c

Sampler's Initials JSL

APPENDIX C
DATA VALIDATION MEMORANDUM

DATA VALIDATION CHECKLIST

Project Name:	Masterpark Lot C – Seatac Development Site
Project Number:	073-93368.06.09A
Sample Identification(s):	Trip Blank-0120215, MPLOT-C-MW-21-120315, MPLOT-C-MW-17A-121815, MPLOT-C-MW-19-120215, MPLOT-C-MW-09-120315, MPLOT-C-MW-13-120215, MPLOT-C-MW-18-120315, MPLOT-C-FB-120315, MPLOT-C-MW-07-120315, MPLOT-C-MW-12-120315, Trip Blank-120315, MPLOT-C-MW-20-120315, MPLOT-C-MW-22-120215, MPLOT-C-MW-22-DUP-120215, PORT-MW-B-120215, Trip Blank-121815
Sample Date(s):	12/02/2015, 12/03/2015, and 12/18/2015
Sample Team:	Jill Lamberts, Joe Miller, Golder Associates
Sample Matrix:	Aqueous
Analyzing Laboratory:	Analytical Resources Inc. (ARI) – Tukwila WA
Analyses:	EPA 8260C (Gasoline, Benzene, Toluene, Ethylbenzene, Xylenes, EDB, N-hexane, Naphthalene), NWPTH-Dx (Diesel and Motor Oil)
Laboratory Report No.:	ASB8 and ATC4

FIELD DATA PACKAGE DOCUMENTATION

	Reported		Performance Acceptable		Not Required
	NO	YES	NO	YES	
Field Sampling Logs:					
1. Sampling dates noted		X		X	
2. Sampling team indicated		X		X	
3. Sampling identification traceable to location collected		X		X	
4. Sample location		X		X	
5. Collection technique (bailer, pump, etc.)		X		X	
6. Sample container type		X		X	
7. Preservation methods		X		X	
8. Chain-of-custody form completed		X		X	
9. Required analytical methods requested		X		X	
10. Field sample logs completed properly and signed		X		X	
11. Number and type of field QC samples collected		X		X	
12. Field equipment calibration		X		X	
13. Field equipment decontamination		X		X	

QC – quality control

COMMENTS:

Performance was acceptable.

ANALYTICAL DATA PACKAGE DOCUMENTATION

GENERAL INFORMATION

	Reported		Performance Acceptable		Not Required
	NO	YES	NO	YES	
1. Sample results		X		X	
2. Parameters analyzed		X		X	
3. Method of analysis		X		X	
4. Reporting limits of analysis		X		X	
5. Sample collection date		X		X	
6. Laboratory sample received date		X		X	
7. Sample preparation/extraction date		X		X	
8. Sample analysis date		X		X	
9. Copy of chain-of-custody form signed by lab sample custodian		X		X	
10. Narrative summary of QA or sample problems provided		X		X	

QA – quality assurance

COMMENTS:

Performance was acceptable, with the following exceptions and/or notes:

- Cooler temperatures were all $4 \pm 2^{\circ}\text{C}$.
- 3 Trip Blanks, 11 samples, 1 field duplicate, and 1 field blank submitted. No sample was collected at MW-06 due to lack of water in the well.
- Lab reported Gasoline, Benzene, Toluene, Ethylbenzene, and Xylenes from EPA method 8260C and Diesel and Motor Oil using method NWTPH-Dx. Reporting limits were within work plan requirements, except where dilutions were required.

ORGANIC ANALYSES

Gasoline, Benzene, Toluene, Ethylbenzene, Xylenes, EDB, N-hexane, Naphthalene (EPA 8260C)	Reported		Performance Acceptable		Not Required
	NO	YES	NO	YES	
1. Holding times		X		X	
2. Reporting limits		X	X		
3. Blanks					
a. Method blanks		X		X	
b. Field blanks and Trip Blanks		X	X		
4. Laboratory control sample (LCS) %R		X		X	
5. Matrix spike (MS) %R		X		X	
6. LCS duplicate (LCSD) %R		X		X	
7. MS duplicate (MSD) %R		X		X	
8. MS / MSD RPD		X		X	
9. LCS / LCSD RPD		X		X	
10. Surrogate %R		X		X	
11. Laboratory Duplicate RPD		X		X	
12. Field duplicate comparison		X		X	

%R – percent recovery

RPD – relative percent difference

COMMENTS:

Performance was acceptable, with the following exceptions and/or notes:

- Trip Blank-120215 and Trip Blank-120315 had no detections. Field Blank MPLOT-MW-FB-120315 had detections of Toluene, m,p-Xylene, and Naphthalene at 0.18 J, 0.42 and 0.48 J µg/L and Trip Blank-121815 had a detection of m,p-xylene at 0.07 J µg/L, respectively. For the Field Blank and Trip Blank-121815 detections, associated samples with detections of Toluene, m,p-Xylene, and Naphthalene between the Detection Limit (DL) and Limit of Quantification (LOQ) were **qualified as “U” (non-detect)** at the LOQ. Associated samples with detections <10X the blank contamination were qualified as **estimated with a positive bias (J+)**. No action was taken for results greater than 10X the blank contamination.
- SDG ASB8: A field duplicate was collected and sample IDs were MPLOT-MW-22-120215 and MPLOT-MW-22-DUP-120215. Relative percent differences were <20% for all analytes or results were < 5X Limit of Quantification (LOQ).
- SDG ASB8: Reporting limits were raised all analytes in samples MPLOT-MW-22-120215, MPLOT-MW-22-DUP-120215, and MPLOT-MW-07-120315. Lab was contacted for more information and reported that the samples were analyzed at a dilution due to the presence of other non-target compounds. High levels of volatiles made a 20X dilution necessary to prevent instrument damage. No further action was taken other than to note.
- SDG ASB8 and ATC4: Gasoline results for MPLOT-MW-09-120315 and MPLOT-MW-17A-121815 were qualified as “GRO” by the lab which indicates results of organics or additional hydrocarbons in ranges that are not identifiable. Gasoline results are qualified as **estimated (J)** for these samples.
- SDG ATC4: Lab noted that the continuing calibration standard (CCAL) was out of control below the control limits for naphthalene. The lab flagged affected results as “Q”. Validator added an **estimated (J)** qualifier to affected samples.

ORGANIC ANALYSES

NWTPH-Dx (Diesel and Motor Oil)	Reported		Performance Acceptable		Not Required
	NO	YES	NO	YES	
1. Holding times		X		X	
2. Reporting limits		X		X	
3. Blanks					
a. Method blanks		X		X	
b. Field blanks		X		X	
4. Laboratory control sample (LCS) %R		X		X	
5. Matrix spike (MS) %R		X		X	
6. LCS duplicate (LCSD) %R		X		X	
7. MS duplicate (MSD) %R		X		X	
8. MS / MSD RPD		X		X	
9. LCS / LCSD RPD		X		X	
10. Surrogate %R		X		X	
11. Laboratory Duplicate RPD		X		X	
12. Field duplicate comparison		X		X	

%R – percent recovery

RPD – relative percent difference

COMMENTS:

Performance was acceptable, with the following exceptions and/or notes:

- SDG ASB8: MPLOTc-FB-120315 field blank (FB) had no detections.
- SDG ASB8: Diesel for MPLOTc-MW-07-120315 had to be analyzed at a dilution because initial analysis was qualified E by the lab (*Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte*). The reanalysis was within the instrument calibration range and is the result that should be reported. The initial result is qualified as **DNR** (do not report). The diluted result for Motor Oil is also qualified as **DNR** to select the result with the lower detection limit.
- SDG ASB8: Diesel results for samples MPLOTc-MW-22-120215, MPLOTc-MW-22-DUP-120215, MPLOTc-MW-09-120315, MPLOTc-MW-07-120315, and MPLOTc-MW-07-120315-DL was qualified by the lab as DRO (*indicates results of organics or additional hydrocarbons in ranges are not identifiable*). Qualify diesel results as **estimated (J)**.
- SDG ASB8: A field duplicate was collected and sample IDs were MPLOTc-MW-22-120215 and MPLOTc-MW-22-DUP-120215. Relative percent differences (RPDs) were <20% or results were <5X RL for all analytes.

DATA VALIDATION CHECKLIST

SUMMARY AND DATA QUALIFIER CODES

Project Name:	Masterpark Lot C – Seatac Development Site
Project Number:	073-93368.06.09A
Sample Identification(s):	Trip Blank-0120215, MPLOT-C-MW-21-120315, MPLOT-C-MW-17A-121815, MPLOT-C-MW-19-120215, MPLOT-C-MW-09-120315, MPLOT-C-MW-13-120215, MPLOT-C-MW-18-120315, MPLOT-C-FB-120315, MPLOT-C-MW-07-120315, MPLOT-C-MW-12-120315, Trip Blank-120315, MPLOT-C-MW-20-120315, MPLOT-C-MW-22-120215, MPLOT-C-MW-22-DUP-120215, PORT-MW-B-120215, Trip Blank-121815
Sample Date(s):	12/02/2015, 12/03/2015, and 12/18/2015
Sample Team:	Jill Lamberts, Joe Miller, Golder Associates
Sample Matrix:	Aqueous
Analyzing Laboratory:	Analytical Resources Inc. (ARI) – Tukwila WA
Analyses:	EPA 8260C (Gasoline, Benzene, Toluene, Ethylbenzene, Xylenes, EDB, N-hexane, Naphthalene), NWPTH-Dx (Diesel and Motor Oil)
Laboratory Report No.:	ASB8 and ATC4

Reference

United States Environmental Protection Agency (USEPA). 2014. USEPA Contract Laboratory Program, National Functional Guidelines for Superfund Organic Methods Data Review. OSWER 9355.0-132.EPA-540-R-014-002, August.

Data Qualifier Definitions

U	The constituent was analyzed for, but was not detected above the reported sample quantitation limit.
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.
J-	The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result may be biased low.
UJ	The constituent was not detected; the associated quantitation limit is an estimated value because quality control criteria were not met.
R	Data are rejected due to significant exceedance of quality control criteria. The analyte may or may not be present. Additional sampling and analysis may be required to determine the presence or absence of the constituent. For statistical reasons, rejected values are not included in the database.
UR	The constituent is rejected at the reported quantitation limit.
DNR	Do Not Report. More than one set of results are reported due to re-analyses or re-reporting (below reporting level). This result should not be reported.

Data Qualifier Summary

Sample ID	Analyte(s)	Result	Qualifier	Reason(s)
MPLOT-C-MW-07-120315	Diesel	5.3 E mg/L	DNR, J	Sample reanalyzed at a dilution and diluted result is reported instead. Results of organics or additional hydrocarbons in ranges are not identifiable.
MPLOT-C-MW-07-120315 DL	Motor Oil	< 1.0 U mg/L	DNR	Report initial analysis for this analyte.
MPLOT-C-MW-07-120315 DL MPLOT-C-MW-22-120215 MPLOT-C-MW-22-DUP-120215 MPLOT-C-MW-09-120315	Diesel	4.9 mg/L 1.5 mg/L 1.5 mg/L 1.0 mg/L	J J J J	Results of organics or additional hydrocarbons in ranges are not identifiable.
PORT-MW-B-120215	m,p-Xylene Naphthalene	0.40 µg/L 2.3 µg/L	J+ J+	Field Blank contamination.
MPLOT-C-MW-19-120215	m,p-Xylene Naphthalene	0.14 J µg/L 0.32 J µg/L	< 0.40 U µg/L < 0.50 U µg/L	Field Blank contamination.
MPLOT-C-MW-13-120215	m,p-Xylene Naphthalene	0.99 µg/L 0.12 J µg/L	J+ < 0.50 U µg/L	Field Blank contamination.
MPLOT-C-MW-09-120315	Toluene m,p-Xylene	1.5 µg/L 1.2 µg/L	J+ J+	Field Blank contamination.
MPLOT-C-MW-09-120315	Gasoline	2.2 mg/L	J	Results of organics or additional hydrocarbons in ranges are not identifiable.
MPLOT-C-MW-17A-121815	m,p-Xylene	0.17 J µg/L	< 0.40 U µg/L	Trip Blank contamination.
MPLOT-C-MW-17A-121815	Naphthalene	0.98 Q µg/L	J	Continuing calibration standard out of control.
MPLOT-C-MW-17A-121815	Gasoline	0.05 J mg/L	J	Results of organics or additional hydrocarbons in ranges are not identifiable.

VALIDATION PERFORMED BY:	Jill Lamberts, Golder Associates
VALIDATOR'S SIGNATURE:	
DATE:	January 5, 2016
REVIEWED BY:	Gary Zimmerman, Golder Associates
REVIEWER'S SIGNATURE	
DATE:	January 7, 2016

Chain of Custody Record & Laboratory Analysis Request

Please analyze under current USA bin Golden + ARI

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com



ARI Assigned Number: ASBB		Turn-around Requested: Standard		
ARI Client Company: Golden		Phone: 425-883-0777		
Client Contact: J. Holder, J. Lamberts				
Client Project Name: Masterpark Lot C				
Client Project #: 023-93368-06-09A		Samplers: Lamberts, Miller		
Sample ID	Date	Time	Matrix	No. Containers
Tripp Blank-120215	12/2/15	-	W	3
MPLOT-MW-22-120215		10:40	W	7
MPLOT-MW-22-DUP-120215		10:45	W	7
PORT-MW-B-120215		12:25	W	7
MPLOT-MW-22-120215		14:10	W	7
MPLOT-MW-13-120215		15:00	W	7
MPLOT-MW-21-120315	12/3/15	09:00	W	7
MPLOT-MW-20-120315	12/3/15	09:55	W	7
MPLOT-MW-04-120315	12-3-15	11:25	W	7
MPLOT-MW-18-120315	12-3-15	12:35	W	7
Comments/Special Instructions * Ecology EIM EDP Pls cc jlambers, amorell, and holder@golden.com		Relinquished by: (Signature) <i>Joe Miller</i> Printed Name: Joe Miller Company: Golden Date & Time: 12-3-15 1608		
Received by: (Signature) <i>Chris Atwood</i> Printed Name: Chris Atwood Company: ARI Date & Time: 12-3-15 1603		Relinquished by: (Signature) <i>Joe Miller</i> Printed Name: Joe Miller Company: Golden Date & Time: 12-3-15 1608		

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Page: 2 of 2	
Date: 12/3/15	Ice Present?
No. of Coolers:	Cooler Temps:

ARI Assigned Number: ASB8	Turn-around Requested: Standard
ARI Client Company: Colder	Phone: 425-583-0777
Client Contact: L. Halder J. Lamberts	
Client Project Name: Master-pack Lot C	
Client Project #: 073-93368-06-04A	Samplers: Lamberts Miller

[illegible]

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: Trip Blank-120215
SAMPLE

Lab Sample ID: ASB8A

LIMS ID: 15-23531

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 16:39

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	98.8%
Bromofluorobenzene	97.3%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MPLOTG-MW-22-120215
SAMPLE

Lab Sample ID: ASB8B

LIMS ID: 15-23532

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 17:06

Sample Amount: 0.50 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.53	4.0	4.4	
108-88-3	Toluene	0.80	4.0	6.2	
100-41-4	Ethylbenzene	0.74	4.0	840	
179601-23-1	m,p-Xylene	1.0	8.0	1,500	
95-47-6	o-Xylene	0.70	4.0	2.6 J	
106-93-4	1,2-Dibromoethane	1.5	4.0	< 4.0 U	
91-20-3	Naphthalene	2.4	10	240	
110-54-3	Hexane	1.9	4.0	3.0 J	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.58	5.0	19	GAS
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	99.3%
Bromofluorobenzene	99.9%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MPLOTG-MW-22-DUP-120215
SAMPLE

Lab Sample ID: ASB8C

LIMS ID: 15-23533

Matrix: Water

Data Release Authorized: *B*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 17:34

Sample Amount: 0.50 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.53	4.0	4.4	
108-88-3	Toluene	0.80	4.0	6.6	
100-41-4	Ethylbenzene	0.74	4.0	860	
179601-23-1	m,p-Xylene	1.0	8.0	1,600	
95-47-6	o-Xylene	0.70	4.0	2.8 J	
106-93-4	1,2-Dibromoethane	1.5	4.0	< 4.0 U	
91-20-3	Naphthalene	2.4	10	280	
110-54-3	Hexane	1.9	4.0	6.8	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.58	5.0	20	GAS
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	100%
Bromofluorobenzene	101%



ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: PORT-MW-B-120215

SAMPLE

Lab Sample ID: ASB8D

LIMS ID: 15-23534

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 18:00

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	0.26	
179601-23-1	m,p-Xylene	0.05	0.40	0.40	J+
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	2.3	J+
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	102%
Bromofluorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MPLOTG-MW-19-120215

SAMPLE

Lab Sample ID: ASB8E

LIMS ID: 15-23535

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 18:25

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	0.14 U	< 0.40 U
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	0.32 U	< 0.50 U
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	97.9%
Bromofluorobenzene	98.4%



ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MPlotC-MW-13-120215
SAMPLE

Lab Sample ID: ASB8F

LIMS ID: 15-23536

Matrix: Water

Data Release Authorized: *AS*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/02/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 18:51

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	0.23	
179601-23-1	m,p-Xylene	0.05	0.40	0.99	J+
95-47-6	o-Xylene	0.03	0.20	0.11 J	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	0.12 J	< 0.50 U
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	100%
Bromofluorobenzene	97.7%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATEDSample ID: MPLOTG-MW-21-120315
SAMPLE

Lab Sample ID: ASB8G

LIMS ID: 15-23537

Matrix: Water

Data Release Authorized: *B*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 19:16

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	101%
Bromofluorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATEDSample ID: MPLOTG-MW-20-120315
SAMPLE

Lab Sample ID: ASB8H

LIMS ID: 15-23538

Matrix: Water

Data Release Authorized:

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 19:42

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	98.2%
Bromofluorobenzene	100%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATEDSample ID: MPLOTG-MW-09-120315
SAMPLE

Lab Sample ID: ASB8I

LIMS ID: 15-23539

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 20:07

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	8.4	
108-88-3	Toluene	0.04	0.20	1.5	J+
100-41-4	Ethylbenzene	0.04	0.20	73	
179601-23-1	m,p-Xylene	0.05	0.40	1.2	J+
95-47-6	o-Xylene	0.03	0.20	0.25	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	5.7	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	2.2	GRO J
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	102%
Bromofluorobenzene	102%



ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MPLOTG-MW-18-120315

SAMPLE

Lab Sample ID: ASB8J

LIMS ID: 15-23540

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 20:33

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	0.57	
108-88-3	Toluene	0.04	0.20	4.8	
100-41-4	Ethylbenzene	0.04	0.20	0.34	
179601-23-1	m,p-Xylene	0.05	0.40	7.8	
95-47-6	o-Xylene	0.03	0.20	2.0	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	0.67	
110-54-3	Hexane	0.10	0.20	0.25	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	98.8%
Bromofluorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATEDSample ID: MPLOTG-MW-07-120315
SAMPLE

Lab Sample ID: ASB8K

LIMS ID: 15-23541

Matrix: Water

Data Release Authorized: *M*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 21:00

Sample Amount: 0.50 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.53	4.0	77	
108-88-3	Toluene	0.80	4.0	1,200	
100-41-4	Ethylbenzene	0.74	4.0	270	
179601-23-1	m,p-Xylene	1.0	8.0	1,300	
95-47-6	o-Xylene	0.70	4.0	250	
106-93-4	1,2-Dibromoethane	1.5	4.0	< 4.0 U	
91-20-3	Naphthalene	2.4	10	69	
110-54-3	Hexane	1.9	4.0	160	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.58	5.0	23	GAS
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	101%
Bromofluorobenzene	101%



ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MPL0TC-FB-120315

SAMPLE

Lab Sample ID: ASB8L

LIMS ID: 15-23542

Matrix: Water

Data Release Authorized: *BB*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 21:26

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	0.18 J	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	0.42	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	0.48 J	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	101%
Bromofluorobenzene	99.6%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

ANALYTICAL
RESOURCES
INCORPORATEDSample ID: MPLOTG-MW-12-120315
SAMPLE

Lab Sample ID: ASB8M

LIMS ID: 15-23543

Matrix: Water

Data Release Authorized: *AS*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 21:52

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	99.2%
Bromofluorobenzene	99.4%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: Trip Blank 120315
SAMPLE

Lab Sample ID: ASB8N

LIMS ID: 15-23544

Matrix: Water

Data Release Authorized: *JB*

Reported: 12/30/15

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Date Sampled: 12/03/15

Date Received: 12/03/15

Instrument/Analyst: NT3/PKC

Date Analyzed: 12/16/15 22:18

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
71-43-2	Benzene	0.03	0.20	< 0.20 U	
108-88-3	Toluene	0.04	0.20	< 0.20 U	
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U	
179601-23-1	m,p-Xylene	0.05	0.40	< 0.40 U	
95-47-6	o-Xylene	0.03	0.20	< 0.20 U	
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U	
91-20-3	Naphthalene	0.12	0.50	< 0.50 U	
110-54-3	Hexane	0.10	0.20	< 0.20 U	

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---
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Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	101%
Bromofluorobenzene	99.7%

**ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS**

NWTPHD by GC/FID

Extraction Method: SW3510C

Page 1 of 2

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Matrix: Water

Date Received: 12/03/15

Data Release Authorized: 

Reported: 12/15/15

ARI ID	Sample ID	Analysis Date	DF	Range	Result	LOQ	DL
MB-120815 15-23532	Method Blank	12/14/15 FID3B	1.0	Diesel Range Motor Oil Range HC ID o-Terphenyl	< 0.10 U < 0.20 U --- 81.7%	0.10 0.20	0.03 0.06
ASB8B 15-23532	MPLOT-MW-22-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	1.5 J < 0.20 U DRO 80.7%	0.10 0.20	0.03 0.06
ASB8C 15-23533	MPLOT-MW-22-DUP-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	1.5 J < 0.20 U DRO 76.0%	0.10 0.20	0.03 0.06
ASB8D 15-23534	PORT-MW-B-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	< 0.10 U 0.49 MOTOR OIL 86.4%	0.10 0.20	0.03 0.06
ASB8E 15-23535	MPLOT-MW-19-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	< 0.10 U < 0.20 U --- 80.1%	0.10 0.20	0.03 0.06
ASB8F 15-23536	MPLOT-MW-13-120215	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	0.26 < 0.20 U DIESEL 80.4%	0.10 0.20	0.03 0.06
ASB8G 15-23537	MPLOT-MW-21-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	< 0.10 U < 0.20 U --- 79.6%	0.10 0.20	0.03 0.06
ASB8H 15-23538	MPLOT-MW-20-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	< 0.10 U < 0.20 U --- 75.1%	0.10 0.20	0.03 0.06
ASB8I 15-23539	MPLOT-MW-09-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	1.0 J < 0.20 U DRO 77.1%	0.10 0.20	0.03 0.06
ASB8J 15-23540	MPLOT-MW-18-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	0.13 < 0.20 U DIESEL 70.6%	0.10 0.20	0.03 0.06
ASB8K 15-23541	MPLOT-MW-07-120315	12/14/15 FID3B	1.0	Diesel Motor Oil HC ID o-Terphenyl	5.3 E J DNR < 0.20 U DRO 86.4%	0.10 0.20	0.03 0.06

FORM I

ASB8 : 00024

**ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS**

NWTPHD by GC/FID

Extraction Method: SW3510C

Page 2 of 2

QC Report No: ASB8-Golder Associates

Project: Masterpark Lot C

073-93368-06-09A

Matrix: Water

Date Received: 12/03/15

Data Release Authorized: *JB*

Reported: 12/15/15

ARI ID	Sample ID	Analysis Date	DF	Range	Result	LOQ	DL
ASB8K DL 15-23541	MPLOT-MW-07-120315	12/15/15 FID3B	5.0	Diesel	4.9 J	0.50	0.16
				Motor Oil	< 1.0 U	DNR 1.0	0.28
				HC ID	DRO		
				o-Terphenyl	79.3%		
ASB8L 15-23542	MPLOT-FB-120315	12/14/15 FID3B	1.0	Diesel	< 0.10 U	0.10	0.03
				Motor Oil	< 0.20 U	0.20	0.06
				HC ID	---		
				o-Terphenyl	85.1%		
ASB8M 15-23543	MPLOT-MW-12-120315	12/14/15 FID3B	1.0	Diesel	0.29	0.10	0.03
				Motor Oil	< 0.20 U	0.20	0.06
				HC ID	DIESEL		
				o-Terphenyl	76.1%		

Reported in mg/L (ppm)

Diesel quantitation on total peaks in the range from C12 to C24.

Motor Oil quantitation on total peaks in the range from C24 to C38.

HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

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Page: 1	of 1
Date: 12-18-15	Ice Present? Yes
No. of Coolers: 1	Cooler Temps: 3.6

Analysis Requested

Notes/Comments

[illegible]

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co- signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C

Page 1 of 1

Sample ID: MPLOTG-MW-17A-121815

SAMPLE

Lab Sample ID: ATC4A

LIMS ID: 15-24809

Matrix: Water

Data Release Authorized: *B*

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 13:37

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
71-43-2	Benzene	0.03	0.20	0.75
108-88-3	Toluene	0.04	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	0.08 J
179601-23-1	m,p-Xylene	0.05	0.40	0.17 J < 0.40 U
95-47-6	o-Xylene	0.03	0.20	0.13 J
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U
91-20-3	Naphthalene	0.12	0.50	0.98 Q J
110-54-3	Hexane	0.10	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	97.9%
Bromofluorobenzene	99.0%
d4-1,2-Dichlorobenzene	102%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS-Method SW8260C

Page 1 of 1

Sample ID: Trip Blank 121815

SAMPLE

Lab Sample ID: ATC4B

LIMS ID: 15-24810

Matrix: Water

Data Release Authorized: *JB*

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 12:46

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result
71-43-2	Benzene	0.03	0.20	< 0.20 U
108-88-3	Toluene	0.04	0.20	< 0.20 U
100-41-4	Ethylbenzene	0.04	0.20	< 0.20 U
179601-23-1	m,p-Xylene	0.05	0.40	0.07 J
95-47-6	o-Xylene	0.03	0.20	< 0.20 U
106-93-4	1,2-Dibromoethane	0.07	0.20	< 0.20 U
91-20-3	Naphthalene	0.12	0.50	< 0.50 U
110-54-3	Hexane	0.10	0.20	< 0.20 U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d8-Toluene	96.8%
Bromofluorobenzene	98.3%
d4-1,2-Dichlorobenzene	101%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: MPLOTG-MW-17A-121815

SAMPLE

Lab Sample ID: ATC4C

LIMS ID: 15-24902

Matrix: Water

Data Release Authorized: 

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 14:03

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	0.05 J	GRO J

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	99.3%
Bromofluorobenzene	99.8%

ORGANICS ANALYSIS DATA SHEET

Volatiles by P&T GC/MS

Page 1 of 1

Sample ID: Trip Blank 121815
SAMPLE

Lab Sample ID: ATC4D

LIMS ID: 15-24903

Matrix: Water

Data Release Authorized: *B*

Reported: 12/30/15

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Date Sampled: 12/18/15

Date Received: 12/18/15

Instrument/Analyst: NT3/LH

Date Analyzed: 12/29/15 13:12

Sample Amount: 10.0 mL

Purge Volume: 10.0 mL

CAS Number	Analyte	DL	LOQ	Result	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.03	0.25	< 0.25 U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d8-Toluene	97.3%
Bromofluorobenzene	100%

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS

NWTPHD by GC/FID

Extraction Method: SW3510C

Page 1 of 1

QC Report No: ATC4-Golder Associates

Project: Master Park Lot C

073-93368-06-09A

Matrix: Water

Date Received: 12/18/15

Data Release Authorized: *mw*
Reported: 12/31/15

ARI ID	Sample ID	Analysis Date	DF	Range	Result	LOQ	DL
MB-122415	Method Blank	12/30/15	1.0	Diesel Range	< 0.10 U	0.10	0.03
15-24809		FID4A		Motor Oil Range	< 0.20 U	0.20	0.06
				HC ID	---		
				o-Terphenyl	84.8%		
ATC4A	MPLOTG-MW-17A-121815	12/30/15	1.0	Diesel	< 0.10 U	0.10	0.03
15-24809		FID4A		Motor Oil	< 0.20 U	0.20	0.06
				HC ID	---		
				o-Terphenyl	81.5%		

Reported in mg/L (ppm)

Diesel quantitation on total peaks in the range from C12 to C24.

Motor Oil quantitation on total peaks in the range from C24 to C38.

HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

APPENDIX D
DATA TABLES AND TREND GRAPHS

DATA TABLES

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

Date Sampled ^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	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	312.0	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	314.0	2.14	6.8	< 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	331.0	3.96	0.8	< 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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/SVE in operation. Suction may be affecting WLs.	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

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

Field Parameters									Analytical Data									
Date Sampled ^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)
18-Mar-10	358.70	48.69	310.01	6.61	13.3	354	1.41	5.18	26	230	1,100	360	4630	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	2022	< 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	1811	< 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	2110	< 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	1507	< 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	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	1200	270	1550	< 1.5	160	69	4.9 J	< 0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^a	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/SVE in operation. Suction may be affecting WLs.
^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.
 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 D-3: Summary of Groundwater Sampling Results - Well MW-09
Sea-Tac Development Site, Seatac WA

Date Sampled ^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	1434	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	< 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	111.6	< 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*	< 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
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^a	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

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/SVE in operation. Suction may be affecting WLs.
^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.
 * 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 D-4: Summary of Groundwater Sampling Results - Well MW-12
Sea-Tac Development Site, Seatac WA**

Date Sampled ^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)
15-Mar-10	364.88	54.99	309.89	6.38	14.5	472	0.03	40.8	36	230	2,400	1,300	5140	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	2.4	< 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
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^a	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

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/SVE in operation. Suction may be affecting WLs.
^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.
 * Reported at the Limit of Quantitation (LOQ). The LOQ is less than MTCA CULs.

- Not measured or not available
 mg/L Result exceeds Clean-up Level (CUL)
 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 D-5: Summary of Groundwater Sampling Results - Well MW-13
Sea-Tac Development Site, Seatac WA

Date Sampled ^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	365.42	55.66	309.76	6.28	12.8	271	0.16	72.1	33	14	230	890	4500	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	3.90	240	2070	< 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	18.54	< 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
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

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/SVE in operation. Suction may be affecting WLs.
^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.
 * Reported at the Limit of Quantitation (LOQ). The LOQ is less than MTCA CULs.

- Not measured or not available
 mg/L Result exceeds Clean-up Level (CUL)
 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 D-6: Summary of Groundwater Sampling Results - Well MW-17A
Sea-Tac Development Site, Seatac WA

Date Sampled ^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	142.0	1.70	< 1.0	< 1.0	4	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	< 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
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^a	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

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/SVE in operation. Suction may be affecting WLs.
^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.
 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 D-7: Summary of Groundwater Sampling Results - Well MW-18
Sea-Tac Development Site, Seatac WA**

Date Sampled ^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	6690	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	91.3	< 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	0.2	1.10	< 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
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

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/SVE in operation. Suction may be affecting WLs.
^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.
 * 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 D-8: Summary of Groundwater Sampling Results - Well MW-19
Sea-Tac Development Site, Seatac WA

Date Sampled ^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	8.90	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	0.3	< 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
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^a	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

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/SVE in operation. Suction may be affecting WLs.
^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 D-9: Summary of Groundwater Sampling Results - Well MW-20
Sea-Tac Development Site, Seatac WA

Date Sampled ^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	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	< 0.20
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	< 0.20
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	< 0.20
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	< 0.20
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	< 0.20
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	< 0.20
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

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/SVE in operation. Suction may be affecting WLs.

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

mg/L

Result exceeds Clean-up Level (CUL)

µg/L

Milligrams per liter

NTU

Micrograms per liter

µmhos/cm

Nephelometric Turbidity Unit

<

Micromhos per centimeter

MTCA

Analyte not detected above the reporting limit shown

MCL

Model Toxics Control Act

NSA

Maximum Containment Level

TOC

No Standard Available

°C

Top of casing inside PVC well

Degrees Celsius

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

Date Sampled ^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
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^a	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

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/SVE in operation. Suction may be affecting WLs.
^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 D-11: Summary of Groundwater Sampling Results - Well MW-22
Sea-Tac Development Site, Seatac WA

Date Sampled ^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	1400	2420	< 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	1503	< 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	1900	< 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	1103	< 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	1103	< 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	1402	< 0.74	4.7	310.00	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	1503	< 1.5	3.0 J	240	1.5 J	< 0.20
Clean-up Level	MTCA Method A for Groundwater (unrestricted landuse)								0.8 ^d /1.0 ^a	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

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/SVE in operation. Suction may be affecting WLs.
^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.
 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 D-12: Summary of Groundwater Sampling Results - Well PORT-MW-B
Sea-Tac Development Site, Seatac WA**

	Field Parameters								Analytical Data									
Date Sampled ^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)
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	UJ	< 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	1.79	< 0.25	< 0.20	< 0.20	0.26	0.40 J+	< 0.07	< 0.20	2.3 J+	< 0.10	0.49
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/SVE in operation. Suction may be affecting WLs.	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.	UJ	The constituent was
		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

