

June 5, 2015

2014-01-443

Mr. Mark Chandler
Vice President of Environmental Services
TOC Holdings Co.
2737 W. Commodore Way
Seattle, WA 98199

Subject: Groundwater Monitoring Report
First Quarter, 2015
TOC Facility No. 01-443
4910 Leary Avenue Northwest, Seattle, Washington
Washington State Department of Ecology #85572141

This report summarizes the results of the First Quarter 2015 groundwater sampling event conducted by HydroCon Environmental (HydroCon) at the Time Oil Co. (currently TOC Holdings Co.) Facility No. 01-443 located at 4910 Leary Avenue Northwest, Seattle, Washington (the Property). The Property location is shown on Figure 1. This report presents a summary of the site background, field activities, and results of the quarterly monitoring event.

Site Background

Site features, including the historical facilities and monitoring wells, are shown on Figure 2. The Property was first developed with a single-family residence sometime between 1893 and 1905, and appeared to have been used for residential purposes until 1922, when the residence was demolished and a Mobil-brand retail gasoline station and automotive repair facility was constructed in its place. This facility was equipped with three fuel-dispensing pump islands, a hydraulic hoist, and grease shed. No information regarding the associated underground storage tanks (USTs) was observed in the available public record. In 1942, the 1922-vintage facility was demolished and the existing building was constructed. The 1942-vintage facility was reportedly equipped with a single pump island; a hydraulic hoist; and as many as four USTs with capacities of 125, 500, 650, and 1,000 gallons. The Property operated as a gasoline service station until at least 1954. Time Oil Co. (currently TOC Holdings Co.) purchased the Property in 1957. The dispenser island was removed from the Property between 1954 and 1967. Between 1959 and 2006, automotive repair or tire sales facilities operated on the Property. The Property is currently occupied by the 1942-vintage, single-story building with an attached covered patio, an associated asphalt-paved parking lot, and perimeter landscaping. The building is currently occupied by the Shelter Lounge.

In 2001, the 125-gallon waste oil UST, hydraulic hoist, and approximately 35 tons of petroleum-contaminated soil (PCS) were removed from the Property. In 2004, the 500-gallon and 650-gallon USTs, the associated product delivery piping, and approximately 1,193 tons of PCS were removed from the Property. Information regarding the removal of the 1,000-gallon UST was not observed in the available records.

Subsurface investigations conducted on the Property since 2000 have confirmed that the historical use of the Property as a retail gasoline station and automotive repair facility has resulted in adverse environmental impacts to soil and groundwater. Laboratory analytical data indicated that concentrations of gasoline-range petroleum hydrocarbons (GRPH); diesel-range petroleum hydrocarbons (DRPH); oil-range petroleum hydrocarbons (ORPH); benzene, toluene, ethylbenzene, and total xylenes (BTEX); 1,2-dichloroethane (EDC), and naphthalene exceeded their respective Washington State Model Toxics Control Act (MTCA) Method A cleanup levels in soil and/or groundwater beneath the Property.

In an effort to mitigate residual groundwater contamination, an in-situ chemical oxidation injection event was conducted at the Property in 2011 and a remedial excavation was completed between July and August of 2012. Multiple groundwater extraction events have also been performed using existing monitoring wells.

Petroleum-impacted soil and groundwater have been encountered beneath the southern portion of the Property, extending a short distance beyond the eastern and southwestern boundaries of the Property. Although PCS and groundwater have been encountered at locations farther east, south, and southwest of the Property, these impacts appear to be related to releases from off-site locations and are, therefore, not included within the boundaries of the Property.

As remediation and monitoring for the Property has progressed, several wells have been removed from the monitoring program, replaced, or decommissioned as follows:

- Monitoring wells MW01 and MW05 were decommissioned in 2004 and later replaced with monitoring wells MW01A and MW05A.
- Monitoring wells MW11 and MW15 were decommissioned as part of the remedial excavation activities in 2012 and later replaced with monitoring wells MW11A and MW15A.

In December 2014, HydroCon conducted a supplemental site investigation at the site¹. The investigation consisted of installing seven temporary borings and collecting soil samples (HC-1 through HC-7). The purpose of the investigation was to further evaluate conditions near MW03, a well with elevated GRPH and benzene concentrations, and to further characterize soil conditions in the area of the 2012 remedial excavation. The report also developed MTCA Method B cleanup levels for soil and groundwater. This report compares groundwater results to these Method B cleanup levels.

Scope of Work

Groundwater samples were collected March 18 through 23, 2015 to evaluate the groundwater quality beneath the Property and to eventually demonstrate compliance with MTCA cleanup regulations. The monitoring event included the following activities:

- Measurement of depth to groundwater in monitoring wells MW01A, MW02 through MW04, MW05A, MW06 through MW10, MW11A, MW12 through MW14, MW15A, and MW16.

¹ HydroCon Environmental, 2015. *Cleanup Action Status Report, TOC Holdings Co. Facility 01-443*. Prepared for TOC Holding Co. May 1.

- Collection and analysis of groundwater samples were collected from the monitoring wells listed above.
- Collection of a field duplicate sample from monitoring well MW03 for quality assurance/quality control (QA/QC) purposes.
- Summarizing the groundwater sampling activities, analytical results, and upcoming work (this report).

Groundwater Sampling Procedures

HydroCon collected groundwater samples on March 18 through 23, 2015 from monitoring wells MW01A, MW02 through MW04, MW05A, MW06 through MW10, MW11A, MW12 through MW14, MW15A, and MW16.

A blind field duplicate was collected from MW03 for QA/QC purposes. Monitoring wells were purged and sampled in accordance with U.S. Environmental Protection Agency (EPA) guidance for low-flow sampling².

Depth to water was measured in these monitoring wells on March 18, 2015. The water levels were collected after sample collection due to an equipment malfunction. Prior to collecting depth to water measurements at the site, the well cap on each well was removed and the water level was allowed to equilibrate. The depth to water in each well was measured using a clean electronic water level indicator. Water levels were measured at the scribed reference mark (north side of the top of the polyvinyl chloride casing) at each well.

Prior to groundwater sampling, monitoring wells were purged with a low-flow peristaltic pump equipped with a new length of low-density polyethylene tubing attached to a new length of silicone tubing. The tubing intake was placed approximately 2 to 3 feet below the surface of the groundwater or mid-screen in each well. During purging, water quality was monitored using a Quanta multi-parameter water quality meter equipped with a flow-through cell. The water quality parameters monitored and recorded included temperature, pH, specific conductance, dissolved oxygen, turbidity, and oxidation-reduction potential. Each well was purged until all six water quality parameters stabilized or the minimum parameter subset of pH, specific conductance, temperature, and turbidity and/or dissolved oxygen stabilized. Groundwater sample collection forms are provided in Attachment A.

Following purging, groundwater samples were collected from the pump outlet tubing located upstream of the flow-through cell and placed directly into clean, laboratory-prepared sample containers. Each container was labeled with a unique sample identification number, placed on ice in a cooler, and transported under chain-of-custody to Friedman & Bruya, Inc. of Seattle, Washington, for laboratory analysis.

Purge water generated during the monitoring event was placed in an appropriately labeled 55-gallon steel drum and temporarily stored on the Property pending receipt of analytical data for proper disposal.

² *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures (April 1996). EPA/540/S-95/504*

Laboratory Analysis

The analytical protocols for the samples collected at the Property include the required testing for petroleum releases for gasoline (Table 830-1 in the MTCA Cleanup Regulations Chapter 173-340 WAC). The analytical methods include:

- GRPH using Northwest Method NWTPH-Gx
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX), and EDC using EPA Method 8260.

Groundwater Conditions

Groundwater levels measured on March 18, 2015, ranged from 7.97 feet (monitoring well MW16) to 19.55 feet (monitoring well MW08) below the top of the monitoring well casings (Table 1). Groundwater elevations ranged from 78.63 feet above mean sea level (amsl) in MW08 to 92.42 feet amsl in MW16. The groundwater elevation contours indicate a groundwater flow direction toward the southwest in the northeast corner of the site with a gradient of 0.0023 feet per foot between monitoring wells MW016 and MW1A. A groundwater mound is present near MW14 and gradients flowing from the mound area approximately 0.1 feet per feet. Groundwater elevation contours are shown on Figure 3.

Groundwater Sampling Results

Laboratory analytical results from the monitoring event were compared to applicable MTCA Method B cleanup levels for groundwater. Method B cleanup levels were exceeded for GRPH and benzene in off property wells MW03 and MW09 (Figure 4, Table 1).

Data Quality Review

HydroCon performed a QA/QC review of the analytical results, which included a review of accuracy and precision of the data supplied by the laboratory. In addition, the RPD for sample MW03 and its duplicate (MW99) were within acceptance for all analytes except EDC which was outside acceptance criteria of 35% with a result of 45.2%. If the analyte was detected at a level less than five times the reporting limit, the RPD results may not provide reliable information on the variability of the analysis. In this case, the reporting limit for 1,2-Dichloroethane (EDC) is 1, so five times the reporting limits is 5. The sample and duplicate results falls outside the 5x (MW03= 6 ug/L; MW99= 9.5 ug/L).

All other quality control criteria are acceptable for the groundwater samples; therefore, no action is required and analytical results are usable to meet the project objectives. A copy of the laboratory analytical report is provided in Appendix B.

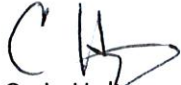
Remediation System Performance

There are no remedial systems operating at the site.

Work Planned

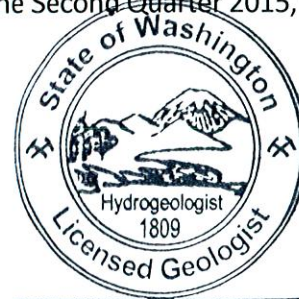
HydroCon will perform groundwater monitoring at the Property in the Second Quarter 2015, the results of which will be included in a groundwater monitoring report.

Sincerely,



Craig Hultgren, LHG

Senior Geologist/Project Manager



CRAIG HULTGREN

cc: Eugene Freeman, Washington State Department of Ecology, Northwest Region

Figures

Figure 1 - Site Location Map

Figure 2 - Site Features

Figure 3 - Groundwater Elevation Contours

Figure 4 - Groundwater Analytical Results

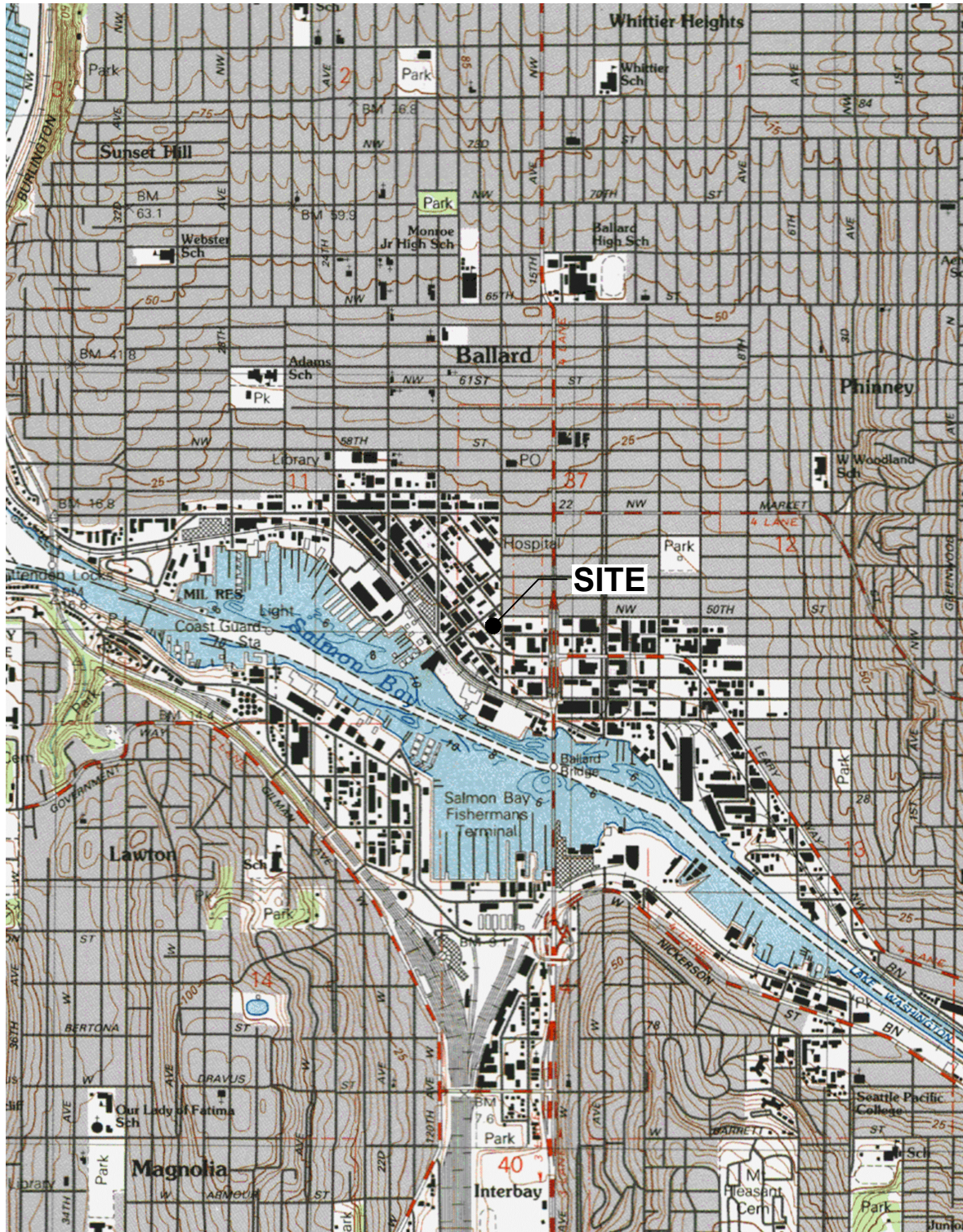
Table

Table 1 - Summary of Groundwater Data

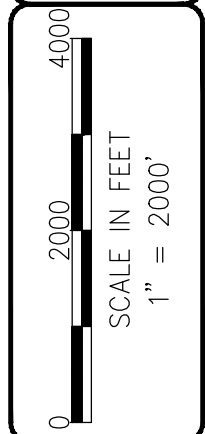
Attachments

Attachment A - Groundwater Sample Collection Forms

Attachment B - Laboratory Report and Chain-of-Custody Documentation



















NOTE(S):
 USGS, SEATTLE NORTH QUADRANGLE
 WASHINGTON
 7.5 MINUTE SERIES (TOPOGRAPHIC)

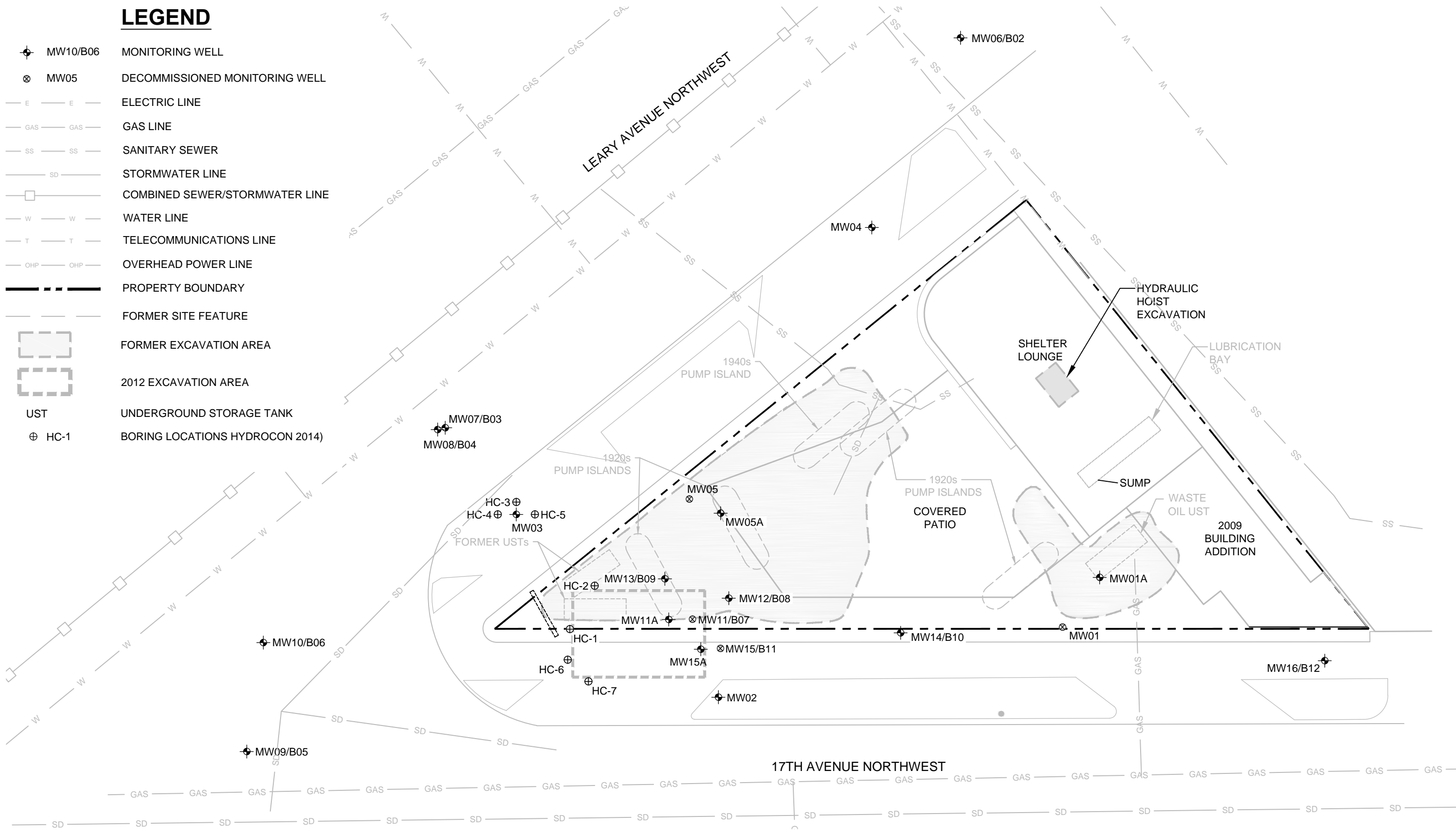


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 DWN: JJT
 CHK: NV
 APPROVED:
 PRJ. MGR: CH
 PROJECT NO:
 14-806

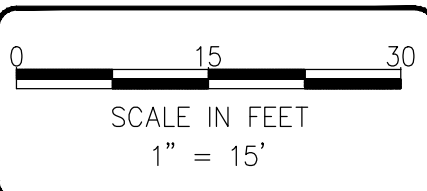
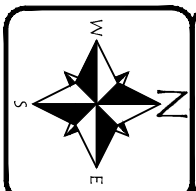
FIGURE 1
 SITE LOCATION MAP
 TOC HOLDINGS CO. FACILITY NO. 01-443
 4910 LEARY AVE. NW
 SEATTLE, WA.

LEGEND

-  MW10/B06 MONITORING WELL
-  MW05 DECOMMISSIONED MONITORING WELL
-  ELECTRIC LINE
-  GAS LINE
-  SANITARY SEWER
-  STORMWATER LINE
-  COMBINED SEWER/STORMWATER LINE
-  WATER LINE
-  TELECOMMUNICATIONS LINE
-  OVERHEAD POWER LINE
-  PROPERTY BOUNDARY
-  FORMER SITE FEATURE
-  FORMER EXCAVATION AREA
-  2012 EXCAVATION AREA
-  UNDERGROUND STORAGE TANK
-  BORING LOCATIONS HYDROCON 2014)



NOTE:
 UNDERGROUND UTILITY LOCATIONS BASED ON
 2014 REVIEW OF PUBLIC FILES AND A PRIVATE
 LOCATOR SERVICE.









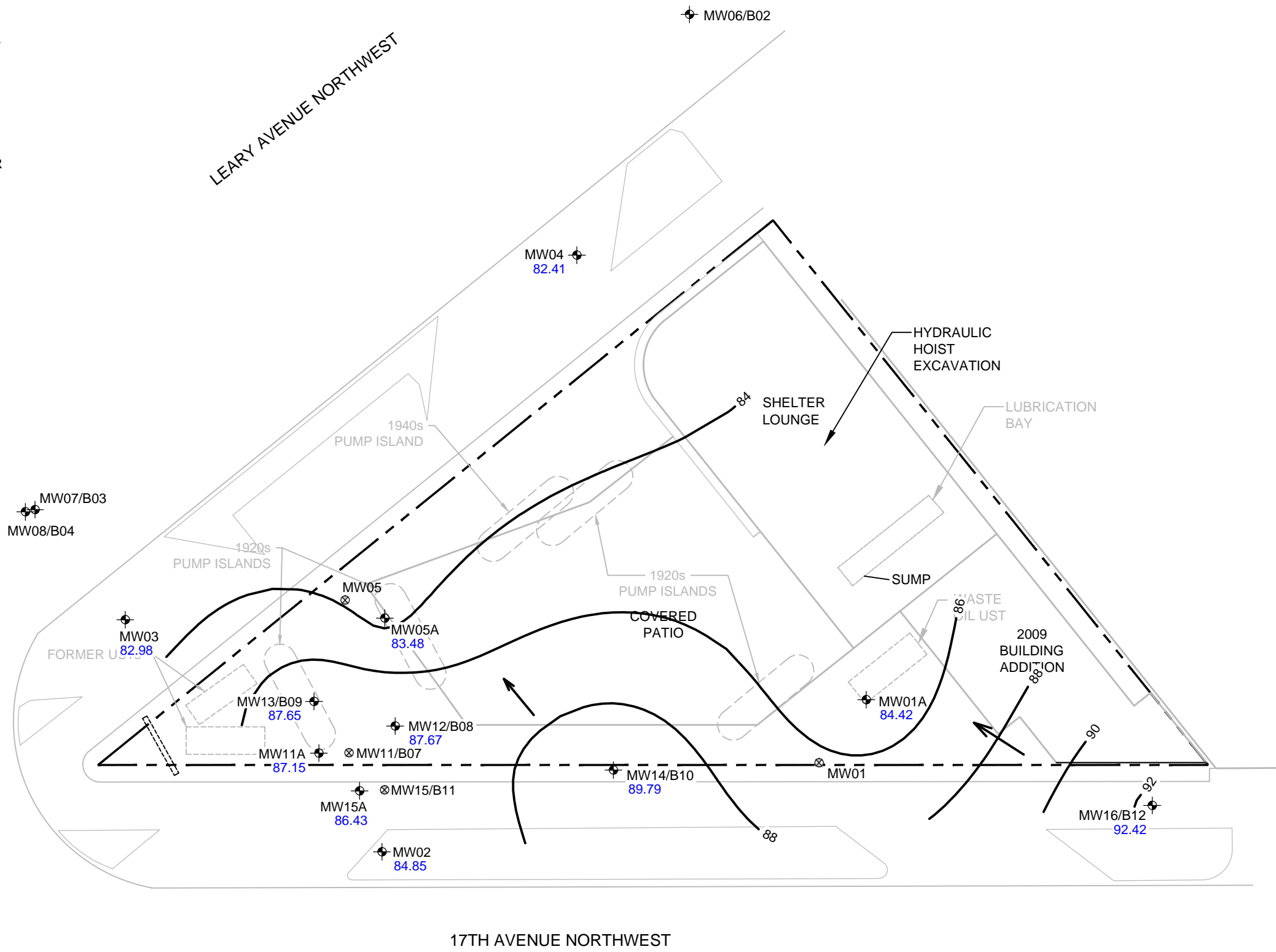
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 PROJECT NO:
 14-806

FIGURE 2
 SITE FEATURES
 TOC HOLDINGS CO. FACILITY NO. 01-443
 4910 LEARY AVE. NW
 SEATTLE, WA.

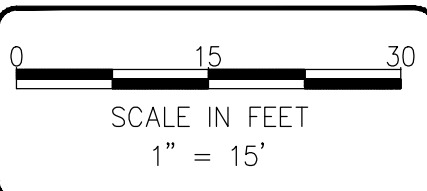
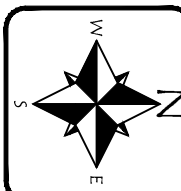
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LEGEND

-  MW10/B06 MONITORING WELL
-  MW05 DECOMMISSIONED MONITORING WELL
-  PROPERTY BOUNDARY
-  FORMER SITE FEATURE
- 85.12 GROUNDWATER SURFACE ELEVATION
-  84 GROUNDWATER ELEVATION CONTOUR
-  APPROXIMATE GROUNDWATER FLOW DIRECTION



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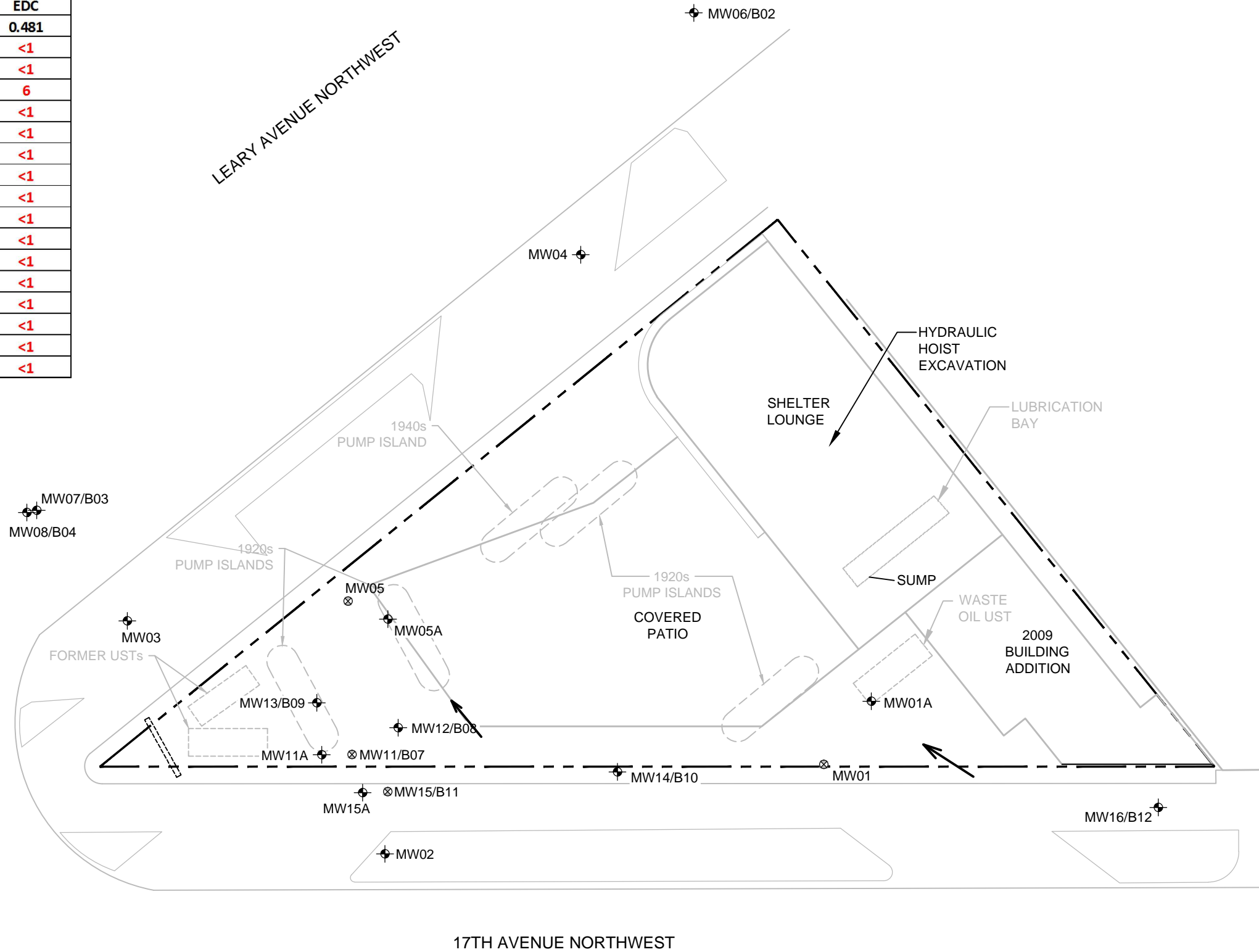
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 14-806

FIGURE 3
 GROUNDWATER ELEVATION CONTOURS
 FOR MARCH 2015
 TOC HOLDINGS CO. FACILITY NO. 01-443
 4910 LEARY AVE. NW
 SEATTLE, WA.

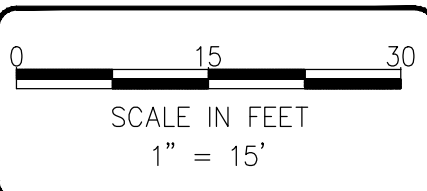
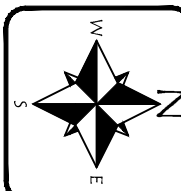
MTCA B	GRPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	EDC
	800/1,000	0.795	640	800	1,600	0.481
MW01A	<100	<0.35	<1	<1	<3	<1
MW02	<100	<0.35	<1	<1	<3	<1
MW03	3,000	110	1.1	47	46.3	6
MW04	260	<0.35	<1	<1	<3	<1
MW05A	<100	<0.35	<1	<1	<3	<1
MW06	<100	<0.35	<1	<1	<3	<1
MW07	<100	<0.35	<1	<1	<3	<1
MW08	<100	<0.35	<1	<1	<3	<1
MW09	7,600	2.9	43	390	253	<1
MW10	<100	<0.35	<1	<1	<3	<1
MW11A	<100	<0.35	<1	<1	<3	<1
MW12	<100	<0.35	<1	<1	<3	<1
MW13	<100	<0.35	<1	<1	<3	<1
MW14	<100	<0.35	<1	<1	<3	<1
MW15A	<100	<0.35	<1	<1	<3	<1
MW16	<100	<0.35	<1	<1	<3	<1

LEGEND

-  MW10/B06 MONITORING WELL
-  MW05 DECOMMISSIONED MONITORING WELL
-  PROPERTY BOUNDARY
-  FORMER SITE FEATURE
-  APPROXIMATE GROUNDWATER FLOW DIRECTION



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DATE: 5-10-15
 DWN: JJT
 CHK: NV
 APPROVED: NV
 PRJ. MGR: CH
 PROJECT NO:
 14-806

FIGURE 4
 GROUNDWATER ANALYTICAL RESULTS
 FOR MARCH 2015
 TOC HOLDINGS CO. FACILITY NO. 01-443
 4910 LEARY AVE. NW
 SEATTLE, WA.



Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW01	99.87	12/11/2001	10.39	-	89.48	-	-	-	-	-	-	-	-	-
	99.87	1/8/2002	9.86	-	90.01	<50	<0.5	<0.5	<0.5	<1	-	-	-	-
	99.87	5/29/2002	10.75	-	89.12	<50	<0.5	<0.5	<0.5	<1	-	-	-	-
	99.87	9/10/2002	11.5	-	88.37	<50	<1	<1	<1	<2	<1	-	-	-
	99.87	12/6/2002	16.63	-	83.24	<50	<0.2	<0.2	<0.2	<0.5	<0.2	-	-	-
	99.87	3/26/2003	10.9	-	88.97	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	99.87	6/20/2003	11.18	-	88.69	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	99.87	9/16/2003	12.13	-	87.74	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	99.87	12/22/2003	11.11	-	88.76	<50	1.65	<0.5	<0.5	<1	<0.2	-	-	-
	99.87	3/19/2004	10.58	-	89.29	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
MW01A	99.87	6/28/2004	10.88	-	88.99	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	99.64	12/27/2004	10.06	-	89.58	<50	<1	<1	<1	<3	<0.01	-	-	-
	99.64	3/22/2005	10.41	-	89.23	<50	<1	<1	<1	<3	<0.02	-	-	-
	99.64	6/29/2005	11.04	-	88.60	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	99.64	3/15/2007	11.03	-	88.61	<100	<1	<1	<1	<3	<1	-	<50	<250
	99.64	9/21/2007	12.61	-	87.03	<100	<1	<1	<1	<3	<1	-	<51	<260
	99.64	1/15/2008	11.91	-	87.73	<100	<1	<1	<1	<3	<1	-	<50	<250
	99.64	9/23/2008	11.92	-	87.72	<100	<1	<1	<1	<3	<1	-	<50	<250
	99.64	2/9/2009	11.21	-	88.43	<100	<1	<1	<1	<3	<1	<1	<50	<250
	99.64	5/21/2009	10.37	-	89.27	<100	<1	<1	<1	<3	<1	<1	-	-
	99.64	9/17/2009	12.3	-	87.34	<100	<1	<1	<1	<3	<1	<1	<50	<250
	99.64	12/23/2009	10.35	-	89.29	<100	<1	<1	<1	<3	<1	<1	<50	<250
	99.64	3/18/2010	10.62	-	89.02	<100	<1	<1	<1	<3	<1	-	63 x	<250
	99.64	6/29/2010	10.84	-	88.80	<100	<1	<1	<1	<3	-	-	-	-
	99.64	10/14/2010	11.21	-	88.43	<100	<1	<1	<1	<3	-	-	-	-
	99.64	12/10/2010	10.63	-	89.01	<100	<1	<1	<1	<3	-	-	-	-
	99.64	3/3/2011	10.58	-	89.06	<100	<1	<1	<1	<3	-	-	-	-
	99.64	5/31/2011	10.55	-	89.09	<100	<1	<1	<1	<3	-	-	-	-
	99.64	8/29/2011	11.73	-	87.91	<100	<1	<1	<1	<3	-	-	-	-
	99.64	12/21/2011	14.57	-	85.07	<100	<1	<1	<1	<3	-	-	-	-
	99.64	3/22/2012	15.35	-	84.29	<100	<1	<1	<1	<3	-	-	-	-
	99.64	6/13/2012	15.71	-	83.93	<100	<1	<1	<1	<3	-	-	-	-
	99.64	9/6/2012	16.71	-	82.93	<100	<1	<1	<1	<3	-	-	-	-
	99.64	12/3/2012	16.12	-	83.52	<100	<1	<1	<1	<3	-	-	-	-
	99.64	2/12/2013	15.28	-	84.36	<100	<1	<1	<1	<3	-	-	-	-
	99.64	5/21/2013	15.64	-	84.00	<100	<1	<1	<1	<3	-	-	-	-
	99.64	8/14/2013	16.53	-	83.11	<100	<1	<1	<1	<3	-	-	-	-
	99.64	12/17/2013	17.11	-	82.53	<100	<1	<1	<1	<3	-	-	-	-
	99.64	2/28/2014	16.45	-	83.19	<100	<0.35	<1	<1	<3	-	-	-	-
	99.64	5/20/2014	15.40	-	84.24	<100	<1	<1	<1	<3	-	-	-	-
99.64	9/3/2014	16.8	-	82.84	<100	<0.35	<1	<1	<3	<1	-	-	-	
99.64	12/23/2014	15.24	-	84.40	<100	<0.35	<1	<1	<3	<1	-	-	-	
99.64	3/23/2015	15.22	-	84.42	<100	<0.35	<1	<1	<3	<1	-	-	-	



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 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

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						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW02	98.95	1/8/2002	9.83	-	89.12	<50	<0.5	<0.5	<0.5	<1	-	-	-	-
	98.95	5/29/2002	9.5	-	89.45	<50	<0.5	<0.5	<0.5	<1	-	-	-	-
	98.95	9/10/2002	10.3	-	88.65	<50	<1	<1	<1	<2	<1	-	-	-
	98.95	12/6/2002	11.25	-	87.70	<50	<0.2	<0.2	<0.2	<0.5	<0.2	-	-	-
	98.95	3/26/2003	9.92	-	89.03	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	98.95	6/20/2003	10.8	-	88.15	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	98.95	9/16/2003	11.7	-	87.25	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	98.95	12/22/2003	10.69	-	88.26	<50	0.628	<0.5	<0.5	<1	<0.2	-	-	-
	98.95	3/19/2004	10.3	-	88.65	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	98.95	6/28/2004	10.78	-	88.17	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	98.95	11/8/2004	10.37	-	88.58	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	98.95	12/27/2004	9.97	-	88.98	<50	<1	<1	<1	<3	<0.01	-	-	-
	98.95	3/22/2005	10.38	-	88.57	<50	<1	<1	<1	<3	<0.02	-	-	-
	98.95	6/29/2005	10.21	-	88.74	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	98.95	3/15/2007	11.76	-	87.19	<100	<1	<1	<1	<3	<1	-	<50	<250
	98.95	9/21/2007	11.73	-	87.22	<100	<1	<1	<1	<3	<1	-	<52	<260
	98.95	1/15/2008	10.64	-	88.31	<100	<1	<1	<1	<3	<1	-	<50	<250
	98.95	9/23/2008	11.62	-	87.33	<100	<1	<1	<1	<3	<1	-	<50	<250
	98.95	2/9/2009	10.98	-	87.97	-	-	-	-	-	-	-	-	-
	98.95	5/21/2009	10.16	-	88.79	-	-	-	-	-	-	-	-	-
	98.95	9/17/2009	12.04	-	86.91	-	-	-	-	-	-	-	-	-
	98.95	12/23/2009	10.55	-	88.40	-	-	-	-	-	-	-	-	-
	98.95	3/18/2010	10.4	-	88.55	-	-	-	-	-	-	-	-	-
	98.95	6/29/2010	10.56	-	88.39	-	-	-	-	-	-	-	-	-
	98.95	10/14/2010	10.9	-	88.05	-	-	-	-	-	-	-	-	-
	98.95	12/10/2010	10.3	-	88.65	-	-	-	-	-	-	-	-	-
	98.95	3/3/2011	10.36	-	88.59	-	-	-	-	-	-	-	-	-
	98.95	5/31/2011	0 IA	-	-	-	-	-	-	-	-	-	-	-
	98.95	8/29/2011	11.56	-	87.39	-	-	-	-	-	-	-	-	-
	98.95	12/21/2011	13.73	-	85.22	-	-	-	-	-	-	-	-	-
	98.95	3/22/2012	14.28	-	84.67	-	-	-	-	-	-	-	-	-
	98.95	6/13/2012	14.83	-	84.12	-	-	-	-	-	-	-	-	-
	98.95	9/6/2012	16.01	-	82.94	-	-	-	-	-	-	-	-	-
	98.95	12/3/2012	13.84	-	85.11	-	-	-	-	-	-	-	-	-
	98.95	2/12/2013	14.12	-	84.83	-	-	-	-	-	-	-	-	-
	98.95	5/20/2013	14.58	-	84.37	-	-	-	-	-	-	-	-	-
	98.95	8/13/2013	15.64	-	83.31	-	-	-	-	-	-	-	-	-
	98.95	12/17/2013	16.14	-	82.81	-	-	-	-	-	-	-	-	-
	98.95	2/28/2014	14.81	-	84.14	-	-	-	-	-	-	-	-	-
	98.95	5/21/2014	14.07	-	84.88	-	-	-	-	-	-	-	-	-
	98.95	9/2/2014	16.04	-	82.91	<100	<0.35	<1	<1	<3	<1	-	-	-
	98.95	12/22/2014	13.83	-	85.12	-	-	-	-	-	-	-	-	-
	98.95	3/20/2015	14.1	-	84.85	<100	<0.35	<1	<1	<3	<1	-	-	-



Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW03	98.43	12/11/2001	9.49	-	88.94	-	-	-	-	-	-	-	-	-
	98.43	1/8/2002	9.33	-	89.10	<50	<0.5	<0.5	<0.5	<1	-	-	-	-
	98.43	5/29/2002	10.07	-	88.36	<50	<0.5	<0.5	<0.5	<1	46.4	-	-	-
	98.43	9/10/2002	11.08	-	87.35	<50	<2	<2	<2	<4	50.6	-	-	-
	98.43	12/6/2002	12.16	-	86.27	<50	<1	<1	<1	<2	36.5	-	-	-
	98.43	3/26/2003	9.58	-	88.85	<50	<0.5	<0.5	<0.5	<1	44.8	-	-	-
	98.43	6/20/2003	10.83	-	87.60	<50	<0.5	<0.5	<0.5	<1	41.4	-	-	-
	98.43	9/16/2003	11.83	-	86.60	<50	<0.5	<0.5	<0.5	<1	39.8	-	-	-
	98.43	12/22/2003	10.29	-	88.14	<50	<0.5	<0.5	<0.5	<1	32.2	-	-	-
	98.43	3/19/2004	10.57	-	87.86	<50	<0.5	<0.5	<0.5	<1	45.8	-	-	-
	98.43	6/28/2004	10.69	-	87.74	<50	<0.5	<0.5	<0.5	<1	37.8	-	-	-
	98.43	11/8/2004	10.83	-	87.60	<50	<0.5	<0.5	<0.5	<1	41.8	-	-	-
	98.43	12/27/2004	9.92	-	88.51	<50	<1	<1	<1	<3	41	-	-	-
	98.43	3/22/2005	10.35	-	88.08	<50	<1	<1	<1	<3	44	-	-	-
	98.43	6/29/2005	10.34	-	88.09	<50	0.889	<0.5	<0.5	<1	33.9	-	-	-
	98.43	3/15/2007	11.09	-	87.34	190	1.5	<1	<1	<3	30	-	210	<250
	98.43	9/21/2007	11.66	-	86.77	110	<1	<1	<1	<3	33	-	180	<260
	98.43	1/15/2008	10.71	-	87.72	<100	<1	<1	<1	<3	23	-	120	<250
	98.43	9/23/2008	12.25	-	86.18	<100	<1	<1	<1	<3	24	-	180	<250
	98.43	2/9/2009	10.92	-	87.51	-	-	-	-	-	-	-	-	-
	98.43	5/21/2009	10.15	-	88.28	-	-	-	-	-	-	-	-	-
	98.43	9/17/2009	12.07	-	86.36	-	-	-	-	-	-	-	-	-
	98.43	12/23/2009	10.58	-	87.85	-	-	-	-	-	-	-	-	-
	98.43	3/18/2010	10.4	-	88.03	-	-	-	-	-	-	-	-	-
	98.43	6/29/2010	10.55	-	87.88	-	-	-	-	-	-	-	-	-
	98.43	10/14/2010	10.99	-	87.44	-	-	-	-	-	-	-	-	-
	98.43	12/10/2010	10.4	-	88.03	-	-	-	-	-	-	-	-	-
	98.43	3/3/2011	10.37	-	88.06	-	-	-	-	-	-	-	-	-
	98.43	5/31/2011	10.37	-	88.06	-	-	-	-	-	-	-	-	-
	98.43	8/29/2011	11.66	-	86.77	-	-	-	-	-	-	-	-	-
	98.43	12/21/2011	14.62	-	83.81	-	-	-	-	-	-	-	-	-
	98.43	3/23/2012	15.52	-	82.91	-	-	-	-	-	-	-	-	-
	98.43	6/13/2012	15.95	-	82.48	-	-	-	-	-	-	-	-	-
	98.43	9/7/2012	17.14	-	81.29	3700	140	4.6	80	64	-	-	-	-
	98.43	12/3/2012	15.6	-	82.83	-	-	-	-	-	-	-	-	-
	98.43	2/12/2013	15.5	0.02	82.95	-	-	-	-	-	-	-	-	-
	98.43	5/20/2013	15.94	-	82.49	-	-	-	-	-	-	-	-	-
	98.43	8/13/2013	16.75	-	81.68	-	-	-	-	-	-	-	-	-
	98.43	12/17/2013	-	-	-	-	-	-	-	-	-	-	-	-
	98.43	2/28/2014	16.35	-	82.08	-	-	-	-	-	-	-	-	-
	98.43	5/21/2014	15.3	-	83.13	-	-	-	-	-	-	-	-	-
	98.43	9/4/2014	17.11	-	81.32	3300	420	2.5	55	104.5	<1	-	-	-
	98.43	12/22/2014	15.33	-	83.10	-	-	-	-	-	-	-	-	-
	98.43	3/23/2015	15.45	-	82.98	3000	110	1.1	47	46.3	6	-	-	-



Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW04	98.22	12/11/2001	9.2	-	89.02	-	-	-	-	-	-	-	-	-
	98.22	1/8/2002	8.75	-	89.47	<50	<0.5	<0.5	<0.5	<1	-	-	-	-
	98.22	5/29/2002	9.57	-	88.65	<50	<0.5	<0.5	<0.5	<1	-	-	-	-
	98.22	9/10/2002	10.6	-	87.62	<50	<1	<1	<1	<2	3.19	-	-	-
	98.22	12/6/2002	10.9	-	87.32	<50	<0.2	<0.2	<0.2	<0.5	4.42	-	-	-
	98.22	3/26/2003	8.91	-	89.31	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	98.22	6/20/2003	9.95	-	88.27	<50	<0.5	<0.5	<0.5	<1	3.73	-	-	-
	98.22	9/16/2003	10.9	-	87.32	<50	<0.5	<0.5	<0.5	<1	3.78	-	-	-
	98.22	12/22/2003	9.3	-	88.92	<50	<0.5	<0.5	<0.5	<1	<0.2	-	-	-
	98.22	3/19/2004	9.58	-	88.64	<50	<0.5	<0.5	<0.5	<1	3.01	-	-	-
	98.22	6/28/2004	9.9	-	88.32	<50	<0.5	<0.5	<0.5	<1	3.06	-	-	-
	98.22	11/8/2004	9.85	-	88.37	<50	<0.5	<0.5	<0.5	<1	3.46	-	-	-
	98.22	12/27/2004	9.43	-	88.79	<50	<1	<1	<1	<3	4	-	-	-
	98.22	3/22/2005	10.34	-	87.88	<50	<1	<1	<1	<3	3.5	-	-	-
	98.22	6/29/2005	9.64	-	88.58	<50	<0.5	<0.5	<0.5	<1	2.65	-	-	-
	98.22	3/15/2007	9.95	-	88.27	<100	<1	<1	<1	<3	4.8	-	130	<250
	98.22	9/21/2007	11.43	-	86.79	<100	<1	<1	<1	<3	11	-	82	<260
	98.22	1/15/2008	10.71	-	87.51	<100	<1	<1	<1	<3	9.7	-	<50	<250
	98.22	9/23/2008	11.49	-	86.73	<100	<1	<1	<1	<3	14	-	68	<250
	98.22	2/9/2009	10.71	-	87.51	-	-	-	-	-	-	-	-	-
	98.22	5/21/2009	9.85	-	88.37	-	-	-	-	-	-	-	-	-
	98.22	9/17/2009	11.85	-	86.37	-	-	-	-	-	-	-	-	-
	98.22	12/23/2009	10.34	-	87.88	-	-	-	-	-	-	-	-	-
	98.22	3/18/2010	10.04	-	88.18	-	-	-	-	-	-	-	-	-
	98.22	6/29/2010	10.27	-	87.95	-	-	-	-	-	-	-	-	-
	98.22	10/14/2010	10.77	-	87.45	-	-	-	-	-	-	-	-	-
	98.22	12/10/2010	10.18	-	88.04	-	-	-	-	-	-	-	-	-
	98.22	3/3/2011	10.04	-	88.18	-	-	-	-	-	-	-	-	-
	98.22	5/31/2011	10.02	-	88.20	-	-	-	-	-	-	-	-	-
	98.22	8/29/2011	11.3	-	86.92	-	-	-	-	-	-	-	-	-
	98.22	12/21/2011	14.65	-	83.57	-	-	-	-	-	-	-	-	-
	98.22	3/22/2012	15.69	-	82.53	-	-	-	-	-	-	-	-	-
	98.22	6/13/2012	16.17	-	82.05	-	-	-	-	-	-	-	-	-
	98.22	9/6/2012	17.32	-	80.90	-	-	-	-	-	-	-	-	-
	98.22	12/3/2012	16.17	-	82.05	-	-	-	-	-	-	-	-	-
	98.22	2/12/2013	15.81	-	82.41	-	-	-	-	-	-	-	-	-
	98.22	5/20/2013	16.14	-	82.08	-	-	-	-	-	-	-	-	-
	98.22	8/13/2013	16.95	-	81.27	-	-	-	-	-	-	-	-	-
	98.22	12/17/2013	17.66	-	80.56	-	-	-	-	-	-	-	-	-
	98.22	2/28/2014	16.92	-	81.30	-	-	-	-	-	-	-	-	-
	98.22	5/21/2014	15.71	-	82.51	-	-	-	-	-	-	-	-	-
	98.22	9/4/2014	17.37	-	80.85	290	<0.35	<1	<1	<3	<1	-	-	-
	98.22	12/22/2014	15.82	-	82.40	-	-	-	-	-	-	-	-	-
	98.22	3/19/2015	15.81	-	82.41	260	<0.35	<1	<1	<3	<1	-	-	-



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 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8,9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW05	99.06	12/11/2001	-	-	-	-	-	-	-	-	-	-	-	-
	99.06	1/8/2002	9.36	-	89.70	91.4	<0.5	<0.5	<0.5	<1	-	-	-	-
	99.06	5/29/2002	10.18	-	88.88	398	3.98	0.77	7.32	2.9	-	-	-	-
	99.06	9/10/2002	11.11	-	87.95	594	7.42	26	1.94	33.01	<1	-	-	-
	99.06	12/6/2002	11.39	-	87.67	503	2.88	<1	4.6	<2	<1	-	-	-
	99.06	3/26/2003	9.51	-	89.55	1010	8.57	1.79	20.3	4.08	<1	-	-	-
	99.06	6/20/2003	10.5	-	88.56	741	10.1	2.41	23.8	5.92	0.46	-	-	-
	99.06	9/16/2003	11.35	-	87.71	1340	13.6	3.31	48.2	8.89	<0.2	-	-	-
	99.06	12/22/2003	9.79	-	89.27	2090	23.7	7.34	66.6	21.8	<0.2	-	-	-
	99.06	3/19/2004	10.04	-	89.02	1550	15.1	4.62	33.7	12.9	0.52	-	-	-
99.06	6/28/2004	10.4	-	88.66	2960	24.2	9.32	91.7	27.7	<0.2	-	-	-	
MW05A	99.11	12/27/2004	10.13	-	88.98	<50	<1	<1	<1	<3	0.3	-	-	-
	99.11	3/22/2005	11.31	-	87.80	<50	<1	<1	<1	<3	0.38	-	-	-
	99.11	6/29/2005	10.47	-	88.64	<50	3.86	<0.5	<0.5	<1	0.51	-	-	-
	99.11	3/15/2007	10.56	-	88.55	<100	<1	<1	<1	<3	<1	-	92	<250
	99.11	9/21/2007	12.03	-	87.08	<100	<1	<1	<1	<3	<1	-	53	<260
	99.11	1/15/2008	11.05	-	88.06	<100	<1	<1	<1	<3	<1	-	<50	<250
	99.11	9/23/2008	12.06	-	87.05	<100	<1	<1	<1	<3	<1	-	58	<250
	99.11	2/9/2009	11.32	-	87.79	<100	<1	<1	<1	<3	<1	<1	<50	<250
	99.11	5/11/2009	10.51	-	88.60	<100	<1	<1	<1	<3	<1	<1	-	-
	99.11	9/17/2009	12.43	-	86.68	<100	<1	<1	<1	<3	<1	<1	71	<250
	99.11	12/23/2009	10.92	-	88.19	<100	<1	<1	<1	<3	<1	<1	<50	<250
	99.11	3/18/2010	10.74	-	88.37	<100	<1	<1	<1	<3	<1	-	110 x	<250
	99.11	6/29/2010	10.9	-	88.21	<100	<1	<1	<1	<3	-	-	-	-
	99.11	10/14/2010	11.35	-	87.76	<100	<1	<1	<1	<3	-	-	-	-
	99.11	12/10/2010	10.71	-	88.40	<100	<1	<1	<1	<3	-	-	-	-
	99.11	3/3/2011	10.71	-	88.40	<100	<1	<1	<1	<3	-	-	-	-
	99.11	6/1/2011	10.71	-	88.40	<100	<1	<1	<1	<3	-	-	-	-
	99.11	8/29/2011	11.96	-	87.15	<100	<1	<1	<1	<3	-	-	-	-
	99.11	12/21/2011	14.82	-	84.29	<100	<1	<1	<1	<3	-	-	-	-
	99.11	3/22/2012	15.73	-	83.38	<100	<1	<1	<1	<3	-	-	-	-
	99.11	6/13/2012	16.19	-	82.92	<100	<1	<1	<1	<3	-	-	-	-
	99.11	9/6/2012	17.38	-	81.73	<100	<1	<1	<1	<3	-	-	-	-
	99.11	12/3/2012	15.7	-	83.41	<100	<1	<1	<1	<3	-	-	-	-
	99.11	2/12/2013	13.66	-	85.45	<100	<1	<1	<1	<3	-	-	-	-
	99.11	5/20/2013	16.09	-	83.02	<100	<1	<1	<1	<3	-	-	-	-
	99.11	8/13/2013	17.01	-	82.10	<100	<1	<1	<1	<3	-	-	-	-
	99.11	12/17/2013	17.54	-	81.57	<100	<1	<1	<1	<3	-	-	-	-
	99.11	2/27/2014	16.5	-	82.61	<100	<0.35	<1	<1	<3	-	-	-	-
99.11	5/20/2014	15.58	-	83.53	<100	<1	<1	<1	<3	-	-	-	-	
99.11	9/2/2014	17.4	-	81.71	<100	<0.35	<1	<1	<3	<1	-	-	-	
99.11	12/22/2014	15.52	-	83.59	<100	<0.35	<1	<1	<3	<1	-	-	-	
99.11	3/20/2015	15.63	-	83.48	<100	<0.35	<1	<1	<3	<1	-	-	-	



Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW06	98.42	9/23/2008	13.2	-	85.22	<100	<1	<1	<1	<3	<1	-	420	360
	98.42	2/9/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	98.42	5/11/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	98.42	9/17/2009	13.51	-	84.91	-	-	-	-	-	-	-	-	-
	98.42	9/4/2014	15.93	-	82.49	<100	<0.35	<1	<1	<3	<1	-	-	-
	98.42	3/19/2015	14.65	-	83.77	<100	<0.35	<1	<1	<3	<1	-	-	-
MW07	98.26	9/23/2008	12.3	-	85.96	<100	<1	<1	<1	<3	<1	-	<50	<250
	98.26	2/9/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	98.26	5/11/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	98.26	9/17/2009	12.74	-	85.52	-	-	-	-	-	-	-	-	-
	98.26	9/5/2014	16.4	-	81.86	<100	<0.35	<1	<1	<3	<1	-	-	-
	98.26	3/19/2015	14.87	-	83.39	<100	<0.35	<1	<1	<3	<1	-	-	-
MW08	98.18	9/23/2008	12.23	-	85.95	<100	<1	<1	<1	<3	13	-	72	<250
	98.18	2/9/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	98.18	5/11/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	98.18	9/17/2009	12.69	-	85.49	-	-	-	-	-	-	-	-	-
	98.18	9/5/2014	16.62	-	81.56	<100	<0.35	<1	<1	<3	1.4	-	-	-
	98.18	3/19/2015	19.55	-	78.63	<100	<0.35	<1	<1	<3	<1	-	-	-
MW09	97.87	9/23/2008	11.85	-	86.02	8700	12	96	540	381	<1	-	2000 x	<250
	97.87	2/9/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	97.87	5/11/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	97.87	9/17/2009	12.37	-	85.50	-	-	-	-	-	-	-	-	-
	97.87	9/5/2014	12.61	-	85.26	7700	3.2	33	430	161	<1	-	-	-
	97.87	3/19/2015	8.66	-	89.21	7600	2.9	43	390	253	<1	-	-	-
MW10	97.94	9/23/2008	12.34	-	85.60	<100	5.7	<1	<1	<3	1.1	-	<50	<250
	97.94	2/9/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	97.94	5/11/2009	0 IA	-	-	-	-	-	-	-	-	-	-	-
	97.94	9/17/2009	12.91	-	85.03	-	-	-	-	-	-	-	-	-
	97.94	9/5/2014	14.26	-	83.68	<100	<0.35	<1	<1	<3	<1	-	-	-
	97.94	3/19/2015	12.38	-	85.56	<100	<0.35	<1	<1	<3	<1	-	-	-



Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW11	98.78	2/9/2009	10.9	-	87.88	15000	27	90	600	1930	<1	420	3700 x	<250
	98.78	5/11/2009	10.37	-	88.41	14000	13	79	740	2350	<10	580	-	-
	98.78	9/17/2009	13.24	0.54	85.97	-	-	-	-	-	-	-	-	-
	98.78	12/23/2009	10.31	0.20	88.63	-	-	-	-	-	-	-	-	-
	98.78	3/18/2010	10.13	0.17	88.79	-	-	-	-	-	-	-	-	-
	98.78	6/29/2010	10.02	0.11	88.85	-	-	-	-	-	-	-	-	-
	98.78	10/14/2010	10.29	-	88.49	4800	1.8	11	120	470	-	-	-	-
	98.78	12/10/2010	9.63	-	89.15	1600	1.8	1.1	9.9	91	-	-	-	-
	98.78	3/3/2011	9.82	-	88.96	1900	<1	1.8	29	79	-	-	-	-
	98.78	6/1/2011	9.73	-	89.05	720	<0.35	1.4	39	50	-	18	-	-
	98.78	8/29/2011	11.1	-	87.68	930	0.64	2	12	43	-	26	-	-
	98.78	12/22/2011	11.09	-	87.69	8900	<0.35	4.6	210	575	-	340	-	-
	98.78	3/22/2012	12.46	0.09	86.39	-	-	-	-	-	-	-	-	-
98.78	6/13/2012	13.32	0.46	85.83	-	-	-	-	-	-	-	-	-	
MW11A	99.12	9/7/2012	16.19	-	82.93	670	<0.35	<1	<1	<3	-	4.6	-	-
	99.12	12/3/2012	9.57	-	89.55	<100	<0.35	<1	<1	<3	-	<1	-	-
	99.12	2/13/2013	10.22	-	88.90	<100	<0.35	<1	<1	<3	-	<1	-	-
	99.12	5/21/2013	11.43	-	87.69	<100	<0.35	<1	<1	<3	-	<1	-	-
	99.12	8/14/2013	13.3	-	85.82	<100	<1	<1	<1	<3	-	-	-	-
	99.12	12/17/2013	16.03	-	83.09	<100	<1	<1	<1	<3	-	-	-	-
	99.12	2/27/2014	12.04	-	87.08	<100	<0.35	<1	<1	<3	-	-	-	-
	99.12	5/20/2014	10.66	-	88.46	<100	<1	<1	<1	<3	-	-	-	-
	99.12	9/2/2014	16.18	-	82.94	<100	<0.35	<1	<1	<3	<1	-	-	-
	99.12	12/22/2014	10.51	-	88.61	<100	<0.35	<1	<1	<3	<1	-	-	-
99.12	3/18/2015	11.97	-	87.15	<100	<0.35	<1	<1	<3	<1	-	-	-	



Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW12	99.18	6/29/2010	8.57	-	90.61	<100	<1	<1	<1	<3	-	-	-	-
	99.18	10/14/2010	9.5	-	89.68	<100	<1	<1	<1	<3	-	-	-	-
	99.18	12/10/2010	8.43	-	90.75	<100	<1	<1	<1	<3	-	-	-	-
	99.18	3/3/2011	8.59	-	90.59	<100	<1	<1	<1	<3	-	-	-	-
	99.18	6/1/2011	8.48	-	90.70	<100	<1	<1	<1	<3	-	-	-	-
	99.18	8/29/2011	10.08	-	89.10	<100	<1	<1	<1	<3	-	-	-	-
	99.18	12/22/2011	10.12	-	89.06	<100	<1	<1	<1	<3	-	-	-	-
	99.18	3/23/2012	10.72	-	88.46	<100	<1	<1	<1	<3	-	-	-	-
	99.18	6/13/2012	11.7	-	87.48	<100	<1	<1	<1	<3	-	-	-	-
	99.18	9/6/2012	15.98	-	83.20	<100	<1	<1	<1	<3	-	-	-	-
	99.18	12/3/2012	9.62	-	89.56	<100	<1	<1	<1	<3	-	-	-	-
	99.18	2/13/2013	10.29	-	88.89	<100	<1	<1	<1	<3	-	-	-	-
	99.18	5/21/2013	11.44	-	87.74	<100	<1	<1	<1	<3	-	-	-	-
	99.18	8/14/2013	13.2	-	85.98	<100	<1	<1	<1	<3	-	-	-	-
	99.18	12/17/2013	15.81	-	83.37	<100	<1	<1	<1	<3	-	-	-	-
	99.18	2/27/2014	12.03	-	87.15	<100	<0.35	<1	<1	<3	-	-	-	-
	99.18	5/20/2014	10.72	-	88.46	<100	<1	<1	<1	<3	-	-	-	-
	99.18	9/2/2014	16.02	-	83.16	<100	<0.35	<1	<1	<3	<1	-	-	-
99.18	12/22/2014	10.58	-	88.60	<100	<0.35	<1	<1	<3	<1	-	-	-	
99.18	3/18/2015	11.51	-	87.67	<100	<0.35	<1	<1	<3	<1	-	-	-	
MW13	99.11	10/14/2010	9.75	-	89.36	<100	<1	<1	<1	<3	-	-	-	-
	99.11	12/10/2010	8.44	-	90.67	<100	<1	<1	<1	<3	-	-	-	-
	99.11	3/3/2011	8.75	-	90.36	<100	<1	<1	<1	<3	-	-	-	-
	99.11	6/1/2011	8.5	-	90.61	<100	<1	<1	<1	<3	-	-	-	-
	99.11	8/29/2011	10.3	-	88.81	<100	<1	<1	<1	<3	-	-	-	-
	99.11	12/22/2011	11.76	-	87.35	<100	<1	<1	<1	<3	-	-	-	-
	99.11	3/23/2012	13.06	-	86.05	<100	<1	<1	<1	<3	-	-	-	-
	99.11	6/13/2012	13.82	-	85.29	<100	<1	<1	<1	<3	-	-	-	-
	99.11	9/6/2012	16.69	-	82.42	<100	<1	<1	<1	<3	-	-	-	-
	99.11	12/3/2012	10.94	-	88.17	720	<1	<1	2.5	6.6	-	-	-	-
	99.11	2/13/2013	16.5	-	82.61	510	<1	<1	2.7	5	-	-	-	-
	99.11	5/21/2013	11.86	-	87.25	<100	<1	<1	<1	<3	-	-	-	-
	99.11	8/13/2013	12.73	-	86.38	<100	<1	<1	<1	<3	-	-	-	-
	99.11	12/17/2013	13.26	-	85.85	<100	<1	<1	<1	<3	-	-	-	-
	99.11	2/27/2014	12.5	-	86.61	<100	<0.35	<1	<1	<3	-	-	-	-
	99.11	5/20/2014	10.69	-	88.42	<100	<1	<1	<1	<3	-	-	-	-
	99.11	9/2/2014	16.73	-	82.38	<100	<0.35	<1	<1	<3	<1	-	-	-
	99.11	12/23/2014	10.54	-	88.57	<100	<0.35	<1	<1	<3	<1	-	-	-
99.11	3/20/2015	11.46	-	87.65	<100	<0.35	<1	<1	<3	<1	-	-	-	



Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW14	99.58	6/29/2010	9.64	-	89.94	<100	<1	<1	<1	<3	-	-	-	-
	99.58	10/14/2010	9.64	-	89.94	<100	<1	<1	<1	<3	-	-	-	-
	99.58	12/10/2010	8.85	-	90.73	<100	<1	<1	<1	<3	-	-	-	-
	99.58	3/3/2011	9.29	-	90.29	<100	<1	<1	<1	<3	-	-	-	-
	99.58	6/1/2011	9.2	-	90.38	<100	<1	<1	<1	<3	-	-	-	-
	99.58	8/29/2011	10.68	-	88.90	<100	<1	<1	<1	<3	-	-	-	-
	99.58	12/21/2011	11.63	-	87.95	<100	<1	<1	<1	<3	-	-	-	-
	99.58	3/23/2012	10.02	-	89.56	<100	<1	<1	<1	<3	-	-	-	-
	99.58	6/13/2012	12.24	-	87.34	<100	<1	<1	<1	<3	-	-	-	-
	99.58	9/6/2012	14.53	-	85.05	<100	<1	<1	<1	<3	-	-	-	-
	99.58	12/3/2012	7.21	-	92.37	<100	<1	<1	<1	<3	-	-	-	-
	99.58	2/13/2013	11.03	-	88.55	<100	<1	<1	<1	<3	-	-	-	-
	99.58	5/21/2013	12.26	-	87.32	<100	<1	<1	<1	<3	-	-	-	-
	99.58	8/14/2013	13.75	-	85.83	<100	<1	<1	<1	<3	-	-	-	-
	99.58	12/17/2013	14.39	-	85.19	<100	<1	<1	<1	<3	-	-	-	-
	99.58	2/27/2014	10.6	-	88.98	<100	<0.35	<1	<1	<3	-	-	-	-
	99.58	5/20/2014	11.42	-	88.16	<100	<1	<1	<1	<3	-	-	-	-
	99.58	9/3/2014	14.36	-	85.22	<100	<0.35	<1	<1	<3	<1	-	-	-
99.58	12/23/2014	7.75	-	91.83	<100	<0.35	<1	<1	<3	<1	-	-	-	
99.58	3/23/2015	9.79	-	89.79	<100	<0.35	<1	<1	<3	<1	-	-	-	
MW15	99.34	6/29/2010	10.56	-	88.78	740	<1	3	8.6	11	-	-	-	-
	99.34	10/14/2010	10.85	-	88.49	260	<1	<1	2.4	<3	-	-	-	-
	99.34	12/10/2010	10.27	-	89.07	<100	<1	<1	<1	<3	-	-	-	-
	99.34	3/3/2011	10.48	-	88.86	<100	<1	<1	<1	<3	-	-	-	-
	99.34	6/1/2011	10.36	-	88.98	<100	<1	<1	<1	<3	-	-	-	-
	99.34	8/29/2011	11.73	-	87.61	340	<1	<1	3.3	<3	-	-	-	-
	99.34	12/22/2011	12.69	-	86.65	180	<1	<1	<1	<3	-	-	-	-
	99.34	3/23/2012	13.32	-	86.02	<100	<1	<1	<1	<3	-	-	-	-
99.34	6/13/2012	14.22	-	85.12	<100	<1	<1	<1	<3	-	-	-	-	



Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾
MW15A	99.05	9/7/2012	15.59	-	83.46	<100	<1	<1	<1	<3	-	-	-	-
	99.05	12/3/2012	11.44	-	87.61	650	<1	<1	1.7	3.4	-	-	-	-
	99.05	2/13/2013	12.14	-	86.91	220	<1	<1	<1	<3	-	-	-	-
	99.05	5/21/2013	13.05	-	86.00	<100	<1	<1	<1	<3	-	-	-	-
	99.05	8/14/2013	14.49	-	84.56	<100	<1	<1	<1	<3	-	-	-	-
	99.05	12/17/2013	15.61	-	83.44	<100	<1	<1	<1	<3	-	-	-	-
	99.05	2/27/2014	13.31	-	85.74	<100	<0.35	<1	<1	<3	-	-	-	-
	99.05	5/20/2014	12.39	-	86.66	160	<1	<1	<1	<3	-	-	-	-
	99.05	9/3/2014	15.56	-	83.49	<100	<0.35	<1	<1	<3	<1	-	-	-
	99.05	12/23/2014	12	-	87.05	170	<0.35	<1	<1	<3	<1	-	-	-
99.05	3/18/2015	12.62	-	86.43	<100	<0.35	<1	<1	<3	<1	-	-	-	
MW16	100.39	10/14/2010	6.78	-	93.61	<100	<1	<1	<1	<3	-	-	-	-
	100.39	12/10/2010	5.68	-	94.71	<100	<1	<1	<1	<3	-	-	-	-
	100.39	3/3/2011	6.44	-	93.95	<100	<1	<1	<1	<3	-	-	-	-
	100.39	5/31/2011	6.95	-	93.44	<100	<1	<1	<1	<3	-	-	-	-
	100.39	8/29/2011	7.93	-	92.46	<100	<1	<1	<1	<3	-	-	-	-
	100.39	12/21/2011	8.36	-	92.03	<100	<1	<1	<1	<3	-	-	-	-
	100.39	3/22/2012	6.52	-	93.87	<100	<1	<1	<1	<3	-	-	-	-
	100.39	6/13/2012	7.8	-	92.59	<100	<1	<1	<1	<3	-	-	-	-
	100.39	9/6/2012	11.11	-	89.28	<100	<1	<1	<1	<3	-	-	-	-
	100.39	12/3/2012	6.1	-	94.29	<100	<1	<1	<1	<3	-	-	-	-
	100.39	2/13/2013	7.58	-	92.81	<100	<1	<1	<1	<3	-	-	-	-
	100.39	5/21/2013	8.19	-	92.20	<100	<1	<1	<1	<3	-	-	-	-
	100.39	8/14/2013	9.49	-	90.90	<100	<1	<1	<1	<3	-	-	-	-
	100.39	12/17/2013	10.65	-	89.74	<100	<1	<1	<1	<3	-	-	-	-
	100.39	2/27/2014	7.17	-	93.22	<100	<0.35	<1	<1	<3	-	-	-	-
	100.39	5/20/2014	7.71	-	92.68	<100	<1	<1	<1	<3	-	-	-	-
	100.39	9/4/2014	10.34	-	90.05	<100	<0.35	<1	<1	<3	<1	-	-	-
100.39	12/22/2014	6.34	-	94.05	<100	<0.35	<1	<1	<3	<1	-	-	-	
100.39	3/23/2015	7.97	-	92.42	<100	<0.35	<1	<1	<3	<1	-	-	-	

NOTES:

Red denotes concentration in excess of MTCA Method A Cleanup Level for Groundwater.

Samples collected after June 29, 2005, analyzed by Friedman & Bruya, Inc. of Seattle, Washington.

TOC elevations were surveyed relative to an arbitrary benchmark with an assumed elevation of 100.00 feet.

⁽¹⁾ Measured in feet below the top of the well casing.

⁽²⁾ Calculated by subtracting the depth to SPH from the depth to groundwater.

⁽³⁾ Calculated by subtracting the depth to groundwater from the TOC. If SPH is present, the SPH thickness multiplied by its specific gravity relative to water (0.8) is added to the depth to groundwater measurement.

⁽⁴⁾ Analyzed by Method NWTPH-Gx.

⁽⁵⁾ Analyzed by EPA Method 8021B, 8260B, or 8260C; see text for method used for current reporting period.

OIA = Inaccessible

-- = not analyzed/not measured; SPH not detected

< = not detected at a concentration exceeding the laboratory reporting limit

µg/L = micrograms per liter

DRPH = diesel-range petroleum hydrocarbons

EDC = 1,2-dichloroethylene (ethylene dichloride)

EPA = U.S. Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons

MTCA = Washington State Model Toxics Control Act

NWTPH = Northwest Total Petroleum Hydrocarbon



Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁵⁾	Toluene ⁽⁵⁾	Ethylbenzene ⁽⁵⁾	Total Xylenes ⁽⁵⁾	EDC ⁽⁵⁾	Naphthalene ⁽⁵⁾	DRPH ⁽⁶⁾	ORPH ⁽⁶⁾
MTCA Method B Cleanup Level for Groundwater⁽⁷⁾						800/1,000^(8, 9)	0.795	640	800	1,600	0.481	160	500⁽⁹⁾	500⁽⁹⁾

⁽⁶⁾Analyzed by Method NWTPH-Dx.

⁽⁷⁾MTCA Method B Cleanup Levels, WAC 173-340-720 through 173-340-760, revised Nov., 2007

⁽⁸⁾800 µg/L when benzene is present and 1,000 µg/L when benzene is not present.

⁽⁹⁾ MTCA Method A Cleanup Levels, Table 720-1, Section 900, Chapter 173 Title 340 of the WAC, revised November 2007.

Laboratory Note:

^xThe pattern of peaks present is not indicative of diesel.

ORPH = oil-range petroleum hydrocarbons

SPH = separate-phase hydrocarbons

TOC = top of casing elevation

WAC = Washington Administrative Code

ATTACHMENT A
GROUNDWATER SAMPLE COLLECTION FORMS



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: MW01A

Project Name (Number): TOC Seattle - Ballard
 Hydrocon Project Number: 14-806
 Date: 23 March 2015

Sample I.D.: MW01A Time: 1256
 Field Duplicate I.D.: _____ Time: _____
 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: stripped ears Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments: _____

PURGING INFORMATION

Total well depth: 34.69 ft Bottom: Hard ^{Semi} Soft Not measured Screen Interval(s): 15-35
 Depth to product: NM ft
 Depth to water: 15.31 ft Intake Depth (BTOC): 18 Begin Purging Well: 1235
 Casing volume: 19.38 ft (H₂O) X 0.16 gal/ft = 3.10 gal. X 3 = 9.30 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1238	15.40		13.17	0.571	1.99	7.04	213	15.2
1241	15.47	0.076	13.37	0.550	1.09	7.04	213	15.4
1244	15.49		13.34	0.550	1.02	7.04	213	15.8
1247	15.53		13.34	0.550	0.92	7.04	212	17.9
1250	15.58		13.54	0.541	0.87	7.02	212	19.4
1253	15.62		13.68	0.539	0.84	7.00	212	11.6

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.
 Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 (4) 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, EDC
500 ml AGB	4	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	4	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw02

Project Name (Number): Toe Seattle - Ballard (01-443) Sample I.D.: mw02 Time: 1344
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: _____ Time: _____
 Date: 20 March 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: Stripped ears Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments: _____

PURGING INFORMATION

Total well depth: 32.76 ft Bottom: Hard ^{Semi} Soft Not measured Screen Interval(s): 15-35
 Depth to product: NM ft
 Depth to water: 14.06 ft Intake Depth (BTOC): 18 Begin Purging Well: 1324
 Casing volume: 18.70 ft (H₂O) X 0.16 gal/ft = 2.99 gal. X 3 = 8.97 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: _____

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1326	14.31		14.16	0.550	1.20	6.59	201	6.9
1329	14.37	0.072	14.38	0.549	0.61	6.58	201	8.0
1332	14.33		14.32	0.547	0.50	6.58	201	9.4
1335	14.34		14.06	0.546	0.50	6.60	201	10.6
1338	14.35		14.07	0.551	0.48	6.59	201	12.7
1341	14.39		14.09	0.552	0.49	6.64	201	13.5

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.
 Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 (4) 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw03

Project Name (Number): TOC Seattle-Ballard (01-443) Sample I.D.: mw03 Time: 1450
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: mw99 Time: 1505
 Date: 23 March 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: Stripped ends Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments: New Tubing

PURGING INFORMATION

Total well depth: 35.32 ft Bottom: Hard semi Soft Not measured Screen Interval(s): 15-35
 Depth to product: ND ft
 Depth to water: 15.43 ft Intake Depth (BTOC): _____ Begin Purging Well: 1430
 Casing volume: _____ ft (H₂O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: _____

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (±10% or ≤10)
1432	15.61		13.84	0.548	3.44	6.79	193	0.0
1435	15.68	0.072	13.76	0.561	1.56	6.86	183	0.0
1438	15.73		13.85	0.560	1.37	6.84	178	0.0
1441	15.73		13.72	0.563	1.13	6.85	175	0.0
1444	15.74		13.76	0.562	1.11	6.83	174	0.0
1447	15.81		14.13	0.563	0.97	6.83	170	0.0

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.
 Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 (4) 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, EDC
500 ml AGB	4	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	4	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw04

Project Name (Number): TOC Seattle - Ballard (01-443) Sample I.D.: mw04 Time: 1435
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: _____ Time: _____
 Date: 19 March 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: ears Stripped Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments _____

PURGING INFORMATION

Total well depth: 20.14 ft Bottom: Hard Soft Not measured Screen Interval(s): 10-20
 Depth to product: 15 NM ft
 Depth to water: 15.65 ft Intake Depth (BTOC): 18 Begin Purging Well: 1414
 Casing volume: 4.49 ft (H₂O) X 0.16 gal/ft = 0.72 gal. X 3 = 2.16 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: faint H₂S

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1417	15.84		16.13	0.735	2.96	7.21	169	14.4
1420	15.86	0.102	19.29	0.710	0.77	7.03	162	7.2
1423	15.92		16.33	0.709	0.41	7.01	162	8.7
1426	15.96		16.36	0.717	0.33	7.00	161	9.2
1429	15.97		16.40	0.706	0.28	6.99	158	10.9
1432	15.99		16.41	0.707	0.27	6.99	158	11.0

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 / 4 / 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX <u>AEDC</u>
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw05A

Project Name (Number): Joe Seattle - Ballard (01-443) Sample I.D.: mw05A Time: 1203
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: _____ Time: _____
 Date: 20 March 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: Ears Stripped Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments _____

PURGING INFORMATION

Total well depth: 34.70 ft Bottom: Hard Soft Not measured Screen Interval(s): 20-35
 Depth to product: NM ft
 Depth to water: 15.57 ft Intake Depth (BTOC): 78.23 Begin Purging Well: 1142
 Casing volume: _____ ft (H₂O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1145	15.76		15.59	0.946	2.40	7.09	214	34.2
1148	15.76	0.072	15.70	0.942	0.97	7.12	213	44.6
1151	15.78		15.71	0.975	0.70	7.13	212	54.3
1154	15.79		15.46	0.901	0.58	7.12	209	62.1
1157	15.81		15.51	0.885	0.47	7.12	207	63.4
1200	15.82		15.44	0.890	0.41	7.13	204	69.7

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: Some iron fouling

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 (4/6)	HCl	(No) 0.45 0.10	NWTPH-GX, BTEX, <u>EBC</u>
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw006Project Name (Number): TOC Seattle - Ballard (01-443)
Hydrocon Project Number: 14-806
Date: 19 March 2015Sample I.D.: mw006 Time: 1358
Field Duplicate I.D.: _____ Time: _____
Personnel: Larry Mamba

WELL INFORMATION

Monument condition: Good Needs repair: stripped ears Water in Monument
Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
Headspace reading: Not measured PID Reading _____ ppm Odor: _____
Well diameter: 2-inch 4-inch 6-inch Other: _____
Comments _____

PURGING INFORMATION

Total well depth: 20.14 ft Bottom: Hard Soft Not measured Screen Interval(s): 10-20
Depth to product: NM ft
Depth to water: 14.65 ft Intake Depth (BTOC): 17 Begin Purging Well: 1337
Casing volume: 5.49 ft (H₂O) X 0.16 gal/ft = 0.88 gal. X 3 = 2.64 gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1340	14.85		15.49	0.798	1.82	6.59	192	91.2
1343	14.91	0.080	15.55	0.798	0.68	6.49	193	94.6
1346	14.97		15.55	0.800	0.51	6.46	193	101
1349	15.06		15.60	0.800	0.46	6.46	194	94.4
1352	15.13		15.57	0.801	0.45	6.44	194	88.3
1355	15.21		15.49	0.795	0.44	6.43	194	86.0

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	(3) 4 / 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, EDC
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx-
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb-
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: MW07

Project Name (Number): TOC Seattle - Ballard (01-443) Sample I.D.: MW07 Time: 1312
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: _____ Time: _____
 Date: 19 March 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: Broken ears Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments: Street sediment in monument. well not impacted

PURGING INFORMATION

Total well depth: 20.15 ft Bottom: Hard Soft Not measured Screen Interval(s): 10-20
 Depth to product: NM ft
 Depth to water: 14.87 ft Intake Depth (BTOC): 15.17 Begin Purging Well: 1251
 Casing volume: 5.28 ft (H₂O) X 0.16 gal/ft = 0.84 gal. X 3 = 2.52 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1254	15.02		15.49	0.446	4.01	6.71	188	9.4
1257	15.11	0.076	15.39	0.445	2.38	6.65	189	4.2
1300	15.15		15.41	0.448	2.23	6.64	189	2.9
1303	15.21		15.41	0.448	2.20	6.64	189	2.6
1306	15.26		15.46	0.449	2.18	6.64	189	3.1
1309	15.32		15.63	0.452	2.29	6.64	190	3.2

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3/4/6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, EDC
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: MW08

Project Name (Number): roc Seattle - Ballard (01-443) Sample I.D.: MW08 Time: 1237
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: _____ Time: _____
 Date: 19 March 2018 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: Broken ears Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments: Water and street sediment in monument. Well not impacted.

PURGING INFORMATION

Total well depth: 35.12 ft Bottom: Hard ^{Semi} Soft Not measured Screen Interval(s): 15-35
 Depth to product: NM ft
 Depth to water: 15.57 ft Intake Depth (BTOC): 18 Begin Purging Well: 1216
 Casing volume: 19.55 ft (H₂O) X 0.16 gal/ft = 3.13 gal. X 3 = 9.39 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (+3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1219	15.68		14.94	0.592	2.65	7.02	185	21.8
1222	15.69	0.076	15.29	0.576	0.69	7.00	185	22.5
1225	15.70		15.30	0.574	0.46	6.98	186	32.1
1228	15.72		15.36	0.573	0.44	6.98	186	43.5
1231	15.74		15.40	0.571	0.38	6.97	186	50.6
1234	15.77		15.43	0.573	0.35	6.98	186	50.0

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3/4/6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, EDC
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: MW09Project Name (Number): TOE Seattle - Ballard (01-443)
Hydrocon Project Number: 14-806
Date: 19 March 2015Sample I.D.: MW09 Time: 1101
Field Duplicate I.D.: _____ Time: _____
Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: Ears Stripped Water in Monument
Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
Headspace reading: Not measured PID Reading _____ ppm Odor: _____
Well diameter: 2-inch 4-inch 6-inch Other: _____
Comments _____

PURGING INFORMATION

Total well depth: 20.14 ft Bottom: Hard Soft Not measured Screen Interval(s): 10-20
Depth to product: NM ft
Depth to water: 8.66 ft Intake Depth (BTOC): 12 Begin Purging Well: 1040
Casing volume: 11.48 ft (H₂O) X 0.16 gal/ft = 1.83 gal. X 3 = 5.49 gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: H₂S

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (±10% or ≤10)
1043	8.88		12.84	0.520	3.20	6.57	193	8.6
1046	8.91	0.044	12.88	0.513	1.19	6.55	189	5.5
1049	8.91		12.82	0.505	0.70	6.55	185	3.3
1052	8.94		12.84	0.509	0.67	6.54	183	3.1
1055	8.93		13.01	0.513	0.69	6.55	179	3.5
1058	8.93		13.08	0.509	0.56	6.53	176	3.5

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	③/4/6	HCl	(No) 0.45 0.10	NWTPH-GX, BTEX, <u>FDC</u>
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw10

Project Name (Number): Joe Seattle - Ballard (01-443) Sample I.D.: mw10 Time: 1137
 Hydrocon Project Number: 14-800 Field Duplicate I.D.: _____ Time: _____
 Date: 19 March 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: Broken ear Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments _____

PURGING INFORMATION

Total well depth: 20.14 ft Bottom: Hard Soft Not measured Screen Interval(s): 10-20
 Depth to product: NM ft
 Depth to water: 12.38 ft Intake Depth (BTOC): 15 Begin Purging Well: 1116
 Casing volume: 7.76 ft (H₂O) X 0.16 gal/ft = 1.24 gal. X 3 = 3.72 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: _____

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1119	12.52		14.25	0.455	7.21	6.93	186	11.4
1122	12.58	0.084	14.32	0.438	6.47	6.92	187	11.2
1125	12.62		14.34	0.436	6.03	6.91	187	9.7
1128	12.71		14.38	0.433	5.99	6.92	188	11.5
1131	12.79		14.44	0.434	6.18	6.91	189	10.5
1134	12.83		14.48	0.438	6.20	6.91	189	12.3

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.
 Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3/4/6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, EDC
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw11A

Project Name (Number): TOC Seattle - Ballard (OH-443) Sample I.D.: mw11A Time: 1504
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: _____ Time: _____
 Date: 18 March 2015 Personnel: _____

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments: _____

PURGING INFORMATION

Total well depth: 20.17 ft Bottom: Hard Soft Not measured Screen Interval(s): 5-20
 Depth to product: Nm ft
 Depth to water: 11.48 ft Intake Depth (BTOC): 14 Begin Purging Well: 1444
 Casing volume: 8.69 ft (H₂O) X 0.16 gal/ft = 1.39 gal. X 3 = 4.17 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: _____

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1446	11.48		15.40	0.621	3.90	6.83	208	5.8
1449	11.48	0.096	15.26	0.625	2.89	6.84	208	3.9
1452	11.48		15.17	0.633	2.28	6.83	209	3.4
1455	11.48		15.14	0.627	2.23	6.82	209	2.2
1458	11.48		15.08	0.632	2.23	6.83	209	2.5
1501	11.48		15.06	0.629	2.19	6.82	209	2.3

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3/4/6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, <u>EPC</u>
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw12

Project Name (Number): ROC Seattle - Ballard (01-443) Sample I.D.: mw12 Time: 1355
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: _____ Time: _____
 Date: 18 March 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments _____

PURGING INFORMATION

Total well depth: 18.97 ft Bottom: Hard ^{Semi} Soft Not measured Screen Interval(s): 5-20
 Depth to product: 4M ft
 Depth to water: 11.51 ft Intake Depth (BTOC): 14 Begin Purging Well: 1335
 Casing volume: 7.46 ft (H₂O) X 0.16 gal/ft = 1.19 gal. X 3 = 3.57 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1337	11.52		15.66	0.368	6.92	6.29	205	48.4
1340	11.52	0.112	15.06	0.361	6.58	6.31	206	32.9
1343	11.52		14.96	0.360	6.56	6.30	207	23.9
1346	11.52		14.80	0.362	6.12	6.30	208	17.1
1349	11.52		14.80	0.363	6.14	6.30	209	15.2
1352	11.52		14.90	0.362	6.31	6.30	209	13.2

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	<u>(3)</u> 4 / 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, <u>EDC</u>
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw13

Project Name (Number): roc Seattle - Ballard (01-443)
 Hydrocon Project Number: 14-806
 Date: 20 March 2015

Sample I.D.: mw13 Time: 12:43
 Field Duplicate I.D.: _____ Time: _____
 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: stripped ears Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments _____

PURGING INFORMATION

Total well depth: 18.72 ft Bottom: Hard Soft Not measured Screen Interval(s): 5-20
 Depth to product: NM ft
 Depth to water: 11.45 ft Intake Depth (BTOC): 14 Begin Purging Well: 12:23
 Casing volume: 7.27 ft (H₂O) X 0.16 gal/ft = 1.16 gal. X 3 = 3.48 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
12:26	11.61		14.80	0.369	2.63	6.13	203	17.5
12:29	11.60	0.090	14.79	0.368	1.42	6.11	203	12.7
12:32	11.61		14.74	0.367	1.13	6.10	203	14.6
12:35	11.62		14.71	0.369	1.01	6.11	203	15.8
12:38	11.62		14.61	0.366	0.95	6.11	203	18.4
12:41	11.63		14.62	0.369	0.95	6.11	203	18.4

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 (4) / 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, EDC
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw14Project Name (Number): 700 Seattle - Ballard (01-443)
Hydrocon Project Number: 14-806
Date: 23 March 2015Sample I.D.: mw14 Time: 1340
Field Duplicate I.D.: _____ Time: _____
Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
Headspace reading: Not measured PID Reading _____ ppm Odor: _____
Well diameter: 2-inch 4-inch 6-inch Other: _____
Comments _____

PURGING INFORMATION

Total well depth: 19.83 ft Bottom: Hard Soft Not measured Screen Interval(s): 5-20
Depth to product: NM ft
Depth to water: 10.96 ft Intake Depth (BTOC): 13 Begin Purging Well: 1320
Casing volume: 8.87 ft (H₂O) X 0.16 gal/ft = 1.42 gal. X 3 = 4.26 gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1322	11.08		12.14	0.366	4.91	6.14	212	0.0
1325	11.15	0.084	12.49	0.366	4.16	6.13	212	0.0
1328	11.22		12.59	0.383	4.00	6.14	212	0.0
1331	11.29		12.61	0.375	3.95	6.13	212	0.0
1334	11.34		12.28	0.371	3.83	6.14	212	0.0
1337	11.40		12.48	0.372	3.73	6.14	212	0.0

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 / (4) / 6	HCl	(No) 0.45 0.10	NWTPH-GX, BTEX, EDC
500 ml AGB	4	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	4	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: MW15A

Project Name (Number): TOC Seattle - Ballard (01-443) Sample I.D.: MW15A Time: 1428
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: _____ Time: _____
 Date: 18 March 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: _____ Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments _____

PURGING INFORMATION

Total well depth: 20.14 ft Bottom: Hard Soft Not measured Screen Interval(s): 5-20
 Depth to product: NM ft
 Depth to water: 12.65 ft Intake Depth (BTOC): 15 Begin Purging Well: 1408
 Casing volume: 7.49 ft (H₂O) X 0.16 gal/ft = 1.20 gal. X 3 = 3.60 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1410	12.78		15.36	0.544	6.31	6.57	209	22.2
1413	12.79	0.080	15.32	0.542	5.51	6.56	209	30.5
1416	12.87		15.34	0.543	5.51	6.56	209	32.2
1419	12.92		15.30	0.547	5.57	6.56	209	32.1
1422	12.98		15.33	0.546	5.67	6.56	209	36.4
1423	13.08		15.31	0.545	5.68	6.55	209	39.2

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	(3) 4 / 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, ETC
500 ml AGB	1	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	1	HNO ₃	No 0.45 0.10	Dissolved Pb-
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER PURGE AND SAMPLE COLLECTION

Well I.D. Number: mw16

Project Name (Number): TOC Seattle - Ballard (01-443) Sample I.D.: mw16 Time: 12:12
 Hydrocon Project Number: 14-806 Field Duplicate I.D.: _____ Time: _____
 Date: 23 March 2015 Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair: Stripped ears Water in Monument
 Well cap condition: Good Replaced Needs Replacement Surface Water Well Infiltration
 Headspace reading: Not measured PID Reading _____ ppm Odor: _____
 Well diameter: 2-inch 4-inch 6-inch Other: _____
 Comments: _____

PURGING INFORMATION

Total well depth: 19.46 ft Bottom: Hard Soft Not measured Screen Interval(s): 5-20
 Depth to product: NM ft
 Depth to water: 7.83 ft Intake Depth (BTOC): 10 Begin Purging Well: 1143
 Casing volume: 11.63 ft (H₂O) X 0.16 gal/ft = 1.86 gal. X 3 = 5.58 gal.
 Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type Peristaltic Centrifugal Dedicated Bladder Non-Dedicated Bladder Other _____
 Bailer type: _____ Water Disposal: Drummed Remediation System Other _____

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min) (0.100-0.500)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (±10% or ≤10)
1145	7.95		11.26	0.298	7.51	6.58	213	0.0
1148	8.01	0.108	11.46	0.233	6.48	6.26	214	0.0
1151	8.07		11.33	0.236	6.43	6.18	215	0.0
1154	8.16		11.50	0.232	6.40	6.13	216	0.0
1157	8.22		11.50	0.226	6.36	6.10	217	0.0
1200	8.28		11.61	0.222	6.37	6.09	217	0.0
1203	8.36		11.74	0.216	6.30	6.08	217	0.0
1206	8.42		11.81	0.214	6.27	6.08	217	0.0
1209	8.49		11.78	0.214	6.20	6.06	217	0.0

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis Requested
40 ml VOA	3 / 4 6	HCl	No 0.45 0.10	NWTPH-GX, BTEX, EDC
500 ml AGB	4	None	No 0.45 0.10	NWTPH-Dx
500 ml Poly	4	HNO ₃	No 0.45 0.10	Dissolved Pb
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

ATTACHMENT B

LAB REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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Seattle, WA 98119-2029
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www.friedmanandbruya.com

March 27, 2015

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on March 23, 2015 from the TOC_01-443, WORFDB8 F&BI 503429 project. There are 26 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Rob Honsberger, Allison Greiner
HDC0327R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 23, 2015 by Friedman & Bruya, Inc. from the HydroCon TOC_01-443, WORFDB8 F&BI 503429 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>HydroCon</u>
503429 -01	MW01A
503429 -02	MW02
503429 -03	MW03
503429 -04	MW04
503429 -05	MW05A
503429 -06	MW06
503429 -07	MW07
503429 -08	MW08
503429 -09	MW09
503429 -10	MW10
503429 -11	MW11A
503429 -12	MW12
503429 -13	MW13
503429 -14	MW14
503429 -15	MW15A
503429 -16	MW16
503429 -17	MW99

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/27/15

Date Received: 03/23/15

Project: TOC_01-443, WORFDB8 F&BI 503429

Date Extracted: 03/25/15

Date Analyzed: 03/25/15

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-134)
MW01A 503429-01	<100	98
MW02 503429-02	<100	96
MW03 503429-03	3,000	114
MW04 503429-04	260	102
MW05A 503429-05	<100	94
MW06 503429-06	<100	94
MW07 503429-07	<100	93
MW08 503429-08	<100	100
MW09 503429-09	7,600	120
MW10 503429-10	<100	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/27/15

Date Received: 03/23/15

Project: TOC_01-443, WORFDB8 F&BI 503429

Date Extracted: 03/25/15

Date Analyzed: 03/25/15

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-Gx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 51-134)
MW11A 503429-11	<100	91
MW12 503429-12	<100	89
MW13 503429-13	<100	95
MW14 503429-14	<100	97
MW15A 503429-15	<100	98
MW16 503429-16	<100	94
MW99 503429-17	3,100	109
Method Blank 05-595 MB	<100	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW01A	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-01
Date Analyzed:	03/24/15	Data File:	032414.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	94	108
Toluene-d8	99	91	107
4-Bromofluorobenzene	99	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW02	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-02
Date Analyzed:	03/24/15	Data File:	032415.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	94	108
Toluene-d8	99	91	107
4-Bromofluorobenzene	100	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW03	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-03
Date Analyzed:	03/24/15	Data File:	032429.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	94	108
Toluene-d8	108 ip	91	107
4-Bromofluorobenzene	97	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	6.0
Benzene	110
Toluene	1.1
Ethylbenzene	47
m,p-Xylene	45
o-Xylene	1.3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW04	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-04
Date Analyzed:	03/24/15	Data File:	032416.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	94	108
Toluene-d8	101	91	107
4-Bromofluorobenzene	99	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW05A	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-05
Date Analyzed:	03/24/15	Data File:	032417.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	94	108
Toluene-d8	98	91	107
4-Bromofluorobenzene	98	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW06	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-06
Date Analyzed:	03/24/15	Data File:	032418.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	94	108
Toluene-d8	97	91	107
4-Bromofluorobenzene	97	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW07	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-07
Date Analyzed:	03/24/15	Data File:	032419.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	94	108
Toluene-d8	98	91	107
4-Bromofluorobenzene	99	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW08	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-08
Date Analyzed:	03/24/15	Data File:	032420.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	94	108
Toluene-d8	99	91	107
4-Bromofluorobenzene	98	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW09	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-09
Date Analyzed:	03/24/15	Data File:	032430.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	94	108
Toluene-d8	107	91	107
4-Bromofluorobenzene	99	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	2.9
Toluene	43
Ethylbenzene	370 ve
m,p-Xylene	230
o-Xylene	23

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW09	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-09 1/10
Date Analyzed:	03/25/15	Data File:	032508.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	94	108
Toluene-d8	101	91	107
4-Bromofluorobenzene	98	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<10
Benzene	<3.5
Toluene	42
Ethylbenzene	390
m,p-Xylene	220
o-Xylene	19

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW10	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-10
Date Analyzed:	03/24/15	Data File:	032421.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	94	108
Toluene-d8	100	91	107
4-Bromofluorobenzene	99	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW11A	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-11
Date Analyzed:	03/24/15	Data File:	032422.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	94	108
Toluene-d8	99	91	107
4-Bromofluorobenzene	99	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW12	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-12
Date Analyzed:	03/24/15	Data File:	032423.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	94	108
Toluene-d8	100	91	107
4-Bromofluorobenzene	99	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW13	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-13
Date Analyzed:	03/24/15	Data File:	032424.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	94	108
Toluene-d8	100	91	107
4-Bromofluorobenzene	98	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW14	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-14
Date Analyzed:	03/24/15	Data File:	032425.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	94	108
Toluene-d8	99	91	107
4-Bromofluorobenzene	96	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW15A	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-15
Date Analyzed:	03/24/15	Data File:	032426.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	94	108
Toluene-d8	99	91	107
4-Bromofluorobenzene	99	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW16	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-16
Date Analyzed:	03/24/15	Data File:	032427.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	94	108
Toluene-d8	98	91	107
4-Bromofluorobenzene	97	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW99	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-17
Date Analyzed:	03/24/15	Data File:	032428.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	94	108
Toluene-d8	108 ip	91	107
4-Bromofluorobenzene	96	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	9.5
Benzene	150 ve
Toluene	1.2
Ethylbenzene	44
m,p-Xylene	44
o-Xylene	1.3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW99	Client:	HydroCon
Date Received:	03/23/15	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	503429-17 1/10
Date Analyzed:	03/25/15	Data File:	032506.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	94	108
Toluene-d8	99	91	107
4-Bromofluorobenzene	100	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<10
Benzene	100
Toluene	<10
Ethylbenzene	43
m,p-Xylene	41
o-Xylene	<10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	TOC_01-443, WORFDB8 F&BI 503429
Date Extracted:	03/24/15	Lab ID:	05-0605 mb
Date Analyzed:	03/24/15	Data File:	032407.D
Matrix:	Water	Instrument:	GCMS7
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	94	108
Toluene-d8	98	91	107
4-Bromofluorobenzene	100	91	110

Compounds:	Concentration ug/L (ppb)
1,2-Dichloroethane (EDC)	<1
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/27/15

Date Received: 03/23/15

Project: TOC_01-443, WORFDB8 F&BI 503429

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR TPH AS GASOLINE
USING METHOD NWTPH-Gx**

Laboratory Code: 503451-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	97	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/27/15

Date Received: 03/23/15

Project: TOC_01-443, WORFDB8 F&BI 503429

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER
SAMPLES FOR VOLATILES BY EPA METHOD 8260C**

Laboratory Code: 503429-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	98	79-115
Benzene	ug/L (ppb)	50	<0.35	94	83-112
Toluene	ug/L (ppb)	50	<1	94	82-116
Ethylbenzene	ug/L (ppb)	50	<1	97	83-117
m,p-Xylene	ug/L (ppb)	100	<2	98	78-125
o-Xylene	ug/L (ppb)	50	<1	102	84-119

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	99	100	78-117	1
Benzene	ug/L (ppb)	50	95	95	79-119	0
Toluene	ug/L (ppb)	50	96	94	81-121	2
Ethylbenzene	ug/L (ppb)	50	98	99	84-120	1
m,p-Xylene	ug/L (ppb)	100	99	99	84-119	0
o-Xylene	ug/L (ppb)	50	101	103	85-118	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte may be due to carryover from previous sample injections.
- cf - The sample was centrifuged prior to analysis.
- d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.
- dv - Insufficient sample volume was available to achieve normal reporting limits.
- f - The sample was laboratory filtered prior to analysis.
- fb - The analyte was detected in the method blank.
- fc - The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.
- hs - Headspace was present in the container used for analysis.
- ht - The analysis was performed outside the method or client-specified holding time requirement.
- ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the analyte is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.
- ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

503429



Hydrocon Environmental, LLC
 Report to: Craig Hultgren
 cc: Allison Greiner
 510 Allen Street
 Kelso, Washington 98626
 (360) 703-6079
 CraigH@hydroconllc.net
 allisongreiner@eurkaprojectsolutions.net

Samplers Name: Larry Namba
 Project Name: TOC Holdings Company
 Facility Number: 01-443
 Facility Address: Seattle, WA
 PO Number:
 EDD Requested: EIM

Requested Turn Around Time
 Standard 10 business days
 Rush
 Rush Charges Authorized by:
 Sample Disposal: 30 days Return Will Call

Additional Comments:
 BTEX+ODEQ-VOC - RBGA
 Oxygenates: Naphthalene, EDC, 1,3,5-Trimethylbenzene

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of containers	ANALYSES REQUESTED						Notes						
						TPH-Dx	TPH-Dx+SG	TPH-Gx	8021B BTEX	8260C Oxygenates	8260C EDC		8260C BETX	200.8 Pb, Total	200.8 Pb, Diss FF			
1 MW01A	01 A D	03/23/15	1256	W	4													
2 MW02	02	03/20/15	1344	W	4													
3 MW03	03	03/23/15	1450	W	4													
4 MW04	04 A-C	03/19/15	1435	W	3													
5 MW05A	05 A-D	03/20/15	1203	W	4													
6 MW06	06 A-C	03/19/15	1358	W	3													
7 MW07	07	03/19/15	1312	W	3													
8 MW08	08	03/19/15	1237	W	3													
9 MW09	09	03/19/15	1101	W	3													
10 MW10	10	03/19/15	1137	W	3													

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282

Relinquished by: [Signature]
 Received by: Larry Namba
 Relinquished by: [Signature]
 Received by: Michael Eckel
 Time: 1708 Date: 23 March 2015

ME 03/23/15
 Page # 1 of 2

v4

520 342 9



Hydrocon Environmental, LLC
 Report to: Craig Hultgren
 cc: Allison Greiner
 510 Allen Street
 Kelso, Washington 98626
 (360) 703-6079
 CraigH@hydroconic.net
 allisongreiner@eurkaprojectsolutions.net

Samplers Name: Larry Namba
 Project Name: TOC Holdings Company
 Facility Number: 01-443
 Facility Address: Seattle, WA
 PO Number:
 EDD Requested: EIM

Requested Turn Around Time
 Standard 10 business days
 Rush
 Rush Charges Authorized by:
 Sample Disposal: 30 days Return Will Call

Additional Comments:
 BTEX+ODEQ.VOC-RBCA
 Oxygenates: Naphthalene, EDC, 1,3,5-Trimethylbenzene

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of Containers	ANALYSES REQUESTED						Notes					
						TPH-Dx	TPH-Dx+SG	TPH-Gx	8021B BTEX	8260C Oxygenates	8260C EDC		8260C BETX	200.8 Pb, Total	200.8 Pb, Diss FF		
1 MW11A	11 A-C	03/18/15	1504	W	3												
2 MW12	12 A-C	03/18/15	1355	W	3			X									
3 MW13	13 A-D	03/20/15	1244	W	4			X									
4 MW14	14 A-D	03/23/15	1340	W	4			X									
5 MW15A	15 A-C	03/18/15	1428	W	3			X									
6 MW16	16 A-D	03/23/15	1212	W	4			X									
7 MW99	17 AD	03/23/15	1505	W	4			X									
8																	
9																	
10																	

ME 03/23/15

W4

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Relinquished by:
 Received by:
 Relinquished by:
 Received by:

Signature	Print Name	Time	Date
	Larry Namba	1708	23 March 2015
	Michael Edell		

Samples received at 4 °C