



May 9, 2014

14-806

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

Subject: Groundwater Monitoring Report
First Quarter, 2014
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 2014 groundwater sampling event conducted at the TOC Holdings Co. Facility No. 01-443 property 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, the field activities, and the results of the quarterly monitoring event.

Site Background

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. TOC Holdings Co. (formerly Time Oil 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 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; oil-range petroleum hydrocarbons; benzene, toluene, ethylbenzene, and total xylenes (BTEX); and naphthalene exceeded their respective Washington State Model Toxics Control Act (MTCA) Method A cleanup levels (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.

The Property includes petroleum-contaminated soil and groundwater that have been encountered beneath the southern portion of the Property, extending a short distance beyond the eastern and southwestern boundaries of the Property. Although petroleum-contaminated soil 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-Property locations and are, therefore, not included within the boundaries of the Site.

As remediation and monitoring for the site have progressed, several wells have been removed from the monitoring program. In 2008 Ecology determined that wells MW02 through MW04 and MW06 through MW10 did not need to be sampled to get a property specific NFA. This is because ethylene dichloride (EDC) was detected in groundwater along the western property boundary in well MW03 and a later boring P06. EDC was not in use as an additive in gasoline during the time period the TOC station was in operation. Ecology also determined that impacted groundwater in MW09 and MW10, located south of the property was attributable to a release from a gasoline station that formally operated on the property located east of the Property and that no additional monitoring or investigation was required in this area (Sound Environmental Strategies, 2008¹).

Site features and monitoring wells are shown on Figure 2.

Scope of Work

The monitoring event was performed on February 27 through 28, 2014 to evaluate the environmental quality of groundwater beneath the Site and to eventually demonstrate compliance with MTCA cleanup regulations. The monitoring event included the following activities:

- Measuring depth to groundwater in monitoring wells MW01A, MW02, MW04, MW05A, MW11A, MW12 through MW14, MW15A, and MW16 (Table 1, Figure 3).

¹ Sound Environmental Strategies, November 10, 2008. Meeting Summary Ecology Site ID 85572141. Letter to Mark Kuntz, Washington State Department of Ecology.

- Groundwater samples were collected from wells MW01A, MW05A, MW11A, MW12 through MW14, MW15A, and MW16 (Table 1, Figure 4). Groundwater sampling is not being conducted in monitoring wells MW02 through MW04 or MW06 through MW10 as noted in the previous section. 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.
- Collecting a field duplicate sample from monitoring well MW11A for quality assurance/quality control (QA/QC) purposes.

This report presents field activities performed during the monitoring event, laboratory analytical results, and a description of upcoming work. Current and historical groundwater elevations and sample analytical results are presented in Table 1.

Groundwater Sampling Procedures

Depth to water was measured in the wells on February 27, 2014. The water levels were collected after sample collection due to an equipment malfunction. The well cap on each well was removed and the water level was allowed to equilibrate prior to measuring the depth to water. 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 end of the top of the PVC casing) at each well.

Groundwater samples were collected on February 27 and 28, 2014. Field duplicates were collected from MW11A for quality assurance/quality control (QA/QC) purposes.

Prior to groundwater sampling, monitoring wells were purged and sampled in accordance with U.S. Environmental Agency (EPA) guidance for low-flow sampling². 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 YSI or Quanta multi-parameter water quality meter equipped with a flow-through cell. The water quality parameters that were 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.

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 to Friedman & Bruya, Inc. of Seattle, Washington, under standard chain-of-custody protocols for laboratory analysis.

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

Laboratory Analysis

The analytical protocol followed at the site includes the required testing for petroleum releases for gasoline (Table 830-1 in the MTCA Cleanup Regulations Chapter 173-340 WAC). The analytical methods used include:

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

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 and proper disposal.

Groundwater Conditions

Groundwater levels measured on February 27, 2014, ranged from 7.17 feet (monitoring well MW16) to 16.92 feet (monitoring well MW04) below the top of the monitoring well casings (Table 1). Groundwater elevations ranged from 81.30 feet above mean sea level (amsl) in MW04 to 88.98 feet (amsl) in MW14. The groundwater elevation contours indicate a predominant groundwater flow direction toward the north, northwest with a gradient of 0.056 feet per foot between monitoring wells MW03 and MW16. Groundwater elevation contours are shown on Figure 3.

Groundwater Sampling Results

Laboratory analytical results from the monitoring event were compared to applicable MTCA Method A or B cleanup levels for groundwater (cleanup levels). There were no detections of GRPH or BETX in the wells sampled (Figure 4, Table 1).

Data Quality Review

AEC performed QA/QC review of the analytical results, which included a review of accuracy and precision of the data supplied by the laboratory. The relative percent difference (RPD) for the field duplicate MW99, which was collected by AEC from MW11A, could not be calculated due to analytes below the laboratory reporting limit. All other quality control criteria are acceptable, no action is required, and analytical results are considered usable to meet the project objectives. A copy of the laboratory report is provided in Attachment A.

Remediation System Performance

There are no remedial systems operating at the site.

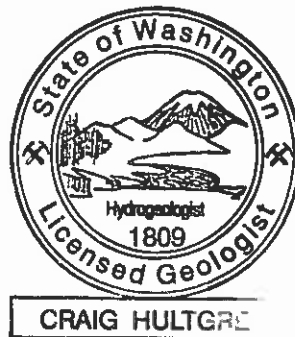
Work Planned

AEC will perform a monitoring event at the Property in Second Quarter 2014, the results of which will be included in a groundwater monitoring report. O&M activities will be conducted monthly.

Sincerely,



Craig Hultgren, LHG
Senior Geologist/Project Manager



Figures

Figure 1 - Site Location Map

Figure 2 - Site Features

Figure 3 - Groundwater Elevation Contours

Figure 4 - Groundwater Analytical Results

Table

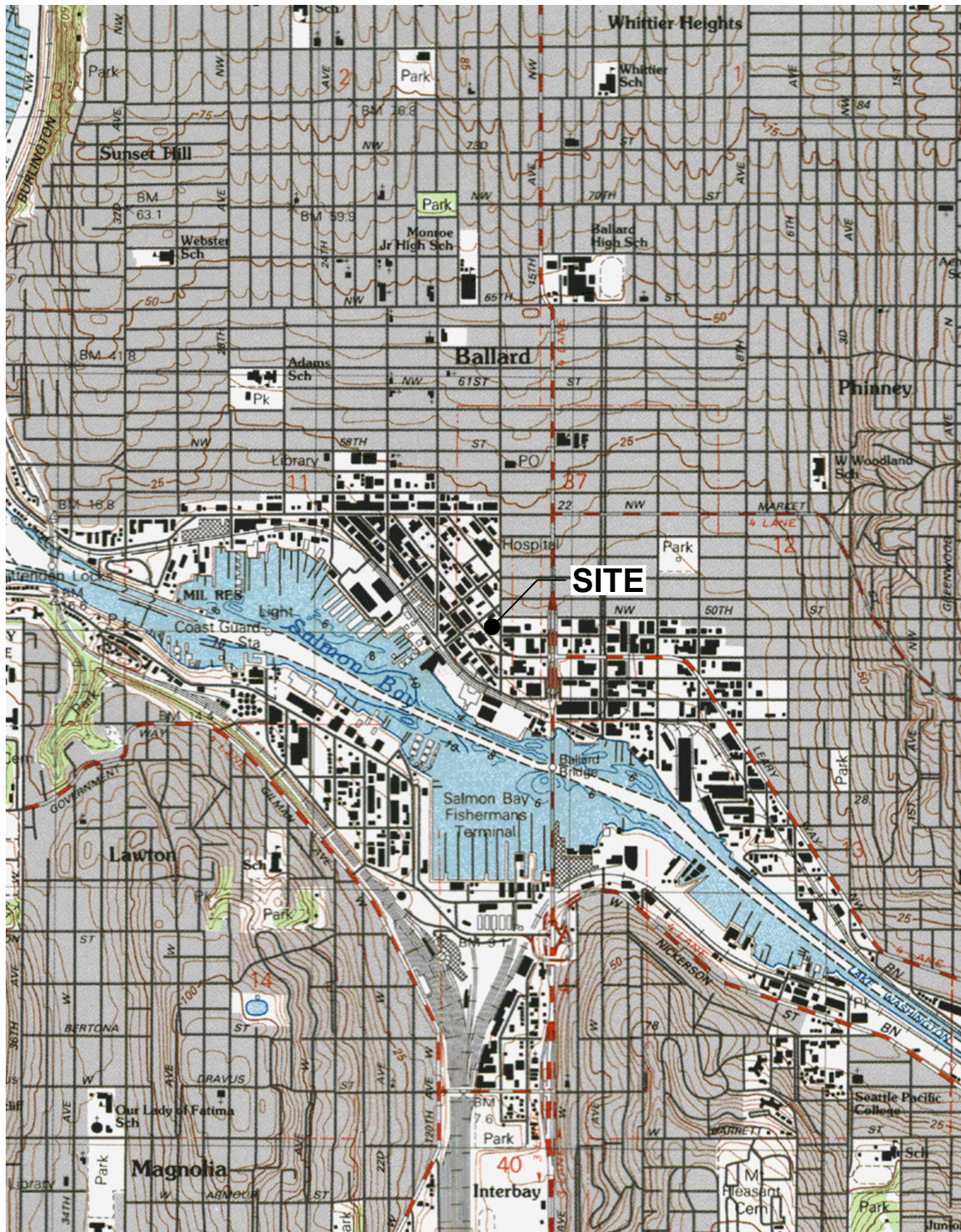
Table 1 - Summary of Groundwater Data

Attachments

Attachment A - Groundwater Sample Collection Forms

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

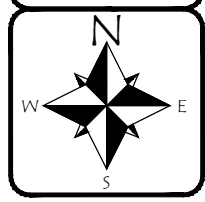
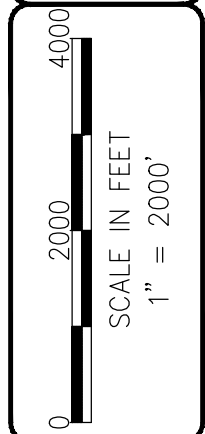
cc: Eugene Freeman, Washington State Department of Ecology, Northwest Region



















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

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

DATE: 4-28-14
 DWN: JUT
 CHK:
 APPROVED:
 PRJ. MGR: CH
 PROJECT NO:
 14-806



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
-  2004 EXCAVATION AREA
-  2012 EXCAVATION AREA
-  UST UNDERGROUND STORAGE TANK
-  GEI GEOENGINEERS

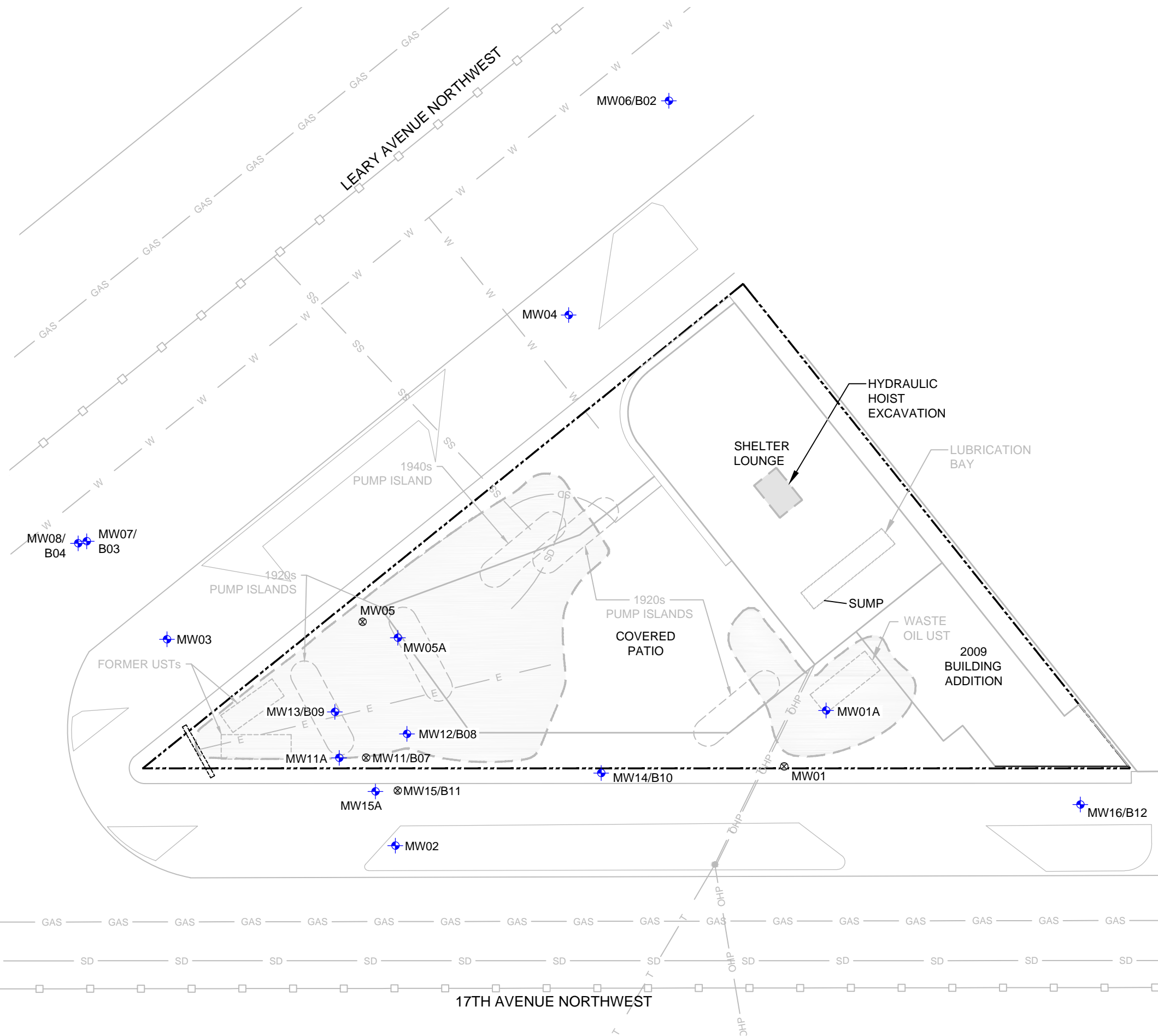
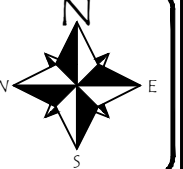
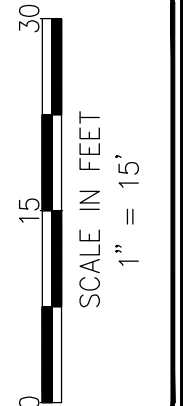








FIGURE 2
 SITE FEATURES
 TOC HOLDINGS CO. FACILITY NO. 01-443
 4910 LEARY AVE. NW
 SEATTLE, WA.

DATE: 4-28-14
 DWN: JJT
 CHK: APPROVED:
 PRJ. MGR: CH
 PROJECT NO:
 14-806



LEGEND

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

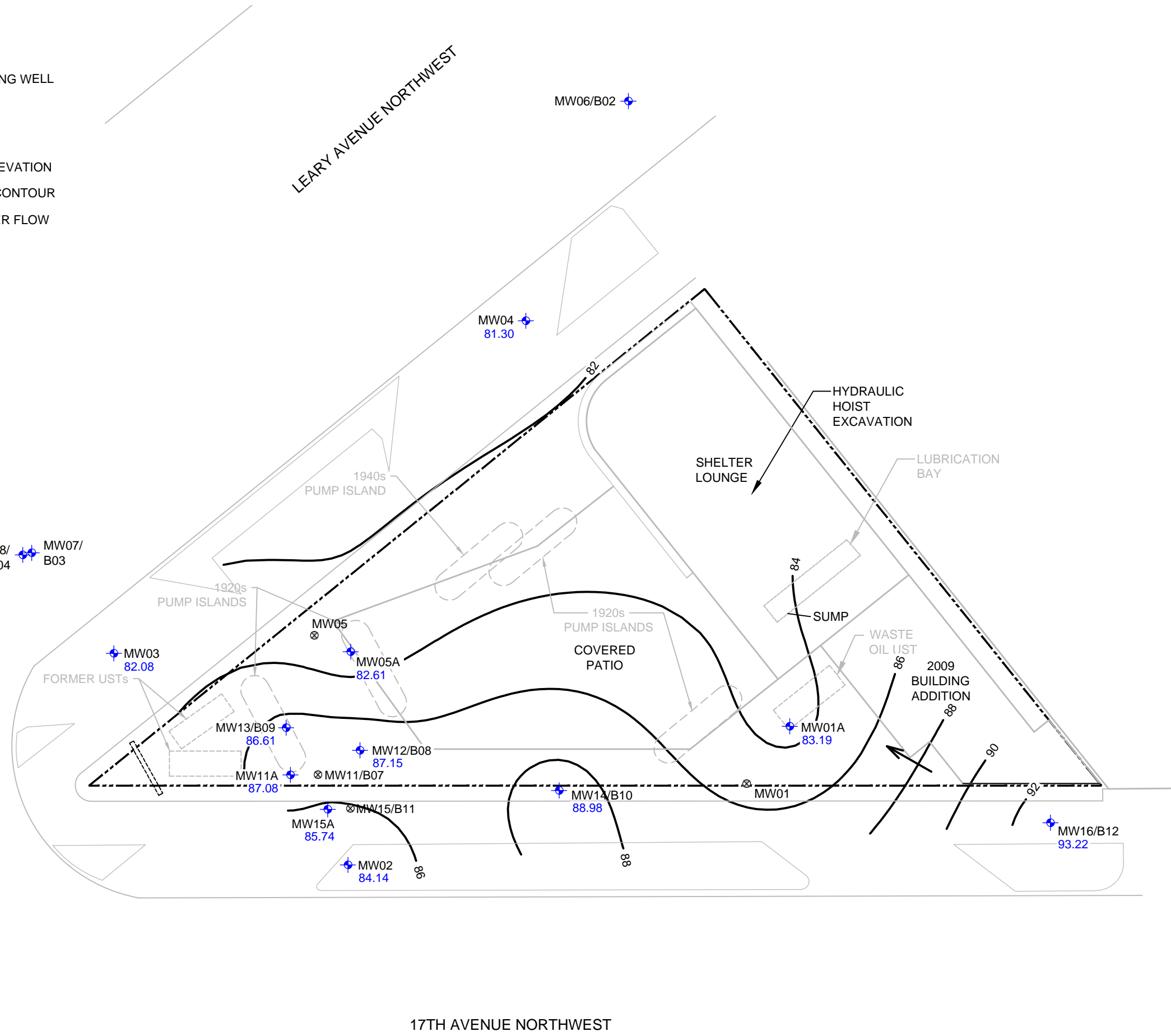
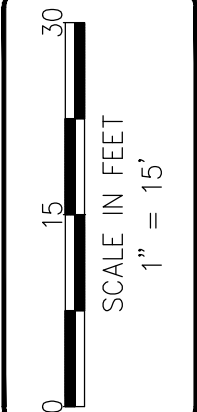


FIGURE 3
 GROUNDWATER ELEVATION CONTOURS
 FOR FEBRUARY, 2014
 TOC HOLDINGS CO. FACILITY NO. 01-443
 4910 LEARY AVE. NW
 SEATTLE, WA.





DATE: 4-28-14
 DWN: JJT
 CHK: APPROVED:
 PRJ. MGR: CH
 PROJECT NO:
 14-806



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	GRPH	Benzene	Toluene	Ethylbenzene	Total Xylenes
MTCA A	800/1,000	5	1,000	700	1,000
MW01A	<100	<0.35	<1	<1	<3
MW05A	<100	<0.35	<1	<1	<3
MW11A	<100	<0.35	<1	<1	<3
MW12	<100	<0.35	<1	<1	<3
MW13	<100	<0.35	<1	<1	<3
MW14	<100	<0.35	<1	<1	<3
MW15A	<100	<0.35	<1	<1	<3
MW16	<100	<0.35	<1	<1	<3

LEGEND

-  MW10/B06 MONITORING WELL
-  MW05 DECOMMISSIONED MONITORING WELL
-  PROPERTY BOUNDARY
-  FORMER SITE FEATURE

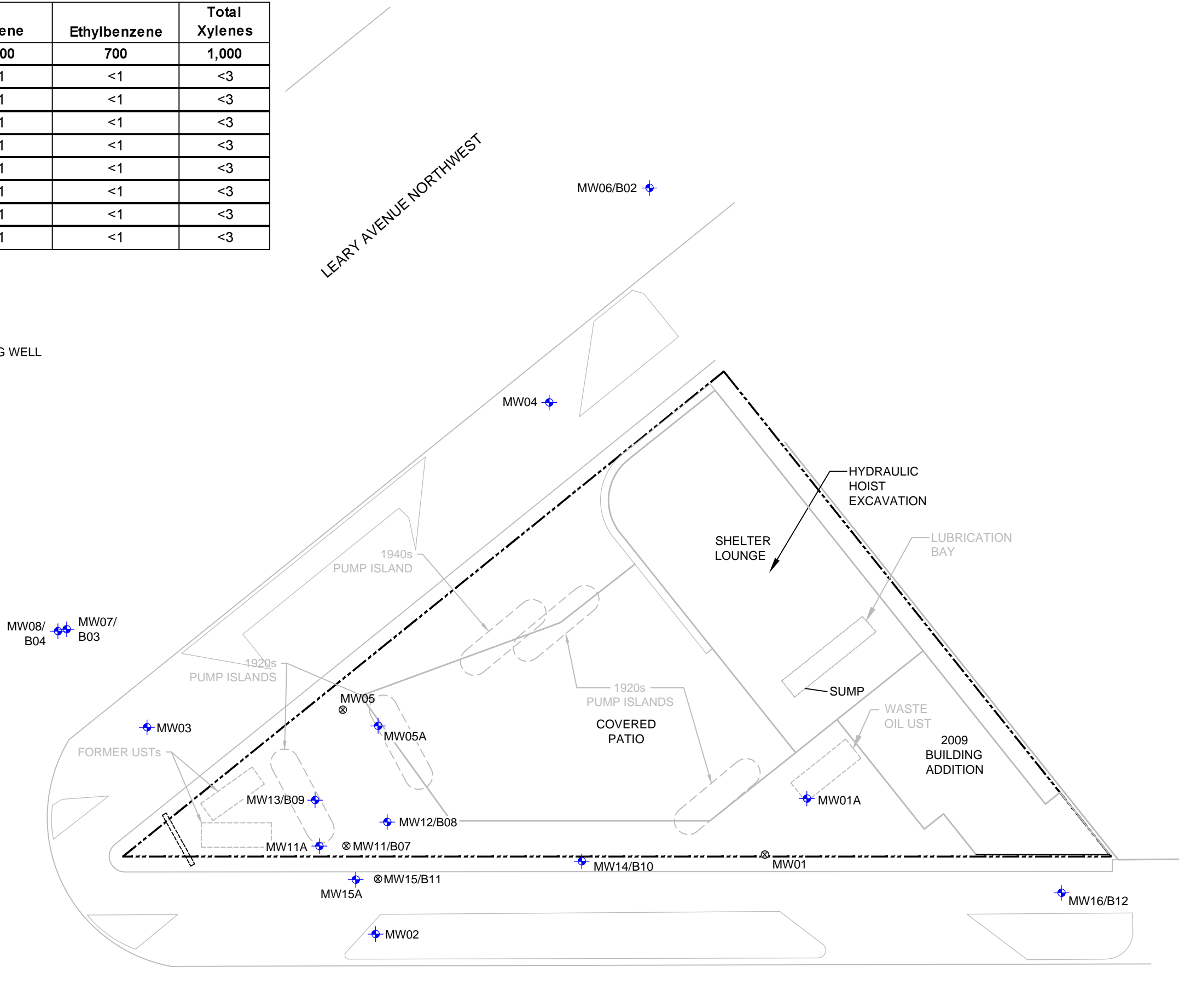


FIGURE 4
 GROUNDWATER ANALYTICAL RESULTS
 FOR FEBRUARY, 2014
 TOC HOLDINGS CO. FACILITY NO. 01-443
 4910 LEARY AVE. NW
 SEATTLE, WA.

DATE: 4-28-14
 DWN: JJT
 CHK: APPROVED:
 PRJ. MGR: CH
 PROJECT NO:
 14-806

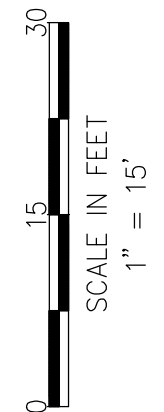




Table 1
 Summary of Groundwater Data
 TOC Holdings Co. Facility No. 01-443
 4910 Leary Avenue Northwest, Seattle, Washington

Well ID	TOC (feet)	Date	Depth to Groundwater ⁽¹⁾ (feet)	SPH Thickness ⁽²⁾	Groundwater Elevation ⁽³⁾ (feet)	Analytical Results (µg/L)								
						GRPH ⁽⁴⁾	Benzene ⁽⁶⁾	Toluene ⁽⁶⁾	Ethylbenzene ⁽⁶⁾	Total Xylenes ⁽⁶⁾	EDC ⁽⁶⁾	Naphthalene ⁽⁶⁾	DRPH ⁽⁵⁾	ORPH ⁽⁵⁾
MTCA Method A Cleanup Level for Groundwater⁽⁷⁾						800/1,000⁽⁸⁾	5	1,000	700	1,000	5	160	500	500
MW01	TOC: 99.87 feet	12/11/01	10.39	--	89.48	--	--	--	--	--	--	--	--	--
		01/08/02	9.86	--	90.01	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	--
		05/29/02	10.75	--	89.12	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	--
		09/10/02	11.50	--	88.37	<50.0	<1.00	<1.00	<1.00	<2.00	<1.00	--	--	--
		12/06/02	16.63	--	83.24	<50.0	<0.200	<0.200	<0.200	<0.500	<0.200	--	--	--
		03/26/03	10.90	--	88.97	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		06/20/03	11.18	--	88.69	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		09/16/03	12.13	--	87.74	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		12/22/03	11.11	--	88.76	<50.0	1.65	<0.500	<0.500	<1.00	<0.200	--	--	--
		03/19/04	10.58	--	89.29	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
06/28/04	10.88	--	88.99	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--		
Monitoring Well Decommissioned in 2004														
MW01A	TOC: 99.64 feet	12/27/04	10.06	--	89.58	<50	<1	<1	<1	<3	<0.01	--	--	--
		03/22/05	10.41	--	89.23	<50.0	<1	<1	<1	<3	<0.02	--	--	--
		06/29/05	11.04	--	88.60	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		03/15/07	11.03	--	88.61	<100	<1	<1	<1	<3	<1	--	<50	<250
		09/21/07	12.61	--	87.03	<100	<1	<1	<1	<3	<1	--	<51	<260
		01/15/08	11.91	--	87.73	<100	<1	<1	<1	<3	<1	--	<50	<250
		09/23/08	11.92	--	87.72	<100	<1	<1	<1	<3	<1	--	<50	<250
		02/09/09	11.21	--	88.43	<100	<1	<1	<1	<3	<1	<1	<50	<250
		05/21/09	10.37	--	89.27	<100	<1	<1	<1	<3	<1	<1	--	--
		09/17/09	12.30	--	87.34	<100	<1	<1	<1	<3	<1	<1	<50	<250
		12/23/09	10.35	--	89.29	<100	<1	<1	<1	<3	<1	<1	<50	<250
		03/18/10	10.62	--	89.02	<100	<1	<1	<1	<3	<1	--	63 ^x	<250
		06/29/10	10.84	--	88.80	<100	<1	<1	<1	<3	--	--	--	--
		10/14/10	11.21	--	88.43	<100	<1	<1	<1	<3	--	--	--	--
		12/10/10	10.63	--	89.01	<100	<1	<1	<1	<3	--	--	--	--
		03/03/11	10.58	--	89.06	<100	<1	<1	<1	<3	--	--	--	--
		05/31/11	10.55	--	89.09	<100	<1	<1	<1	<3	--	--	--	--
		08/29/11	11.73	--	87.91	<100	<1	<1	<1	<3	--	--	--	--
		12/21/11	14.57	--	85.07	<100	<1	<1	<1	<3	--	--	--	--
		03/22/12	15.35	--	84.29	<100	<1	<1	<1	<3	--	--	--	--
06/13/12	15.71	--	83.93	<100	<1	<1	<1	<3	--	--	--	--		
09/06/12	16.71	--	82.93	<100	<1	<1	<1	<3	--	--	--	--		
12/03/12	16.12	--	83.52	<100	<1	<1	<1	<3	--	--	--	--		
02/12/13	15.28	--	84.36	<100	<1	<1	<1	<3	--	--	--	--		
05/21/13	15.64	--	84.00	<100	<1	<1	<1	<3	--	--	--	--		
08/14/13	16.53	--	83.11	<100	<1	<1	<1	<3	--	--	--	--		
12/17/13	17.11	--	82.53	<100	<1	<1	<1	<3	--	--	--	--		
02/28/14	16.45	--	83.19	<100	<0.35	<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 ⁽⁶⁾	Toluene ⁽⁶⁾	Ethylbenzene ⁽⁶⁾	Total Xylenes ⁽⁶⁾	EDC ⁽⁶⁾	Naphthalene ⁽⁶⁾	DRPH ⁽⁵⁾	ORPH ⁽⁵⁾
MTCA Method A Cleanup Level for Groundwater ⁽⁷⁾						800/1,000 ⁽⁸⁾	5	1,000	700	1,000	5	160	500	500
MW02	TOC: 98.95 feet	01/08/02	9.83	--	89.12	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	--
		05/29/02	9.50	--	89.45	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	--
		09/10/02	10.30	--	88.65	<50.0	<1.00	<1.00	<1.00	<2.00	<1.00	--	--	--
		12/06/02	11.25	--	87.70	<50.0	<0.200	<0.200	<0.200	<0.500	<0.200	--	--	--
		03/26/03	9.92	--	89.03	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		06/20/03	10.80	--	88.15	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		09/16/03	11.70	--	87.25	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		12/22/03	10.69	--	88.26	<50.0	0.628	<0.500	<0.500	<1.00	<0.200	--	--	--
		03/19/04	10.30	--	88.65	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		06/28/04	10.78	--	88.17	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		11/08/04	10.37	--	88.58	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		12/27/04	9.97	--	88.98	<50.0	<1	<1	<1	<3	<0.01	--	--	--
		03/22/05	10.38	--	88.57	<50.0	<1	<1	<1	<3	<0.02	--	--	--
		06/29/05	10.21	--	88.74	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		03/15/07	11.76	--	87.19	<100	<1	<1	<1	<3	<1	--	<50	<250
		09/21/07	11.73	--	87.22	<100	<1	<1	<1	<3	<1	--	<52	<260
		01/15/08	10.64	--	88.31	<100	<1	<1	<1	<3	<1	--	<50	<250
		09/23/08	11.62	--	87.33	<100	<1	<1	<1	<3	<1	--	<50	<250
02/09/09	10.98	--	87.97	--	--	--	--	--	--	--	--	--		
05/21/09	10.16	--	88.79	--	--	--	--	--	--	--	--	--		
09/17/09	12.04	--	86.91	--	--	--	--	--	--	--	--	--		
12/23/09	10.55	--	88.40	--	--	--	--	--	--	--	--	--		
MW02 (continued)	TOC: 98.95 feet	03/18/10	10.40	--	88.55	--	--	--	--	--	--	--	--	
		06/29/10	10.56	--	88.39	--	--	--	--	--	--	--	--	
		10/14/10	10.90	--	88.05	--	--	--	--	--	--	--	--	
		12/10/10	10.30	--	88.65	--	--	--	--	--	--	--	--	
		03/03/11	10.36	--	88.59	--	--	--	--	--	--	--	--	
		05/31/11	Inaccessible	--	--	--	--	--	--	--	--	--	--	
		08/29/11	11.56	--	87.39	--	--	--	--	--	--	--	--	
		12/21/11	13.73	--	85.22	--	--	--	--	--	--	--	--	
		03/22/12	14.28	--	84.67	--	--	--	--	--	--	--	--	
		06/13/12	14.83	--	84.12	--	--	--	--	--	--	--	--	
		09/06/12	16.01	--	82.94	--	--	--	--	--	--	--	--	
		12/03/12	13.84	--	85.11	--	--	--	--	--	--	--	--	
		02/12/13	14.12	--	84.83	--	--	--	--	--	--	--	--	
		05/20/13	14.58	--	84.37	--	--	--	--	--	--	--	--	
08/13/13	15.64	--	83.31	--	--	--	--	--	--	--	--			
12/17/13	16.14	--	82.81	--	--	--	--	--	--	--	--			
02/28/14	14.81	--	84.14	--	--	--	--	--	--	--	--			



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 ⁽⁶⁾	Toluene ⁽⁶⁾	Ethylbenzene ⁽⁶⁾	Total Xylenes ⁽⁶⁾	EDC ⁽⁶⁾	Naphthalene ⁽⁶⁾	DRPH ⁽⁵⁾	ORPH ⁽⁵⁾
MTCA Method A Cleanup Level for Groundwater ⁽⁷⁾						800/1,000 ⁽⁸⁾	5	1,000	700	1,000	5	160	500	500
MW03	TOC: 98.43 feet	12/11/01	9.49	--	88.94	--	--	--	--	--	--	--	--	--
		01/08/02	9.33	--	89.10	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	--
		05/29/02	10.07	--	88.36	<50.0	<0.500	<0.500	<0.500	<1.00	46.4	--	--	--
		09/10/02	11.08	--	87.35	<50.0	<2.00	<2.00	<2.00	<4.00	50.6	--	--	--
		12/06/02	12.16	--	86.27	<50.0	<1.00	<1.00	<1.00	<2.00	36.5	--	--	--
		03/26/03	9.58	--	88.85	<50.0	<0.500	<0.500	<0.500	<1.00	44.8	--	--	--
		06/20/03	10.83	--	87.60	<50.0	<0.500	<0.500	<0.500	<1.00	41.4	--	--	--
		09/16/03	11.83	--	86.60	<50.0	<0.500	<0.500	<0.500	<1.00	39.8	--	--	--
		12/22/03	10.29	--	88.14	<50.0	<0.500	<0.500	<0.500	<1.00	32.2	--	--	--
		03/19/04	10.57	--	87.86	<50.0	<0.500	<0.500	<0.500	<1.00	45.8	--	--	--
		06/28/04	10.69	--	87.74	<50.0	<0.500	<0.500	<0.500	<1.00	37.8	--	--	--
		11/08/04	10.83	--	87.60	<50.0	<0.500	<0.500	<0.500	<1.00	41.8	--	--	--
		12/27/04	9.92	--	88.51	<50.0	<1	<1	<1	<3	41	--	--	--
		03/22/05	10.35	--	88.08	<50.0	<1	<1	<1	<3	44	--	--	--
		06/29/05	10.34	--	88.09	<50.0	0.889	<0.500	<0.500	<1.00	33.9	--	--	--
		03/15/07	11.09	--	87.34	190	1.5	<1	<1	<3	30	--	210	<250
		09/21/07	11.66	--	86.77	110	<1	<1	<1	<3	33	--	180	<260
		01/15/08	10.71	--	87.72	<100	<1	<1	<1	<3	23	--	120	<250
		09/23/08	12.25	--	86.18	<100	<1	<1	<1	<3	24	--	180	<250
		02/09/09	10.92	--	87.51	--	--	--	--	--	--	--	--	--
		05/21/09	10.15	--	88.28	--	--	--	--	--	--	--	--	--
		09/17/09	12.07	--	86.36	--	--	--	--	--	--	--	--	--
		12/23/09	10.58	--	87.85	--	--	--	--	--	--	--	--	--
		03/18/10	10.40	--	88.03	--	--	--	--	--	--	--	--	--
		06/29/10	10.55	--	87.88	--	--	--	--	--	--	--	--	--
		10/14/10	10.99	--	87.44	--	--	--	--	--	--	--	--	--
		12/10/10	10.40	--	88.03	--	--	--	--	--	--	--	--	--
		03/03/11	10.37	--	88.06	--	--	--	--	--	--	--	--	--
		05/31/11	10.37	--	88.06	--	--	--	--	--	--	--	--	--
		08/29/11	11.66	--	86.77	--	--	--	--	--	--	--	--	--
12/21/11	14.62	--	83.81	--	--	--	--	--	--	--	--	--		
03/23/12	15.52	--	82.91	--	--	--	--	--	--	--	--	--		
06/13/12	15.95	--	82.48	--	--	--	--	--	--	--	--	--		
09/07/12	17.14	--	81.29	--	3,700	140	4.6	80	64	--	--	--		
12/03/12	15.60	--	82.83	--	--	--	--	--	--	--	--	--		
02/12/13	15.50	0.02	82.95	SPH	--	--	--	--	--	--	--	--		
05/20/13	15.94	--	82.49	--	--	--	--	--	--	--	--	--		
08/13/13	16.75	--	81.68	--	--	--	--	--	--	--	--	--		
12/17/13	NM	--	--	--	--	--	--	--	--	--	--	--		
02/28/14	16.35	--	82.08	--	--	--	--	--	--	--	--	--		



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 ⁽⁶⁾	Toluene ⁽⁶⁾	Ethylbenzene ⁽⁶⁾	Total Xylenes ⁽⁶⁾	EDC ⁽⁶⁾	Naphthalene ⁽⁶⁾	DRPH ⁽⁵⁾	ORPH ⁽⁵⁾
MTCA Method A Cleanup Level for Groundwater ⁽⁷⁾						800/1,000 ⁽⁸⁾	5	1,000	700	1,000	5	160	500	500
MW04	TOC: 98.22 feet	12/11/01	9.20	--	89.02	--	--	--	--	--	--	--	--	--
		01/08/02	8.75	--	89.47	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	--
		05/29/02	9.57	--	88.65	<50.0	<0.500	<0.500	<0.500	<1.00	--	--	--	--
		09/10/02	10.60	--	87.62	<50.0	<1.00	<1.00	<1.00	<2.00	3.19	--	--	--
		12/06/02	10.90	--	87.32	<50.0	<0.200	<0.200	<0.200	<0.500	4.42	--	--	--
		03/26/03	8.91	--	89.31	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		06/20/03	9.95	--	88.27	<50.0	<0.500	<0.500	<0.500	<1.00	3.73	--	--	--
		09/16/03	10.90	--	87.32	<50.0	<0.500	<0.500	<0.500	<1.00	3.78	--	--	--
		12/22/03	9.30	--	88.92	<50.0	<0.500	<0.500	<0.500	<1.00	<0.200	--	--	--
		03/19/04	9.58	--	88.64	<50.0	<0.500	<0.500	<0.500	<1.00	3.01	--	--	--
		06/28/04	9.90	--	88.32	<50.0	<0.500	<0.500	<0.500	<1.00	3.06	--	--	--
		11/08/04	9.85	--	88.37	<50.0	<0.500	<0.500	<0.500	<1.00	3.46	--	--	--
		12/27/04	9.43	--	88.79	<50.0	<1	<1	<1	<3	4	--	--	--
		03/22/05	10.34	--	87.88	<50.0	<1	<1	<1	<3	3.5	--	--	--
		06/29/05	9.64	--	88.58	<50.0	<0.500	<0.500	<0.500	<1.00	2.65	--	--	--
		03/15/07	9.95	--	88.27	<100	<1	<1	<1	<3	4.8	--	130	<250
		09/21/07	11.43	--	86.79	<100	<1	<1	<1	<3	11	--	82	<260
		01/15/08	10.71	--	87.51	<100	<1	<1	<1	<3	9.7	--	<50	<250
		09/23/08	11.49	--	86.73	<100	<1	<1	<1	<3	14	--	68	<250
		02/09/09	10.71	--	87.51	--	--	--	--	--	--	--	--	--
		05/21/09	9.85	--	88.37	--	--	--	--	--	--	--	--	--
		09/17/09	11.85	--	86.37	--	--	--	--	--	--	--	--	--
		12/23/09	10.34	--	87.88	--	--	--	--	--	--	--	--	--
		03/18/10	10.04	--	88.18	--	--	--	--	--	--	--	--	--
		06/29/10	10.27	--	87.95	--	--	--	--	--	--	--	--	--
		10/14/10	10.77	--	87.45	--	--	--	--	--	--	--	--	--
		12/10/10	10.18	--	88.04	--	--	--	--	--	--	--	--	--
		03/03/11	10.04	--	88.18	--	--	--	--	--	--	--	--	--
		05/31/11	10.02	--	88.20	--	--	--	--	--	--	--	--	--
		08/29/11	11.30	--	86.92	--	--	--	--	--	--	--	--	--
12/21/11	14.65	--	83.57	--	--	--	--	--	--	--	--	--		
03/22/12	15.69	--	82.53	--	--	--	--	--	--	--	--	--		
06/13/12	16.17	--	82.05	--	--	--	--	--	--	--	--	--		
09/06/12	17.32	--	80.90	--	--	--	--	--	--	--	--	--		
12/03/12	16.17	--	82.05	--	--	--	--	--	--	--	--	--		
02/12/13	15.81	--	82.41	--	--	--	--	--	--	--	--	--		
05/20/13	16.14	--	82.08	--	--	--	--	--	--	--	--	--		
08/13/13	16.95	--	81.27	--	--	--	--	--	--	--	--	--		
12/17/13	17.66	--	80.56	--	--	--	--	--	--	--	--	--		
02/28/14	16.92	--	81.30	--	--	--	--	--	--	--	--	--		



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 ⁽⁶⁾	Toluene ⁽⁶⁾	Ethylbenzene ⁽⁶⁾	Total Xylenes ⁽⁶⁾	EDC ⁽⁶⁾	Naphthalene ⁽⁶⁾	DRPH ⁽⁵⁾	ORPH ⁽⁵⁾
MTCA Method A Cleanup Level for Groundwater⁽⁷⁾						800/1,000⁽⁸⁾	5	1,000	700	1,000	5	160	500	500
MW05	TOC: 99.06 feet	12/11/01	--	--	--	--	--	--	--	--	--	--	--	--
		01/08/02	9.36	--	89.70	91.4	<0.500	<0.500	<0.500	<1.00	--	--	--	--
		05/29/02	10.18	--	88.88	398	3.98	0.770	7.32	2.90	--	--	--	--
		09/10/02	11.11	--	87.95	594	7.42	26.0	1.94	33.01	<1.00	--	--	--
		12/06/02	11.39	--	87.67	503	2.88	<1.00	4.60	<2.00	<1.00	--	--	--
		03/26/03	9.51	--	89.55	1,010	8.57	1.79	20.3	4.08	<1.00	--	--	--
		06/20/03	10.50	--	88.56	741	10.1	2.41	23.8	5.92	0.460	--	--	--
		09/16/03	11.35	--	87.71	1,340	13.6	3.31	48.2	8.89	<0.200	--	--	--
		12/22/03	9.79	--	89.27	2,090	23.7	7.34	66.6	21.8	<0.200	--	--	--
		03/19/04	10.04	--	89.02	1,550	15.1	4.62	33.7	12.9	0.520	--	--	--
		06/28/04	10.40	--	88.66	2,960	24.2	9.32	91.7	27.7	<0.200	--	--	--
Monitoring Well Decommissioned in 2004														
MW05A	TOC: 99.11 feet	12/27/04	10.13	--	88.98	<50.0	<1	<1	<1	<3	0.30	--	--	--
		03/22/05	11.31	--	87.80	<50.0	<1	<1	<1	<3	0.38	--	--	--
		06/29/05	10.47	--	88.64	<50.0	3.86	<0.500	<0.500	<1.00	0.51	--	--	--
		03/15/07	10.56	--	88.55	<100	<1	<1	<1	<3	<1	--	92	<250
		09/21/07	12.03	--	87.08	<100	<1	<1	<1	<3	<1	--	53	<260
		01/15/08	11.05	--	88.06	<100	<1	<1	<1	<3	<1	--	<50	<250
		09/23/08	12.06	--	87.05	<100	<1	<1	<1	<3	<1	--	58	<250
		02/09/09	11.32	--	87.79	<100	<1	<1	<1	<3	<1	<1	<50	<250
		05/11/09	10.51	--	88.60	<100	<1	<1	<1	<3	<1	<1	--	--
		09/17/09	12.43	--	86.68	<100	<1	<1	<1	<3	<1	<1	71	<250
		12/23/09	10.92	--	88.19	<100	<1	<1	<1	<3	<1	<1	<50	<250
MW05A (continued)	TOC: 99.11 feet	03/18/10	10.74	--	88.37	<100	<1	<1	<1	<3	<1	--	110 ^x	<250
		06/29/10	10.90	--	88.21	<100	<1	<1	<1	<3	--	--	--	--
		10/14/10	11.35	--	87.76	<100	<1	<1	<1	<3	--	--	--	--
		12/10/10	10.71	--	88.40	<100	<1	<1	<1	<3	--	--	--	--
		03/03/11	10.71	--	88.40	<100	<1	<1	<1	<3	--	--	--	--
		06/01/11	10.71	--	88.40	<100	<1	<1	<1	<3	--	--	--	--
		08/29/11	11.96	--	87.15	<100	<1	<1	<1	<3	--	--	--	--
		12/21/11	14.82	--	84.29	<100	<1	<1	<1	<3	--	--	--	--
		03/22/12	15.73	--	83.38	<100	<1	<1	<1	<3	--	--	--	--
		06/13/12	16.19	--	82.92	<100	<1	<1	<1	<3	--	--	--	--
		09/06/12	17.38	--	81.73	<100	<1	<1	<1	<3	--	--	--	--
		12/03/12	15.70	--	83.41	<100	<1	<1	<1	<3	--	--	--	--
		02/12/13	13.66	--	85.45	<100	<1	<1	<1	<3	--	--	--	--
		05/20/13	16.09	--	83.02	<100	<1	<1	<1	<3	--	--	--	--
08/13/13	17.01	--	82.10	<100	<1	<1	<1	<3	--	--	--	--		
12/17/13	17.54	--	81.57	<100	<1	<1	<1	<3	--	--	--	--		
02/27/14	16.5	--	82.61	<100	<0.35	<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 ⁽⁶⁾	Toluene ⁽⁶⁾	Ethylbenzene ⁽⁶⁾	Total Xylenes ⁽⁶⁾	EDC ⁽⁶⁾	Naphthalene ⁽⁶⁾	DRPH ⁽⁵⁾	ORPH ⁽⁵⁾	
MTCA Method A Cleanup Level for Groundwater⁽⁷⁾						800/1,000⁽⁸⁾	5	1,000	700	1,000	5	160	500	500	
MW06	TOC: 98.42 feet	09/23/08	13.20	--	85.22	<100	<1	<1	<1	<3	<1	--	420	360	
		02/09/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		05/11/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		09/17/09	13.51	--	84.91	--	--	--	--	--	--	--	--	--	--
		Monitoring Well Removed From Sampling Program In December 2009													
MW07	TOC: 98.26 feet	09/23/08	12.30	--	85.96	<100	<1	<1	<1	<3	<1	--	<50	<250	
		02/09/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		05/11/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		09/17/09	12.74	--	85.52	--	--	--	--	--	--	--	--	--	--
		Monitoring Well Removed From Sampling Program In December 2009													
MW08	TOC: 98.18 feet	09/23/08	12.23	--	85.95	<100	<1	<1	<1	<3	13	--	72	<250	
		02/09/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		05/11/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		09/17/09	12.69	--	85.49	--	--	--	--	--	--	--	--	--	--
		Monitoring Well Removed From Sampling Program In December 2009													
MW09	TOC: 97.87 feet	09/23/08	11.85	--	86.02	8,700	12	96	540	381	<1	--	2,000^x	<250	
		02/09/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		05/11/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		09/17/09	12.37	--	85.50	--	--	--	--	--	--	--	--	--	--
		Monitoring Well Removed From Sampling Program In December 2009													
MW10	TOC: 97.94 feet	09/23/08	12.34	--	85.60	<100	5.7	<1	<1	<3	1.1	--	<50	<250	
		02/09/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		05/11/09	Inaccessible	--	--	--	--	--	--	--	--	--	--	--	--
		09/17/09	12.91	--	85.03	--	--	--	--	--	--	--	--	--	--
		Monitoring Well Removed From Sampling Program In December 2009													
MW11	TOC: 98.78 feet	02/09/09	10.90	--	87.88	15,000	27	90	600	1,930	<1	420	3,700^x	<250	
		05/11/09	10.37	--	88.41	14,000	13	79	740	2,350	<10	580	--	--	
		09/17/09 ^b	13.24	0.54	85.97	SPH									
		12/23/09 ^b	10.31	0.20	88.63	SPH									
		3/18/10 ^b	10.13	0.17	88.79	SPH									
		6/29/10 ^b	10.02	0.11	88.85	SPH									
		10/14/10	10.29	--	88.49	4,800	1.8	11	120	470	--	--	--	--	--
		12/10/10	9.63	--	89.15	1,600	1.8	1.1	9.9	91	--	--	--	--	--
		03/03/11	9.82	--	88.96	1,900	<1	1.8	29	79	--	--	--	--	--
		06/01/11	9.73	--	89.05	720	<0.35	1.4	39	50	--	--	18	--	--
		08/29/11	11.10	--	87.68	930	0.64	2.0	12	43	--	--	26	--	--
		12/22/11	11.09	--	87.69	8,900	<0.35	4.6	210	575	--	--	340	--	--
		03/22/12	12.46	0.09	86.39	SPH									
06/13/12	13.32	0.46	85.83	SPH											
Monitoring Well Decommissioned in 2012															



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 ⁽⁶⁾	Toluene ⁽⁶⁾	Ethylbenzene ⁽⁶⁾	Total Xylenes ⁽⁶⁾	EDC ⁽⁶⁾	Naphthalene ⁽⁶⁾	DRPH ⁽⁵⁾	ORPH ⁽⁵⁾	
MTCA Method A Cleanup Level for Groundwater ⁽⁷⁾						800/1,000 ⁽⁸⁾	5	1,000	700	1,000	5	160	500	500	
MW11A	TOC: 99.12 feet	09/07/12	16.19	--	82.93	670	<0.35	<1	<1	<1	<3	--	4.6	--	--
		12/03/12	9.57	--	89.55	<100	<0.35	<1	<1	<1	<3	--	<1	--	--
		02/13/13	10.22	--	88.90	<100	<0.35	<1	<1	<1	<3	--	<1	--	--
		05/21/13	11.43	--	87.69	<100	<0.35	<1	<1	<1	<3	--	<1	--	--
		08/14/13	13.30	--	85.82	<100	<1	<1	<1	<1	<3	--	--	--	--
		12/17/13	16.03	--	83.09	<100	<1	<1	<1	<1	<3	--	--	--	--
		02/27/14	12.04	--	87.08	<100	<0.35	<1	<1	<1	<3	--	--	--	--
MW12	TOC: 99.18 feet	06/29/10	8.57	--	90.61	<100	<1	<1	<1	<3	--	--	--	--	
		10/14/10	9.50	--	89.68	<100	<1	<1	<1	<3	--	--	--	--	
		12/10/10	8.43	--	90.75	<100	<1	<1	<1	<3	--	--	--	--	
		03/03/11	8.59	--	90.59	<100	<1	<1	<1	<3	--	--	--	--	
		06/01/11	8.48	--	90.70	<100	<1	<1	<1	<3	--	--	--	--	
		08/29/11	10.08	--	89.10	<100	<1	<1	<1	<3	--	--	--	--	
		12/22/11	10.12	--	89.06	<100	<1	<1	<1	<3	--	--	--	--	
		03/23/12	10.72	--	88.46	<100	<1	<1	<1	<3	--	--	--	--	
		06/13/12	11.70	--	87.48	<100	<1	<1	<1	<3	--	--	--	--	
		09/06/12	15.98	--	83.20	<100	<1	<1	<1	<3	--	--	--	--	
		12/03/12	9.62	--	89.56	<100	<1	<1	<1	<3	--	--	--	--	
		02/13/13	10.29	--	88.89	<100	<1	<1	<1	<3	--	--	--	--	
		05/21/13	11.44	--	87.74	<100	<1	<1	<1	<3	--	--	--	--	
		08/14/13	13.20	--	85.98	<100	<1	<1	<1	<3	--	--	--	--	
12/17/13	15.81	--	83.37	<100	<1	<1	<1	<3	--	--	--	--			
02/27/14	12.03	--	87.15	<100	<0.35	<1	<1	<1	<3	--	--	--	--		
MW13	TOC: 99.11 feet	10/14/10	9.75	--	89.36	<100	<1	<1	<1	<3	--	--	--	--	
		12/10/10	8.44	--	90.67	<100	<1	<1	<1	<3	--	--	--	--	
		03/03/11	8.75	--	90.36	<100	<1	<1	<1	<3	--	--	--	--	
		06/01/11	8.50	--	90.61	<100	<1	<1	<1	<3	--	--	--	--	
		08/29/11	10.30	--	88.81	<100	<1	<1	<1	<3	--	--	--	--	
		12/22/11	11.76	--	87.35	<100	<1	<1	<1	<3	--	--	--	--	
		03/23/12	13.06	--	86.05	<100	<1	<1	<1	<3	--	--	--	--	
		06/13/12	13.82	--	85.29	<100	<1	<1	<1	<3	--	--	--	--	
		09/06/12	16.69	--	82.42	<100	<1	<1	<1	<3	--	--	--	--	
		12/03/12	10.94	--	88.17	720	<1	<1	2.5	6.6	--	--	--	--	
		02/13/13	16.50	--	82.61	510	<1	<1	2.7	5.0	--	--	--	--	
		05/21/13	11.86	--	87.25	<100	<1	<1	<1	<3	--	--	--	--	
		08/13/13	12.73	--	86.38	<100	<1	<1	<1	<3	--	--	--	--	
		12/17/13	13.26	--	85.85	<100	<1	<1	<1	<3	--	--	--	--	
02/27/14	12.5	--	86.61	<100	<0.35	<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 ⁽⁶⁾	Toluene ⁽⁶⁾	Ethylbenzene ⁽⁶⁾	Total Xylenes ⁽⁶⁾	EDC ⁽⁶⁾	Naphthalene ⁽⁶⁾	DRPH ⁽⁵⁾	ORPH ⁽⁵⁾
MTCA Method A Cleanup Level for Groundwater ⁽⁷⁾						800/1,000 ⁽⁸⁾	5	1,000	700	1,000	5	160	500	500
MW14	TOC: 99.58 feet	06/29/10	9.64	--	89.94	<100	<1	<1	<1	<3	--	--	--	--
		10/14/10	9.64	--	89.94	<100	<1	<1	<1	<3	--	--	--	--
		12/10/10	8.85	--	90.73	<100	<1	<1	<1	<3	--	--	--	--
		03/03/11	9.29	--	90.29	<100	<1	<1	<1	<3	--	--	--	--
		06/01/11	9.20	--	90.38	<100	<1	<1	<1	<3	--	--	--	--
		08/29/11	10.68	--	88.90	<100	<1	<1	<1	<3	--	--	--	--
		12/21/11	11.63	--	87.95	<100	<1	<1	<1	<3	--	--	--	--
		03/23/12	10.02	--	89.56	<100	<1	<1	<1	<3	--	--	--	--
		06/13/12	12.24	--	87.34	<100	<1	<1	<1	<3	--	--	--	--
		09/06/12	14.53	--	85.05	<100	<1	<1	<1	<3	--	--	--	--
		12/03/12	7.21	--	92.37	<100	<1	<1	<1	<3	--	--	--	--
		02/13/13	11.03	--	88.55	<100	<1	<1	<1	<3	--	--	--	--
		05/21/13	12.26	--	87.32	<100	<1	<1	<1	<3	--	--	--	--
		08/14/13	13.75	--	85.83	<100	<1	<1	<1	<3	--	--	--	--
12/17/13	14.39	--	85.19	<100	<1	<1	<1	<3	--	--	--	--		
02/27/14	10.6	--	88.98	<100	<0.35	<1	<1	<1	<3	--	--	--	--	
MW15	TOC: 99.34 feet	06/29/10	10.56	--	88.78	740	<1	3.0	8.6	11	--	--	--	--
		10/14/10	10.85	--	88.49	260	<1	<1	2.4	<3	--	--	--	--
		12/10/10	10.27	--	89.07	<100	<1	<1	<1	<3	--	--	--	--
		03/03/11	10.48	--	88.86	<100	<1	<1	<1	<3	--	--	--	--
		06/01/11	10.36	--	88.98	<100	<1	<1	<1	<3	--	--	--	--
		08/29/11	11.73	--	87.61	340	<1	<1	3.3	<3	--	--	--	--
		12/22/11	12.69	--	86.65	180	<1	<1	<1	<3	--	--	--	--
		03/23/12	13.32	--	86.02	<100	<1	<1	<1	<3	--	--	--	--
06/13/12	14.22	--	85.12	<100	<1	<1	<1	<3	--	--	--	--		
MW15A	TOC: 99.05 feet	09/07/12	15.59	--	83.46	<100	<1	<1	<1	<3	--	--	--	--
		12/03/12	11.44	--	87.61	650	<1	<1	1.7	3.4	--	--	--	--
		02/13/13	12.14	--	86.91	220	<1	<1	<1	<3	--	--	--	--
		05/21/13	13.05	--	86.00	<100	<1	<1	<1	<3	--	--	--	--
		08/14/13	14.49	--	84.56	<100	<1	<1	<1	<3	--	--	--	--
		12/17/13	15.61	--	83.44	<100	<1	<1	<1	<3	--	--	--	--
		02/27/14	13.31	--	85.74	<100	<0.35	<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 ⁽⁶⁾	Toluene ⁽⁶⁾	Ethylbenzene ⁽⁶⁾	Total Xylenes ⁽⁶⁾	EDC ⁽⁶⁾	Naphthalene ⁽⁶⁾	DRPH ⁽⁵⁾	ORPH ⁽⁵⁾
MTCA Method A Cleanup Level for Groundwater⁽⁷⁾						800/1,000⁽⁸⁾	5	1,000	700	1,000	5	160	500	500
MW-16	TOC:100.3 9 feet	10/14/10	6.78	--	93.61	<100	<1	<1	<1	<3	--	--	--	--
		12/10/10	5.68	--	94.71	<100	<1	<1	<1	<3	--	--	--	--
		03/03/11	6.44	--	93.95	<100	<1	<1	<1	<3	--	--	--	--
		05/31/11	6.95	--	93.44	<100	<1	<1	<1	<3	--	--	--	--
		08/29/11	7.93	--	92.46	<100	<1	<1	<1	<3	--	--	--	--
		12/21/11	8.36	--	92.03	<100	<1	<1	<1	<3	--	--	--	--
		03/22/12	6.52	--	93.87	<100	<1	<1	<1	<3	--	--	--	--
		06/13/12	7.80	--	92.59	<100	<1	<1	<1	<3	--	--	--	--
		09/06/12	11.11	--	89.28	<100	<1	<1	<1	<3	--	--	--	--
		12/03/12	6.10	--	94.29	<100	<1	<1	<1	<3	--	--	--	--
		02/13/13	7.58	--	92.81	<100	<1	<1	<1	<3	--	--	--	--
		05/21/13	8.19	--	92.20	<100	<1	<1	<1	<3	--	--	--	--
		08/14/13	9.49	--	90.90	<100	<1	<1	<1	<3	--	--	--	--
12/17/13	10.65	--	89.74	<100	<1	<1	<1	<3	--	--	--	--		
02/27/14	7.17	--	93.22	<100	<100	<0.35	<1	<1	<3	--	--	--	--	

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 water measurement.

⁽⁴⁾ Analyzed by Method NWTPH-Gx.

⁽⁵⁾ Analyzed by Method NWTPH-Dx.

⁽⁶⁾ Analyzed by EPA Method 8021B, 8260B, or 8260C.

⁽⁷⁾ MTCA Method A Cleanup Levels, Table 720-1, Section 900, Chapter 173 Title 340 of the Washington Administrative Code, revised November 2007.

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

Laboratory Note:

*The pattern of peaks present is not indicative of diesel.

-- = not analyzed/not measured

< = 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

NM = not measured

NWTPH = Northwest Total Petroleum Hydrocarbon

ORPH = oil-range petroleum hydrocarbons

SPH = separate-phase hydrocarbons

TOC = top of casing elevation

ATTACHMENT A

GROUNDWATER SAMPLE COLLECTION FORMS



GROUNDWATER SAMPLE COLLECTION

Well I.D. Number: MW01AProject Name: TOC Seattle - Ballard 01-443Sample I.D. MW01A-20140228Time: 1241AEC Project #: 14-805

Field Duplicate I.D. _____

Time: _____

Date: 28 February 2014Personnel: Larry Namba

WELL INFORMATION

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

PURGING INFORMATION

Total well depth 341.70 ft Bottom: Hard Soft Not measured Screen Interval(s): _____
 Depth to product NM ft
 Depth to water 16.43 ft Intake Depth (BTOC) 19 Begin Purging Well: 1215
 Casing volume 18.27 ft (H₂O) X 0.16 gal/ft = 2.92 gal. X 3 = 8.76 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)	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)
1220	16.52		14.32	0.492	0.79	6.13	180	310
1223	16.55	0.070	14.45	0.540	0.68	6.52	173	303
1226	16.60		14.50	0.550	0.62	6.64	169	281
1229	16.64		14.56	0.537	0.56	6.73	166	258
1232	16.67		14.56	0.540	0.74	6.79	162	207
1235	16.72		14.57	0.546	0.62	6.84	159	177
1238	16.76		14.59	0.546	0.59	6.85	156	148

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

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	3	HCl	No 0.45 0.10	CE, BTEX
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER SAMPLE COLLECTION

Well I.D. Number: MW059

Project Name: TOC Seattle - Ballard 01-443
 AEC Project #: 14-805
 Date: 27 February 2014

Sample I.D. MW059-20140227 Time: 1159
 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 in Well
 Headspace reading: Not measured _____ ppm Odor _____
 Well diameter: 2-inch 4-inch 6-inch Other _____
 Comments _____

PURGING INFORMATION

Total well depth _____ ft Bottom: Hard Soft Not measured Screen Interval(s): _____
 Depth to product _____ ft
 Depth to water _____ ft Intake Depth (BTOC) _____ Begin Purging Well: _____
 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)	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)
1141	—		14.99	0.853	0.99	6.60	28	32.9
1144	—	0.984	15.31	0.842	0.69	6.83	-54	33.0
1147	—		15.37	0.855	0.59	6.88	-72	33.0
1150	—		15.75	0.844	0.77	6.92	-82	39.0
1153	—		15.78	0.851	0.60	6.96	-87	38.2
1156	—		15.98	0.852	0.48	6.99	-91	39.1

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

Purging Comments: malfunctioning water level

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40mL VOA	3	HCl	<input checked="" type="checkbox"/> No 0.45 0.10	C, BTEX
			<input type="checkbox"/> No 0.45 0.10	
			<input type="checkbox"/> No 0.45 0.10	
			<input type="checkbox"/> No 0.45 0.10	
			<input type="checkbox"/> No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER SAMPLE COLLECTION

Well I.D. Number: MW11AProject Name: TOC Seattle-Ballard 01-443Sample I.D. MW11A-20140227 Time: 1448AEC Project #: 14-805Field Duplicate I.D. MW99-20140227 Time: 1503Date: 27 February 2014Personnel: Larry Namba

WELL INFORMATION

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

PURGING INFORMATION

Total well depth _____ ft Bottom: Hard Soft Not measured Screen Interval(s): _____
 Depth to product _____ ft
 Depth to water _____ ft Intake Depth (BTOC) _____ Begin Purging Well: _____
 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)	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)
14.30	—		13.75	0.966	6.02	6.93	108	1.5
14.33	—	0.120	13.95	0.965	5.88	6.90	109	0.6
14.36	—		14.03	0.950	6.17	6.89	109	0.0
14.39	—		14.17	0.954	6.13	6.88	109	0.0
14.42	—		14.26	0.956	6.13	6.88	108	0.0
14.45	—		14.22	0.958	6.21	6.87	108	0.0

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

Purging Comments: water level meter malfunction

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	3	HCl	(No) 0.45 0.10	C, BTEX
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER SAMPLE COLLECTION

Well I.D. Number: mw12

Project Name: TOC Seattle-Ballard 01-443
 AEC Project #: 14-805
 Date: 27 February 2014

Sample I.D. mw12-20140227 Time: 1310
 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 in Well
 Headspace reading: Not measured _____ ppm Odor _____
 Well diameter: 2-inch 4-inch 6-inch Other _____
 Comments _____

PURGING INFORMATION

Total well depth _____ ft Bottom: Hard Soft Not measured Screen Interval(s): _____
 Depth to product _____ ft
 Depth to water _____ ft Intake Depth (BTOC) _____ Begin Purging Well: _____
 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)	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)
1252	—		13.80	0.410	5.60	6.68	91	19.5
1255	—	0.088	14.01	0.414	5.72	6.60	94	17.5
1258	—		14.11	0.412	5.94	6.57	97	14.0
1301	—		14.16	0.407	5.69	6.54	99	11.5
1304	—		14.19	0.405	5.74	6.52	101	9.5
1307	—		14.20	0.408	5.70	6.51	102	7.9

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity or Dissolved Oxygen are recorded within their perspective stabilization criteria. A minimum of six measurements should be recorded.
 Purging Comments: malfunctioning water level meter

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	3	HCl	<u>No</u> 0.45 0.10	G, BTEX
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER SAMPLE COLLECTION

Well I.D. Number: MW13

Project Name: JOC Seattle - Ballard 01-443
 AEC Project #: 14-805
 Date: 27 February 2014

Sample I.D. MW13-20140277 Time: 1237
 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 in Well
 Headspace reading: Not measured _____ ppm Odor _____
 Well diameter: 2-inch 4-inch 6-inch Other _____
 Comments _____

PURGING INFORMATION

Total well depth _____ ft Bottom: Hard Soft Not measured Screen Interval(s): _____
 Depth to product _____ ft
 Depth to water _____ ft Intake Depth (BTOC) _____ Begin Purging Well: _____
 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)	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)
1216	—		13.99	0.332	3.21	7.08	38	53.1
1219	—	0.112	14.25	0.324	2.90	6.67	64	46.9
1222	—		14.21	0.324	2.95	6.62	70	49.0
1225	—		14.13	0.321	3.07	6.54	79	54.0
1228	—		14.33	0.322	3.01	6.49	87	60.0
1231	—		14.56	0.323	2.85	6.44	92	60.8
1234	—		14.47	0.322	3.06	6.41	98	59.0

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

Purging Comments: Water level malfunction

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	3	HCl	<u>No</u> 0.45 0.10	<u>Cr, BTEX</u>
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER SAMPLE COLLECTION

Well I.D. Number: MW14Project Name: TOC Seattle - Ballard 017443
AEC Project #: 14-805
Date: 27 February 2014Sample I.D. MW14-20140227 Time: 1546
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 in Well
Headspace reading: Not measured _____ ppm Odor _____
Well diameter: 2-inch 4-inch 6-inch Other _____
Comments _____

PURGING INFORMATION

Total well depth _____ ft Bottom: Hard Soft Not measured Screen Interval(s): _____
Depth to product _____ ft
Depth to water _____ ft Intake Depth (BTOC) _____ Begin Purging Well: _____
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)	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)
1525	—		12.94	0.332	4.69	7.03	126	0.0
1528	—	0.080	13.10	0.329	4.71	6.72	130	0.0
1531	—		13.14	0.330	4.44	6.63	131	0.0
1534	—		13.14	0.330	4.51	6.50	132	0.0
1537	—		13.19	0.324	4.52	6.42	133	0.0
1540	—		13.20	0.322	4.53	6.38	133	0.0
1543	—		13.20	0.323	4.51	6.35	133	0.0

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

Purging Comments: Water level malfunction

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	3	HCl	<input checked="" type="checkbox"/> No 0.45 0.10	G, BTEX
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER SAMPLE COLLECTION

Well I.D. Number: MW15AProject Name: TCC Seattle - Ballard
AEC Project #: 14-805
Date: 27 February 2014Sample I.D. MW15A-20140227 Time: 1356
Field Duplicate I.D. _____ Time: _____
Personnel: Larry Nambu

WELL INFORMATION

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

PURGING INFORMATION

Total well depth _____ ft Bottom: Hard Soft Not measured Screen Interval(s): _____
Depth to product _____ ft
Depth to water _____ ft Intake Depth (BTOC) _____ Begin Purging Well: _____
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)	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)
1338	—		14.11	0.590	4.92	6.83	101	9.1
1341	—	0.102	14.45	0.584	4.86	6.74	102	8.8
1344	—		14.68	0.588	4.62	6.72	103	7.4
1347	—		14.79	0.585	4.64	6.70	103	7.2
1350	—		14.89	0.588	4.70	6.69	104	7.5
1353	—		14.93	0.589	4.68	6.69	104	7.3

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

Purging Comments: water level malfunction

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	3	HCl	<u>No</u> 0.45 0.10	G, BTEX
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____



GROUNDWATER SAMPLE COLLECTION

Well I.D. Number: MW116Project Name: Tue Seattle-Ballard 01-443Sample I.D. MW116-20140228Time: 1314AEC Project #: 14-805

Field Duplicate I.D. _____

Time: _____

Date 28 February 2014Personnel: Larry Namba

WELL INFORMATION

Monument condition: Good Needs repair Stripped ears Water in Monument
 Well cap condition: Good Replaced Needs replacement Surface Water in Well
 Headspace reading: Not measured _____ 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): _____
 Depth to product NM ft
 Depth to water 7.17 ft Intake Depth (BTOC) 10 Begin Purging Well: 1253
 Casing volume 12.29 ft (H₂O) X 0.16 gal/ft = 1.97 gal. X 3 = 5.91 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)	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)
1256	7.32		11.81	0.213	6.15	6.95	171	24.0
1259	7.37	0.100	12.01	0.216	6.36	6.68	174	17.7
1302	7.42		12.15	0.215	6.15	6.57	176	14.5
1305	7.47		12.15	0.216	6.19	6.52	175	14.0
1308	7.53		12.06	0.216	6.23	6.47	172	11.4
1311	7.58		11.97	0.217	6.21	6.44	171	10.0

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

Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	3	HCl	(No) 0.45 0.10	G ₁ BTEX
			No 0.45 0.10	
			No 0.45 0.10	
			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.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
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fbi@isomedia.com
www.friedmanandbruya.com

March 6, 2014

Craig Hultgren, Project Manager
Anderson Environmental
705 Colorado Street
Kelso, WA 98626

Dear Mr. Hultgren:

Included are the results from the testing of material submitted on February 28, 2014 from the 01-443, WORFDB8 F&BI 402423 project. There are 15 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: Allison Greiner
AEN0306R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 28, 2014 by Friedman & Bruya, Inc. from the Anderson Environmental 01-443, WORFDB8 F&BI 402423 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Anderson Environmental</u>
402423 -01	MW01A-20140228
402423 -02	MW05A-20140227
402423 -03	MW11A-20140227
402423 -04	MW12-20140227
402423 -05	MW13-20140227
402423 -06	MW14-20140227
402423 -07	MW15A-20140227
402423 -08	MW16-20140228
402423 -09	MW99-20140227

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/14
Date Received: 02/28/14
Project: 01-443, WORFDB8 F&BI 402423
Date Extracted: 02/28/14
Date Analyzed: 02/28/14

**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-20140228 402423-01	<100	85
MW05A-20140227 402423-02	<100	87
MW11A-20140227 402423-03	<100	86
MW12-20140227 402423-04	<100	87
MW13-20140227 402423-05	<100	85
MW14-20140227 402423-06	<100	87
MW15A-20140227 402423-07	<100	82
MW16-20140228 402423-08	<100	81
MW99-20140227 402423-09	<100	87
Method Blank 04-0439 MB	<100	85

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW01A-20140228	Client:	Anderson Environmental
Date Received:	02/28/14	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	402423-01
Date Analyzed:	02/28/14	Data File:	022818.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)
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-20140227	Client:	Anderson Environmental
Date Received:	02/28/14	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	402423-02
Date Analyzed:	02/28/14	Data File:	022819.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
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-20140227	Client:	Anderson Environmental
Date Received:	02/28/14	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	402423-03
Date Analyzed:	02/28/14	Data File:	022820.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)
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:	MW12-20140227	Client:	Anderson Environmental
Date Received:	02/28/14	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	402423-04
Date Analyzed:	02/28/14	Data File:	022821.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)
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:	MW13-20140227	Client:	Anderson Environmental
Date Received:	02/28/14	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	402423-05
Date Analyzed:	02/28/14	Data File:	022822.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)
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:	MW14-20140227	Client:	Anderson Environmental
Date Received:	02/28/14	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	402423-06
Date Analyzed:	02/28/14	Data File:	022823.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)
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-20140227	Client:	Anderson Environmental
Date Received:	02/28/14	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	402423-07
Date Analyzed:	02/28/14	Data File:	022824.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)
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:	MW16-20140228	Client:	Anderson Environmental
Date Received:	02/28/14	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	402423-08
Date Analyzed:	02/28/14	Data File:	022825.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)
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:	MW99-20140227	Client:	Anderson Environmental
Date Received:	02/28/14	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	402423-09
Date Analyzed:	02/28/14	Data File:	022826.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)
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:	Method Blank	Client:	Anderson Environmental
Date Received:	NA	Project:	01-443, WORFDB8 F&BI 402423
Date Extracted:	02/28/14	Lab ID:	04-0402 mb
Date Analyzed:	02/28/14	Data File:	022816.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	99	60	133

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/14

Date Received: 02/28/14

Project: 01-443, WORFDB8 F&BI 402423

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

Laboratory Code: 402407-01 (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	94	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/06/14

Date Received: 02/28/14

Project: 01-443, WORFDB8 F&BI 402423

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

Laboratory Code: 402428-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	50	<0.35	94	76-125
Toluene	ug/L (ppb)	50	<1	95	76-122
Ethylbenzene	ug/L (ppb)	50	<1	96	69-135
m,p-Xylene	ug/L (ppb)	100	<2	99	69-135
o-Xylene	ug/L (ppb)	50	<1	100	60-140

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	50	97	94	69-134	3
Toluene	ug/L (ppb)	50	99	97	72-122	2
Ethylbenzene	ug/L (ppb)	50	100	99	77-124	1
m,p-Xylene	ug/L (ppb)	100	102	100	83-125	2
o-Xylene	ug/L (ppb)	50	102	102	81-121	0

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.

A1 - More than one compound of similar molecule structure was identified with equal probability.

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 this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

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. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. 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 analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is 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 compound indicated 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 in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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.

402423

SAMPLE CHAIN OF CUSTODY ME 02-28-14 12

Send Report To Crystalline
 Company Anderson Environmental
 Address 705 Colorado Street
 City, State, ZIP Kelso, WA 98626
 Phone # 360.577.9194 Fax # 360.577.9198

SAMPLERS (signature) <u>L. Namba</u>	PROJECT NAME/NO. <u>TDC Ballant 01-443</u>	PO#
REMARKS		

Page # 1 of 1

TURNAROUND TIME
 Standard (2 Weeks)
 RUSH
 Rush charges authorized by _____

SAMPLE DISPOSAL
 Dispose after 30 days
 Return samples
 Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED					Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	BTEX VOCs by 8260	SVOCs by 8270	
MW01A-20140228	01	02/28/14	1241	Water	3	✓	✓	✓	✓		01A
MW05A-20140227	02	02/27/14	1159	Water	3	✓	✓	✓	✓		02T
MW01A-20140227	03	02/27/14	1448	Water	3	✓	✓	✓	✓		03
MW12-20140227	04	02/27/14	1310	Water	3	✓	✓	✓	✓		04
MW13-20140227	05	02/27/14	1237	Water	3	✓	✓	✓	✓		05
MW14-20140227	06	02/27/14	1546	Water	3	✓	✓	✓	✓		06
MW015A-20140227	07	02/27/14	1356	Water	3	✓	✓	✓	✓		07
MW16-20140228	08	02/28/14	1314	Water	3	✓	✓	✓	✓		08
MW09-20140227	09	02/27/14	1503	Water	3	✓	✓	✓	✓		09

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by: <u>[Signature]</u>		<u>Larry Namba</u>		<u>ACE</u>		02/28/14	
Received by: <u>[Signature]</u>		<u>DJ W</u>		<u>FCR</u>		1/1	14:00
Relinquished by:							
Received by:							

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044
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